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A WEEKLY REVIEW OF MEDICINE

EDITED BY
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WHOLE No. 1492.

Original Communications.

THE CLIMATE OF NEW MEXICO, NATURE'S SANATORIUM FOR CONSUMPTIVES.

By PAUL M. CARRINGTON, M. D.,

Fort Stanton, New Mexico,

Surgeon in the Public Health and Marine Hospital Service of the United States.

Introductory.

So much has already been written and the climatic conditions in New Mexico are already so well known to you that I feel it necessary to explain why I am addressing you on this subject.

Many inquiries are received from physicians and others concerning the climatic and other conditions in New Mexico, and the literature on the subject is so voluminous, and there being so far as I know no single publication of moderate dimensions covering all the points upon which information is asked, I thought it might not be amiss to collect and publish in a convenient and condensed form authentic and unprejudiced observations on the subject covered by this paper to meet the demands for information referred to.

New Mexico alone is treated of in this article, partly for the reason that it is the only portion of the "arid southwest" with which I am personally acquainted, and because the conditions prevailing in New Mexico are in a large measure typical of the entire region; I speak not only from a study of the official records and reports but also after a residence at Fort Stanton, in central New Mexico, of about six and one half years.

Geography.

Geographically New Mexico lies south of Colorado, east of Arizona, west of Texas and north of Texas and Mexico. It extends from the 37° of north latitude to the 32° of north latitude, with its southwestern corner going as far south as about 31.3°. The 103rd meridian west of Greenwich forms its eastern border, and the 109th its western border. New Mexico is a portion of that region known as the "arid southwest," which is composed of Colorado, western Texas, New Mexico, Arizona, and southern California; the climatic conditions prevailing in this entire section possess the same general characteristics, although in various degrees, as modified by latitude, altitude, and topography.

Topography.

Generally speaking New Mexico is mountainous with here and there elevated table lands. The mountains are portions of the Rocky Mountain range,

and extend in a general northerly and southerly direction from its most northern to its extreme southern boundary. The mountains and foot hills extend to its most eastern border on the north, and its plains and low altitudes are found in the southeastern corner, but even here the altitude exceeds 3,000 feet above sea level. The mountains of greatest altitude are found in northwest and south central New Mexico; the Truchas peaks in Santa Fé county are the highest in the Territory, rising to an altitude of 13,275, 13,140 and 13,060 feet respectively. Here and there in various portions of the Territory are to be found numerous mountain valleys varying in width from a few hundred yards to several miles, and surrounded on all sides by high mountains, and in many instances traversed by beautiful streams of cold, clear, pure water, which have their origin in the surrounding mountains. The tendency of these streams to sink into the ground upon reaching the plateaus and the scarcity of fuel in those regions where the roots of the mesquite bush are used as fuel have led to the localism, which originally applied to the staked plains of western Texas, also applies to a portion of New Mexico: "The land where one must climb for water, dig for wood and spell hickory with a J." This last clause, of course, referring to the pronunciation by the Spanish of the letter J. The mountainous and hilly character of the topography of New Mexico has a most important bearing on its climatic conditions. No portion of the Territory of New Mexico has, so far as I have been able to ascertain, an altitude of less than 3,000 feet, and the greater portion of it is more than 5,000 feet. The altitude also modifies very materially its climatic conditions, especially with regard to temperature.

Climate.

a. Climate has been defined to be the condition of a place in relation to the various phenomena, as temperature, moisture, etc., especially as they affect animal and vegetable life.

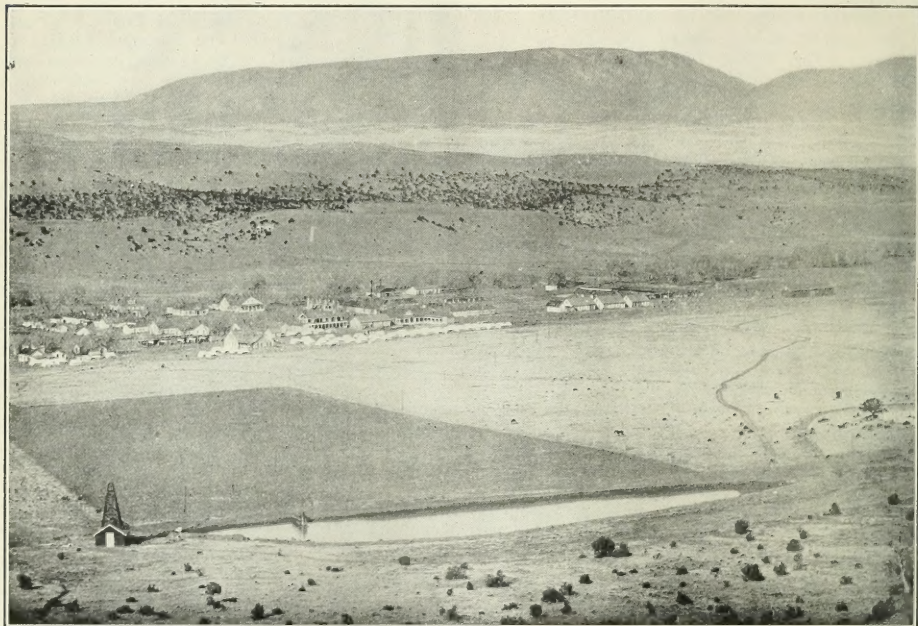
b. The sum of atmospheric conditions as recorded for a long period of time; or in other words, it is the totality of weather, while weather is the physical condition of the atmosphere at a given time or during a limited period.

"The climate of a place is ascertained by a study of its continuous weather records for a long period of years; the atmospheric pressure, the temperature, the rainfall, the snowfall, the time and frequency of frost, the extremes of heat and cold, the direction and velocity of the wind, the amount of air that flows from different points of the compass, the amount and intensity of sunshine, the humidity and transparency of the at-

mosphere, and its electrification." (Professor Willis L. Moore.)

Professor Moore also says: "Climate affects the health, happiness, and well being of people more than any other condition that goes to make up their environment. Within the broad confines of the United States there are many, but not all, shades and varieties of climate. One of the questions most frequently asked is: Where shall I find a climate possessing both dryness and equability of temperature? To this interrogatory reply must be made that the ideal climate as regards equability of temperature and absence of moisture does not exist in the United States, but that the nearest approach to it will be found in the great southwest. . . . The temperature of the southwest is not equable in the sense of having an extremely small daily range, but it possesses the quality of annual uniformity

or less extent by the topography of the particular locality under consideration, as well as by its altitude and latitude. Much more than half the yearly rain falls in July and August—usually in the afternoon—when it is most needed by growing vegetation and for cooling the atmosphere. Average temperatures for the arid southwest in general, even for the Territory of New Mexico, would be valueless, because of the wide difference between north and south New Mexico. There is a difference of more than five degrees latitude, which alone would have considerable influence on the temperature of the northern portion, as compared with the southern. Then there is the effect of altitude, as well as the topography, to be taken into consideration.



A bird's eye view of Fort Stanton, N. M.

in a greater degree than will generally be found elsewhere except on the seacoast, and there the humidity is great."

This testimony from such an eminent authority should be convincing as to the climate of the great southwest, as the conclusions of Professor Moore must, by reason of his official position, have been based upon a long period of scientific observations.

The climatic conditions prevailing in New Mexico are practically the same in general features as are to be found in the entire region included under the term "arid southwest," the difference being in degree rather than kind. In general terms, it may be said that the climate of this region is characterized by a large percentage of possible sunshine, a low degree of relative humidity with low temperatures at night, and a low percentage of soil moisture; these conditions being modified to a greater

There is usually in all this region a very considerable daily range of temperature, running as much at times as 50° or 60° F., and averaging about 30° to 40° F. The low temperatures, of course, occur at night, and, therefore, do not detract from the attractiveness of the climate as a whole even in winter, while in summer the low night temperatures make it possible to sleep in comfort, and in most localities the use of blankets at night is necessary for comfort even in summer. Even during the hottest days in summer when the thermometer frequently registers from 80° to 90° F., and in some localities even more, the heat is never oppressive on account of the low relative humidity, and sunstroke, so common in the cities of the east, is practically unknown in the arid southwest, and while a man may perspire pretty freely if actively exercising in the sun, he is quickly relieved upon seeking the



Tent village, Fort Stanton, N. M., showing toilet house on extreme left

shade where the perspiration evaporates almost instantly. On the other hand, the coldest days in winter are comfortable if the sun is shining, and it usually is. Overcoats are rarely worn on sunshiny days, and it is a common occurrence at the Fort Stanton Sanatorium to see patients during midwinter lounging or playing croquet in their shirt sleeves, with the thermometer showing a temperature of from 30° to 50° F.

That feature of the climate of New Mexico which detracts more than any other from its general excellence is the occurrence of high winds in the late winter or early spring months. These winds prevail with variable frequency during the season mentioned throughout the Territory, being more severe in the less mountainous regions. They are also referred to as "sand or dust storms." Their direction is usually from the west, southwest, or northwest, and they frequently prevail from two to three days at a time. After the wind has been blowing from twelve to twenty-four hours a greater or less quantity of fine dust becomes apparent and is extremely annoying. The amount of dust is governed not only by the topography of the locality—the wind and dust both being less severe in localities protected by high mountains than on the plateaus—but also by the amount of rain and snow fall in the preceding months. During the past four years the rain and snow fall have been above the normal, and during these years wind storms have been very rare,

with scarcely any dust at all. During the years from 1901 to 1903, inclusive, when the entire precipitation was less than ten inches at Fort Stanton, and generally low throughout the Territory, "three day" wind storms prevailed at frequent intervals throughout February, March, and April. The velocity of the wind during these storms is from thirty to fifty miles. The wind usually blows steadily, reaching its maximum intensity within a few hours, and continues with the exception of a lull about sunset for the usual full period of three days. Such storms have an undoubted effect on the nervous system of patients, most of whom become irritable and cross on the second day and almost unbearable on the third. When the storm subsides the fact is clearly recorded on the smiling and cheerful faces of every one.

The second objectionable feature of the New Mexico climate is a wind which occasionally occurs during the winter and spring months. It blows from the east or southeast, and, like the wind just described, usually lasts two or three days. After the first fifteen to twenty hours clouds appear, and if the wind continues there is usually fog, rain, or snow, according to the season. It is extremely rare that these storms continue for more than three days at a time, but in a residence of more than six years in New Mexico I have seen one period of east wind with alternating fog, rain, and snow, which prevailed for sixteen days, with two



East Street, Fort Stanton, N. M., showing tent occupied by consumptive convalescent

intervals of one day each during which the sun shone beautifully.

Beyond these two winds the climate of New Mexico is very nearly perfect; we do have, it is true, very low temperatures at times, and in some localities, as the Pecos Valley, where the north wind has a long sweep, occasional blizzards occur, but the low temperatures almost always occur at night



Spring River, two miles from origin: here fifty feet wide and many feet deep.

when every one is comfortably tucked in with plenty of blankets, and during such times the sunshiny days and dry atmosphere make life a delight.

These few objectionable features have been mentioned together with the excellencies of the climate in an effort to be perfectly fair, and avoid disappointing those who come to New Mexico expecting to find it literally a land of perpetual sunshine and balmy breezes.

To put it otherwise, while the climate is always superb we occasionally have bad weather; and no amount of description, no multitude of statistical tables, can give an adequate idea of the delightful, invigorating climate of New Mexico, which must be experienced to be fully appreciated. The warm, sunny days of winter, no less than the cool, shady days of summer, invite the invalid and the robust to the outdoor life.

I have perhaps conveyed an erroneous impression regarding the frequency of the so called three day winds; as a matter of fact, the typical storm described is rather rare; more frequently the wind ceases after blowing twelve to forty-eight hours.

Soil Moisture and Evaporation.

The effect of soil moisture upon the health of a locality is well recognized, and a low percentage always makes for salubrity of climate. A study of soil moisture undertaken by Professor Weinzirl and others at the Hadley Climatological Laboratory of the University of New Mexico at Albuquerque shows the following results:

TABLE SHOWING MOISTURE CONTENT OF SOIL.

Date	Place	Character of soil	Depth, Inches.	Moist-ure, Per ct.
December 28, 1899	River bottoms.	Sandy.	8	30.9
December 28, 1899.	Highlands	Sandy.	8	1.9
December 28, 1899	Mesa.	Clay.	8	3.9
December 19, 1901	Mesa.	Clay.	4	8.5
December 10, 1901.	Mesa.	Clay.	10	10.2
Dec. 10 to 1901.	Mesa.	Clay.	26	4.6
May 2, 1901	Mesa.	Clay.	4	5.4
May 2, 1901	Mesa.	Clay.	10	7.2
May 2, 1902	Mesa.	Clay.	26	4.8

From this table it will be seen that aside from

the sandy river bottoms where the moisture was 30.9 per cent. at a depth of eight inches, the highest percentage was 10.2, which when compared with the ordinary percentage found in arable land of from 20 to 40 per cent., shows the soil of New Mexico to be very dry indeed. Even the heavy summer rains only penetrate the ground twelve or fifteen inches at most, and this moisture is quickly returned to the atmosphere by evaporation.

The annual evaporation of water at Albuquerque—a tank two feet square by one foot deep, made of wood and lined with heavy zinc sheeting having been used—showed the evaporation to be something more than eighty inches, as against about forty inches at Boston.

These tests were also conducted at the Hadley Laboratory, the purpose being to determine in a practical way the dryness of the New Mexico climate.

Localities.

The following places have been selected as fair examples of the various portions of the Territory of New Mexico: Alamogordo, Albuquerque, Carlsbad, Deming, Fort Bayard, Fort Stanton, Las Cruces, Las Vegas, Roswell, and Santa Fé. These localities vary in altitude from 3,122 feet at Carlsbad to 7,013 at Santa Fé. Some are located in close proximity to the mountains and others on the plains. The list might be enlarged very greatly, but the number given is sufficient to illustrate fairly well the various climatic conditions to be found within the borders of New Mexico.

ALAMOGORDO.—Alamogordo, in Otero County, elevation 4,500 feet, is located on the main line of the El Paso-Rock Island Route, 86 miles north of El Paso, and only a few miles west of the foot hills of the Sacramento mountains, which rise to an elevation of about 9,000 feet. It is a town of about 4,000



An irrigating ditch near Roswell, N. M.

inhabitants, electrically lighted, and supplied with an abundance of pure water, which is piped from springs in the mountains some fourteen miles distant. This town less than ten years ago was a desert, but since the advent of the railroad, and by means of irrigation great numbers of shade and fruit trees have been grown, and it is now one of the most attractive towns in the south central portion of New Mexico. A large sanatorium is now in

course of erection just outside the town toward the mountains. One very desirable feature of this locality is the availability of any desired altitude from a little over 4,000 feet to as much as 9,000 feet within a few miles. The mountains afford protection from the severe winds, and while the summers are warm, the temperature having reached as high as 109° F. during the past five years, the winters are



Executive building, Fort Stanton, N. M., containing offices, examining rooms, nose and throat clinic, laboratory, dispensary, and x ray room.

very delightful; the lowest temperature recorded for the same period has been 8° F. above zero. The greatest number of cloudy days recorded in any one year since 1902 was 27, and the number of absolutely clear days has ranged well above 225. A temperature of 109° F. seems in figures very high, but when the absence of humidity is remembered it will be easily understood that such a temperature is by no means attended with any considerable discomfort. For the same reasons comparatively low temperatures are experienced without suffering. The minimum temperature occurs about 3 or 4 o'clock a. m., and the temperature will rise quickly twenty or thirty degrees, or even more, shortly after sunrise. The average precipitation, except during the past two years, was about eight inches, and while I have no exact data as to humidity, it is unquestionably very low.

ALBUQUERQUE.—Albuquerque, in Bernalillo County, central New Mexico, is the most considerable town in the Territory. It is situated on the mainline of the Santa Fé Railway, in the Rio Grande valley, at an altitude of 5,200 feet. The valley of the Rio Grande at Albuquerque is quite wide, and the town has, therefore, less protection from the winds than some others, although the weather bureau does not furnish accurate observations on this point. It has long enjoyed an enviable reputation as a resort favorable to consumptives, and the hotel accommodations are good. Malarial fever prevails to some extent in parts of the town lying in close proximity to the river. The population is perhaps 15,000, and there are such modern conveniences as street cars, electric lights, water works, gas, and sewers. The annual rain fall is between seven and eight inches, and the mean annual temperature is 55.7° F. Within twenty-five miles there are the mountain resorts of Whitecomb Springs,

Coyote Spring, and Devil Cañon, the last being a popular camping ground.

CARLSBAD.—Carlsbad, a growing and prosperous town in the Pecos valley, has an altitude of 3,122 feet. All this region is developing rapidly, mainly by reason of the excellent supply of artesian water, which is extensively used for irrigation. The winters are warm and pleasant, the mean minimum temperature of 43° F. occurring in December and January, while the mean annual temperature is 63° F. The mean annual precipitation is about twelve inches. The climate of Carlsbad, while excellent in winter, is rather too warm for consumptives in summer. Carlsbad is on the Pecos Valley & Northeastern Railroad, a branch of the Santa Fé system, and derives its name from springs having essentially the same mineral constituents as the celebrated German springs of that name.

DEMING.—The town of Deming in southwestern New Mexico is one of the moderately high altitude locations, is situated on a plateau some forty by fifty miles in area, west of the Rio Grande valley, and is the junction point of the Southern Pacific and Santa Fé railroads. Its altitude is 4,331 feet, and the mean temperature arrived at from a period of twelve years' observations is 70.2° F., and the annual rain fall is 8.79 inches. Deming has a very favorable winter climate for tuberculous patients, and its water supply has long been famous. The principal hotels and restaurants in El Paso, Texas, until recently, offered the use of Deming water as an attraction. Owing to the situation of Deming on a plateau with the surrounding mountains some twenty miles distant, the prevalence of winds and sand storms during the spring months is to be expected, but as a winter resort for consumptives its reputation is well deserved.

FORT STANTON.—The Reservation of Fort Stan-



Building No. 1, Fort Stanton, N. M.—quarters of the command and offices.

ton embraces nearly forty-five square miles, through the centre of which, from west to east, flows the Rio Bonito. The buildings are located on the south bank of the Bonito, almost exactly in the centre of the reservation, at an altitude of 6,231 feet. Five miles to the east are the Capitan mountains, between nine and ten thousand feet above sea level, while to the westward rise the foothills of the White mountains, culminating in White Mountain Peak.

which has an altitude of 11,976.5 feet above sea level. On the north and south the sanatorium buildings are sheltered at a distance of about one half mile by hills, which rise from three to six hundred feet above the level of the parade ground around which the buildings are clustered, so that the sanatorium proper is very much protected against high winds and sand storms. This protection by the sur-



Building No. 9, Fort Stanton, N. M., containing library, reading rooms, post office, and store.

rounding hills is very noticeable when on a windy day one rides across the hills to the neighboring towns.

The Rio Bonito furnishes the station with an ample supply of very excellent water, both for domestic purposes and irrigation during the greater portion of the year; when the river supply fails, water of good quality and very soft is pumped from deep wells.

The average number of clear days annually is 173, partly cloudy 140, and cloudy 52, using the nomenclature of the weather bureau. Precipitation occurs on an average of seventy days in a year, and the annual precipitation is about seventeen inches. The average relative humidity is 53 per cent., the mean maximum temperature 65° F., the mean minimum 38° F., and the annual mean is 52° F. The highest temperature recorded during a period of twenty-eight years was 95° F., and the lowest temperature recorded in the same length of time was -18° F., which occurred on December 22, 1887. The average hourly wind velocity is 6.6 miles, and the highest velocity ever recorded was 63 miles, which occurred during the month of May. The average annual snow fall is 22.3 inches, which, of course, is included in the total average precipitation. The average date of killing frost in spring is May 6th, and the average date in the autumn is October 5th.

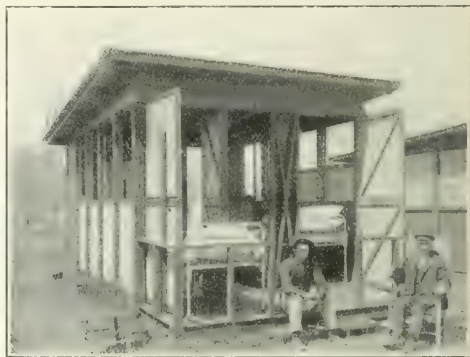
These statistics are taken from the records made during the occupancy of Fort Stanton as an Army Post. My own observations during the past six years indicate a larger number of clear days and fewer cloudy days, as well as rather less precipitation, but as these observations were made by an amateur and cover a shorter period, they are probably less reliable than those supplied by the weather bureau. The occurrence of temperature below zero is very rare, and equally rare is the maximum summer temperature.

Fort Stanton is not a town, but solely a government sanatorium maintained for the reception of tuberculous patients, who are beneficiaries of the Public Health and Marine Hospital Service, but about ten miles distant is the quaint old town of Lincoln, the county seat of Lincoln County, and having a population of about 700 people. Here one of my former assistants, himself a recovered consumptive, has located on a fruit farm, where he has established a private sanatorium, and he has an increasing number of patients whose favorable progress is most gratifying.

FORT BAYARD.—Fort Bayard, in southwestern New Mexico, is too well known as the location of the Army General Hospital for the treatment of tuberculosis to require more than passing notice. It is situated about nine miles from Silver City at an altitude of about 6,100 feet. The climate of Fort Bayard is practically the same as that of Fort Stanton; the temperature is slightly higher, while the winds and other climatic data register about the same. Silver City profits by the advertisement of the proximity of Fort Bayard, and has established two or three sanatoria for the treatment of consumptives. The town of Silver City, located in the midst of an active mining country, has a population of about four or five thousand, is reached by a branch of the Santa Fé, and is a growing and attractive point to which invalids resort.

Fort Bayard is not open to the general public, being maintained exclusively for the reception of tuberculous officers and men of the army, but there are three sanatoria maintained in the nearby town of Silver City, where the climatic conditions are the same as at Fort Bayard.

LAS CRUCES.—Las Cruces, Dona Ana County, in southern New Mexico, is located on the main line



Tent house, Fort Stanton, N. M., occupied by two consumptive sea captains.

of the Santa Fé Railway in the Mesilla valley, a name given that portion of the Rio Grande Valley extending from the Selden mountains on the north to within a few miles of El Paso, Texas, where the river flows through a range of mountains. The entire length of the Mesilla valley is about fifty miles and the average width is about five. The Organ mountains, about ten miles east of Las Cruces, rise to an altitude of from seven to nine thousand feet

above sea level. The observations for Las Cruces are taken at Mesilla Park, about two and a half miles southeast of the town, this being the location of the experiment station, as well as one of the territorial colleges. Its altitude is 3,868 feet. The mean maximum temperature is 76.8° F. and the mean minimum 41.4° F., while the annual mean is 61.6° F. The highest recorded temperature is 106° F., and the lowest 1° F. below zero. The average annual precipitation is slightly under nine inches, and the mean annual relative humidity is 51 per cent. The average number of clear days is 225, partly cloudy 91, and cloudy 49. The mean annual average wind movement is 6.7 miles per hour. Owing to the considerable distance of this valley from the mountains on the west the wind storms in spring are of greater frequency and severity than in the more mountainous parts of the Territory. Winds reaching a velocity of seventy-five miles per hour have been recorded, but, as in other portions of New Mexico, storms of a cyclonic nature are unknown. The prevailing direction of nearly all the high winds

The number of clear days annually is very large, 227 being the average; partly cloudy, 115; and cloudy only 23. Precipitation occurs on an average of 67 days, with an annual average of about nineteen inches, and a relative humidity of only 50 per cent. The mean maximum temperature is 65° F., the mean minimum 36° F., and the annual mean 50° F. The highest temperature recorded for a period of nineteen years was 98° F. in June, 1902, and the lowest 31° F. below zero in February, 1905. It will be observed that the climate of Las Vegas is colder in winter than that of either Santa Fé or Fort Stanton. The data as to winds are not at hand, but the location of Las Vegas with reference to the mountains indicates comparative freedom from winds of great velocity.

ROS WELL.—Roswell, the principal town in the Pecos valley, is located on the Pecos River in southeastern New Mexico at an altitude of 3,570 feet. It is a town of about 7,000 people, and is the site of the New Mexico Military Institute.

Roswell and the Pecos valley, generally, are cele-



A row of six tent houses at Fort Stanton, N. M.

is from the west, and such winds usually carry considerable quantities of sand and dust. There are occasional high winds from the south, which, when they prevail for two or three days, are usually accompanied by cloudiness and often rain. Las Cruces and the Mesilla valley have a delightful winter climate, and it is chiefly during this season that it is especially adapted to the needs of the consumptive.

LAS VEGAS.—Las Vegas, San Miguel County, north central New Mexico, about forty-five miles east and ten miles south of Santa Fé, is one of the most beautiful and attractive cities in New Mexico. It is located on Gallinas creek in a rolling hilly country at the base of the Gallinas mountains, and is on the main line of the Santa Fé Railway. Its altitude is 6,384 feet. A few miles up the valley from Las Vegas are the celebrated Gallinas Hot Springs. On the west and northwest the mountains rise to an altitude of 9,500 feet and afford protection from the prevailing winds. Las Vegas has an excellent water supply, good natural drainage, and all the modern municipal conveniences. Its refined social life, and the natural beauty of the surrounding country, as well as its superior climate, attract many tourists and invalids.

brated for artesian wells, and this region is one of the finest agricultural and fruit growing sections of the southwest.

Being located in a wide valley which stretches far to the north as well as to the south, Roswell is exposed to high winds, and being of comparatively low altitude its summers are hot, while the winters are usually mild, although an occasional northern wind brings heavy snow and low temperature.

A maximum temperature of 101° F. is recorded, and a minimum of -31° F. The average for the year is a little over 59° F., and the average precipitation about sixteen inches.

Roswell is only seventy-five miles from Fort Stanton. Its numerous lagoons and streams are the resorts in winter of thousands of ducks, while fishing is good the year round, and, like Carlsbad, it has an excellent winter climate for consumptives. Many invalids spend the winter in the Pecos valley, and during the summer make camping trips to the White Mountain region near Fort Stanton.

SANTA FÉ.—Santa Fé, the capital of the Territory, and perhaps the oldest town in the southwest, is situated in the mountainous region of north central New Mexico. Its altitude is 7,013 feet, and it is protected on all sides by mountains, and possesses

one of the very best high altitude climates in New Mexico.

Santa Fé possesses considerable interest for the tourist, and it was here in the ancient Governor's Palace that General Lew Wallace wrote *Ben Hur*. The climatological data of Santa Fé, kindly furnished me by Mr. C. X. Linney, section director, United States Weather Service, are very complete, as well as interesting and valuable, and will be added to this article in their entirety as an appendix. They show a very large number of clear and partly cloudy days, and an average precipitation of less than fifteen inches; average humidity of 45 per cent., and an average hourly wind velocity of 6.9 miles, with the highest hourly velocity of fifty-three miles, which was recorded in October, 1906. The percentage of sunshine annually is 76 out of a possible 100. In order that you may more thoroughly appreciate the meaning of this proportion I may say that Boston has 55 per cent., Buffalo 49, New York city 56, Pittsburgh 44, Philadelphia and Washington 57, Detroit, 52, St. Louis, Jacksonville, and Des Moines, each, 60, Cincinnati 38, while Atlanta, Ga.,

venient and attractive resting place for invalids en route to New Mexico.

A Word of Advice to Patients Intending to Resort to the Southwest.

A word as to the character of cases for which the climate of New Mexico is best suited may not be amiss; this may be better expressed by enumerating those who should not seek it.

1. Consumptives should not come to New Mexico without sufficient means to procure the necessities and even the luxuries of life, chiefly because most of them are not fit to engage in the struggle for a living, and, secondly, because there are many more applicants for work than places. As a rule consumptives need rest, and then more rest, while undue exercise has caused many deaths which have been attributed to altitude.

2. Patients with advanced valvular heart disease do not do well in high altitudes, and those who by reason of the great extent of lung tissue involved, or for other reasons, have a low vital capacity as shown by small chest expansion, would do better



Ambulant sick call, Fort Stanton, N. M.—Patients taking breathing exercises.

the highest of which I have secured any record, has but 61.

Santa Fé has a population of about 10,000, and not only is the city itself picturesque and attractive to the tourist and invalid, but the surrounding country abounds in scenic, prehistorical, and historical attractions, among which is the cave dwellers' region in Pajarito park, only a day's journey distant over land. Three railroads enter the city, the Santa Fé system, the Denver & Rio Grande, and the Santa Fé Central. A tent city sanatorium is maintained near the town.

EL PASO, TEXAS.—El Paso, although located within the commonwealth of Texas, is situated in that part of the State which is naturally a portion of New Mexico.

It is the gateway to New Mexico from all the Gulf States, as well as from California. Its altitude is 3,767 feet, with a climate very much the same as that of Las Cruces.

Great numbers of tourists and invalids resort there in the winter months, and many of its most prominent citizens, who came from all parts of the United States, first came to El Paso as health seekers.

El Paso is a wide awake, modern, and rapidly growing city of about 50,000 people, and is a con-

venient and attractive resting place for invalids en route to New Mexico.

to reach a high altitude by gradual stages, or before coming, to increase their breathing capacity by appropriate chest expansion exercises; although the earlier the diagnosis is made and the more prompt the resort to appropriate climate, the greater the probability of cure, still far advanced cases, especially if with no serious complications, frequently do well. I have just discharged a half dozen such patients apparently cured, which have been under treatment three to seven years, and one of these had also a very heavy albuminuria which likewise disappeared.

A tendency to hæmorrhage is not a bar to residence in high altitudes; indeed the statistics of the Fort Stanton sanatorium show that there is less probability of hæmorrhage at 6,000 feet than at sea level, and many patients with laryngeal tuberculosis recover perfectly.

Summary.

To summarize, New Mexico, as a resort for consumptives, has the following advantages: (a) Altitude; (b) low relative humidity; (c) large percentage of sunshine, advantageously distributed as to season; (d) cold or cool nights; (e) moderate wind movement; (f) small precipitation; (g) rarity of fog; (h) pure air; and (i) well drained soil with low percentage of soil moisture.

METEOROLOGICAL DATA FOR SANTA FE, NEW MEXICO.

[illegible]

METEOROLOGICAL DATA FOR LAS VEGAS, NEW MEXICO.

		Average Number of Days.											
Clear.....	23	17	21	20	17	15	15	17	18	21	20	23	297
Partly cloudy.....	7	8	8	8	13	12	14	13	10	8	8	6	115
Cloudy.....	1	3	2	2	1	3	2	1	2	3	2	2	23
With precipitation.....	2	3	3	4	8	8	11	10	8	3	3	3	67
		Average Monthly Precipitation.											
For 19 years.....	0.46	1.00	0.67	0.89	2.11	1.86	3.99	2.94	2.52	1.04	0.85	0.66	18.99
		Average Monthly Relative Humidity.											
	48	46	43	42	51	52	56	56	53	52	51	50	50 per cent.
		Mean Maximum Temperature.											
	47	48	57	65	73	81	83	82	74	64	56	47	65
		Mean Minimum Temperature.											
	19	21	28	34	43	50	55	54	47	36	27	19	36
		Mean Temperature.											
For 19 years.....	33	34	41	50	58	66	69	68	61	50	41	33	50
		Highest Monthly Temperature.											
	69	71	76	82	90	98	96	97	93	82	76	70	98 in 1902.
		Lowest Monthly Temperature.											
	-9	-31	-11	12	26	34	40	44	32	15	2	-9	-31 in 1905.

METEOROLOGICAL DATA FOR FORT STANTON, NEW MEXICO

Average Number of Days.														
Clear.....	16	14	13	15	16	13	10	11	15	20	16	16	173	
Partly cloudy.....	11	10	13	12	12	13	15	15	11	7	9	12	140	
Cloudy.....	4	4	5	5	7	4	6	5	6	4	5	3	52	
With precipitation.....	4	5	3	2	4	7	11	11	8	4	4	4	70	
For 28 years.....	0.64	0.72	0.86	0.64	0.89	1.76	3.16	3.44	2.50	1.45	0.67	0.88	17.41	
Average Monthly Precipitation.														
For 7 years.....	50	55	47	37	31	41	55	57	59	56	59	61	52 per cent.	
Average Monthly Relative Humidity.														
For 7 years.....	47	52	56	65	72	81	70	74	66	55	49	65		
Mean Maximum Temperature.														
For 7 years.....	21	27	29	36	44	50	56	61	48	37	28	24	38	
Mean Minimum Temperature.														
For 28 years.....	33	38	44	51	60	67	69	67	61	52	42	36	52	
Highest Monthly Temperature.														
	69	76	73	78	85	94	95	92	86	80	72	68	95, July.	
Lowest Monthly Temperature.														
	6	-3	6	14	20	34	46	41	31	22	7	-18	-18, December 22, 1887	
Average Hourly Wind Velocity.														
	8.0	9.2	8.4	8.2	7.5	6.9	4.5	4.4	5.2	6.1	6.8	6.6		
Highest Velocity.														
	51	54	60	60	63	42	44	56	30	42	44	50	63, in Max	
Monthly Average Snowfall.														
	1.6	2.4	8.2	T.	0	0	0	0	0	T.	4.2	6.2	22.8	
Average date of last killing frost in spring..... May 6th														
Average date of first killing frost in autumn..... October 5th														

METEOROLOGICAL DATA TOP LAS CRUCES, NEW MEXICO

		Average Number of Days											
		1910				1911				1912			
Clear.....	19	17	19	20	20	20	14	14	18	22	22	20	225
Partly cloudy.....	7	7	8	7	9	4	10	12	7	4	4	6	91
Cloudy.....	5	5	4	3	2	2	7	4	5	3	4	5	49
		Average Monthly Precipitation											
	0.32	0.50	0.28	0.17	0.25	0.58	1.81	1.71	1.45	0.76	0.57	0.44	88
		Average Monthly Relative Humidity											
	42	43	54	58	59	59	59	56	55	52	51	52	52
		Mean Maximum Temperature											
	52	52	46	42	40	44	51	52	57	67	67	57	76
		Mean Minimum Temperature											
	58	61	60	77	85	94	93	92	87	77	67	57	76
		Mean Monthly Temperature											
	53	56	62	61	64	69	72	74	72	72	72	67	76
		Highest Monthly Temperature											
	70	78	80	79	73	62	49	42	61				
		Lowest Monthly Temperature											
	95	102	102	93	96	88	78	71					
		Average Monthly Wind Velocity											
	34	41	43	54	42	28	18	12					
	5.8	7.2	8.8	8.7	8.0	7.0	6.4	5.7	5.8	5.7	5.5	5.6	6.7

In conclusion I quote from *Climatology of the United States, Bulletin Q of Department of Agriculture*, by Professor Henry: "In general, the climate (of New Mexico) is such as to permit outdoor work and outdoor life the year around under conditions that are comparatively comfortable and pleasant. The windstorms that prevail during February, March, and April are the only serious drawback to the climate, which otherwise presents comfortable and healthy conditions the year around."

Acknowledgment is due and gladly rendered here to Mr. C. E. Linney, section director, U. S. Weather Bureau, Santa Fé, N. M., for valuable meteorological tables used in this report; to Mr. M. M. Sundt, of Las Vegas, and President Luther Foster, of the New Mexico Agricultural College, Mesilla Park, N. M., for photographs; to Professor John Weinzirl, of Albuquerque, Mr. John R. De Mier, of Alamogordo, and Messrs. McLenathen & Tracy, of Carlsbad, for information regarding their respective localities; also to Colonel Max Frost, of Santa Fé, N. M., for valuable assistance and information.

AUSCULTATION RATIOS IN PULMONARY TUBERCULOSIS.*

By J. S. BILLINGS, JR., M. D.,
New York.

It is well known that in many cases of incipient tuberculosis an exact diagnosis is often arrived at only with the greatest difficulty. Indeed, with the possible exception of the tuberculin reaction, there is no sign or symptom which is absolutely pathognomonic of the condition. The presence of tubercle bacilli in the sputum, of course, confirms the diagnosis of pulmonary tuberculosis, but in incipient cases the diagnosis should be arrived at before any breaking down of tissue, with casting off of bacilli, has taken place. In the great majority of cases the diagnosis must be made by a summation of the subjective and objective signs. The commonest picture is as follows: Persistent cough, with little or no expectoration; possible slight elevation of temperature in the afternoon; impairment of appetite; presence of streaks of blood in the expectoration; relative dullness or impaired resonance on percussion at the apex of one lung, accompanied by prolonged and high pitched expiration and increased voice sounds. Crepitant or subcrepitant râles are often absent. As stated before, tubercle bacilli are, in most cases, not present in the expectoration. In most cases the lesion is at the right apex and in the majority of these cases again, the physical signs consist only of relative dullness on percussion, prolongation of expiration and increased vocal resonance. These three signs can be, and often are, present in perfectly normal chests, and the condition is then spoken of as a "physiological intensification" of signs at the right apex. Various theories have been advanced as to the cause of such intensification. The one most commonly accepted ascribes it to the projection upward and to the right of the arch of the aorta. The above statement as to how slight are the variations from the normal in many cases of incipient tuberculosis, is borne out by the following table giving the result of

the examination of cases of incipient tuberculosis accepted as suitable for admission to the New York State Hospital for Incipient Tuberculosis at Ray Brook.

Summary of Results of Final Examinations of Applicants for Admission to the New York State Hospital for Incipient Tuberculosis, April 20, 1905, to March 23, 1907:

Number of authorized examinations.....234
Number of accepted cases.....139

Of the accepted cases twenty-one showed tubercle bacilli in the sputum. Of those remaining forty-six showed râles; five showed temperature; four showed hæmoptysis; eight showed signs at left apex only, or base only. Fifty-five showed dullness at right apex, prolonged high pitched expiration, increased voice (these signs at right apex) and nothing more. (Of the accepted cases thirteen were rejected by the Department of Public Charities and thirty-nine by the New York State Hospital for Incipient Tuberculosis.)

It will be seen that of 139 cases, fifty-five, or 40 per cent., showed only such signs in the chest as might very well be due simply to the before described "physiological intensification." In all these cases the diagnosis was arrived at by a consideration of all facts connected with the family history, personal history, and subjective and objective condition of the patient. Tuberculin was not used, owing to the difficulty of keeping the patients under observation.

The writer is an examiner for the New York State Hospital for Incipient Tuberculosis and is also responsible for the admission of all cases of tuberculosis to the Otisville Sanatorium of the Department of Health, New York City, where only early favorable cases are received. So that he has the opportunity of seeing a relatively large number of cases of incipient pulmonary tuberculosis. While most of the rejected applicants for admission to the two institutions named were persons in the second or third stage of the disease, yet, occasionally, a case would be rejected on the ground that no disease of the lungs was present. Such an opinion, however, was always arrived at with considerable misgiving. Methods of distinguishing between beginning infiltration of the apex of the right lung, and simple physiological intensification of the breath and voice sounds, have therefore been constantly sought for. It was noted in a number of cases that where the abnormal signs seemed to be due to physiological intensification only, there was a corresponding intensification of the signs over the lower part of the right upper lobe, both in front and behind. The breath sounds and vocal resonance, not only of the two sides of the chest, but also of the upper and lower portion of the affected lobe, were always compared. Eventually, by reason of training and experience, the writer came to feel that he could estimate the relative intensity of the sounds at the apex and lower portion, respectively, of the affected lobe. The examination of normal chests was then begun, in order to determine whether these ratios were approximately constant, and it was found that they were, not only in perfectly normal chests, but also in those where the signs were physiologically intensified at the right apex. The sounds at the apex are, of course, louder than over the lower portion of the lobe, the ratio in health being about 4 to 3 or 5 to 3.

*Read at the meeting of the New York Medical Association, held at Westchester, N. Y., May 6, 1907.

A method was then sought for by means of which exact results could be obtained in terms which could be recorded. For this purpose a modification of Oertel's stethoscope was found to give the best results. (See illustration.)

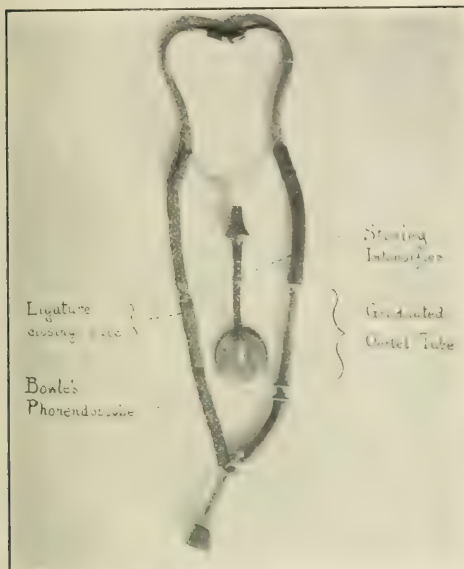


FIG. 1.

It consists of a binaural stethoscope, the bell of which may be either the ordinary hard rubber form or the combination Bowles-Stanley phonendoscope. One of the soft rubber tubes of the instrument is closed by means of a ligature. In the course of the other rubber tube there is introduced the metal combination tube which constitutes the essential part of the Oertel's stethoscope. This consists of two metallic tubes, the one being graduated vertically, the other transversely in mm. The third, outer metallic tube slides up and down over the other two for half their length. By rotating the middle tube by means of its milled head, and sliding the outer tube downward, an opening measuring 40 mm. by 10 mm. may be obtained. The more intense the sound, the larger the opening required to obliterate it. (See illustration.)

The patient should be examined in a standing position, as changes in the sounds seem to be less readily recognized when the patient is lying down. The instrument should be applied with the outer sliding tube closed and the middle and inner ones separated by an interval of 2 mm. The sliding tube is then pushed slowly down until the particular sound (voice, breath) has disappeared. Some attempt was made to determine the relative intensity of the percussion note, but without success. The area of the opening necessary to obliterate the sound is then noted by means of the graduations on the tubes. This procedure is carried out at the apex of the lung in front and behind, and also over the sec-

ond space and third rib in front, one and one half inches from the sternum and just above the upper angle of the scapula behind. Considerable practice and experience were necessary before satisfactory results were obtained. Much depends upon the patient. With a person of intelligence the procedure is relatively easy; with one of low intelligence who will not speak or breathe twice in the same way, it is often impossible to obtain any satisfactory results. The method is not adapted for the use of the general practitioner, but would necessarily be limited to those making a specialty of the recognition of early cases of pulmonary tuberculosis.

Results.—In one hundred normal chests, physiological intensification of the signs was found in twenty-two instances at the right apex, and in one instance at the left.

In the sixty-seven normal cases the average ratios over the upper right lobe were as follows:

Breath Sounds.

Apex, anteriorly, disappeared with an opening of twelve sq. mm.
Second space, anteriorly, disappeared with an opening of nine sq. mm.

Ratio, 4 to 3.

Apex, posteriorly, disappeared with an opening of nine sq. mm.
Angle of scapula, posteriorly, disappeared with an opening of six sq. mm.

Ratio, 3 to 2.

Voice Sounds.

Apex, anteriorly, disappeared with an opening of twenty sq. mm.
Second space, anteriorly, disappeared with an opening of sixteen sq. mm.

Ratio, 5 to 4.

Apex, posteriorly, disappeared with an opening of eighteen sq. mm.
Angle of scapula, posteriorly, disappeared with an opening of fourteen sq. mm.

Ratio, 9 to 7.

In the twenty-two cases of physiological intensification of the signs at the right apex, the average figures were as follows:

Breath Sounds.

Apex, anteriorly, disappeared with an opening of fourteen sq. mm.



FIG. 2.

Second space, anteriorly, disappeared with an opening of twelve sq. mm.
Ratio, 7 to 6.

Apex, posteriorly, disappeared with an opening of fifteen sq. mm.
Angle of scapula, posteriorly, disappeared with an opening of ten sq. mm.

Ratio, 6 to 5.

Voice Sounds.

Apex, anteriorly, disappeared with an opening of twenty sq. mm.
Second space, anteriorly, disappeared with an opening of sixteen sq. mm.

Ratio, 10 to 9.

Apex, posteriorly, disappeared with an opening of twenty-two sq. mm.
Angle of scapula, posteriorly, disappeared with an opening of eighteen sq. mm.
Ratio, 11 to 9.

Cases of Incipient Tuberculosis:

Lesion at Right Apex. Twenty-seven patients have been examined in this manner; of course most of them presented other indications of tuberculosis than intensified signs at the right apex—e. g., history of hæmoptysis, presence of râles, presence of tubercle bacilli in the sputum, etc. But four patients did present signs corresponding to those of physiological intensification, and little more. Yet the ratios were abnormally high, and the patients were recommended as suitable for admission to Ray Brook, and were accepted as tuberculous by that institution.

Breath Sounds.

Apex, anteriorly, disappeared with an opening of twenty sq. mm.
Second space, anteriorly, disappeared with an opening of eight sq. mm.
Ratio, 5 to 2.
Apex, posteriorly, disappeared with an opening of sixteen sq. mm.
Angle of scapula, posteriorly, disappeared with an opening of six sq. mm.
Ratio, 8 to 3.

Voice Sounds.

Apex, anteriorly, disappeared with an opening of twenty-eight sq. mm.
Second space, anteriorly, disappeared with an opening of fourteen sq. mm.
Ratio, 2 to 1.
Apex, posteriorly, disappeared with an opening of twenty-two sq. mm.
Angle of scapula, posteriorly, disappeared with an opening of ten sq. mm.
Ratio, 11 to 5.

Conclusions.—1. It seems probable that the relative intensity of the breath and voice sounds over the upper and lower portions of the upper right lobe of the lungs remains about the same in health, being about 5 to 4, or 5 to 3.

2. That when the sounds at the apex are physiologically intensified, there is a corresponding intensification of the sounds over the rest of the upper lobe, the ratio being about the same as in normal chests, namely, 5 to 4, or 5 to 3.

3. In incipient tuberculosis, with beginning infiltration of the right apex, the signs at the apex are intensified while those over the rest of the right upper lobe remain normal. The ratio between them is thus distinctly increased to 2 to 1, or even higher.

4. An increase in these ratios to 2 to 1, or over, suggests the presence of infiltration, possibly tubercular, at the apex of the right lung.

32 EAST FIFTY-THIRD STREET.

EARLY RECOGNITION AND TREATMENT OF PNEUMONIA IN INFANTS AND YOUNG CHILDREN.*

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Pneumonia probably ranks second of all diseases in frequency of occurrence in the extremes of life. It is the winter disease of infants and the terminal complication of old age.

The modern conception of pneumonia is that it is an infectious disease, having a prominent lesion in the lungs, but that it is also a general disease with the infectious agent circulating in the blood with many chances that it may find lodgment in susceptible places outside the lung. The same agent may

set up inflammation in the mastoid cells, endocardium, great toe joint, or cerebral sinuses. It is, in short, a general disease, and receives the name pneumonia when it involves the lung.

Its aetiology in the cases here considered is bacterial, the variety or mixture of microorganisms need not concern us. The early manifestations of pneumonia in the young, which will serve us for diagnosis in the daily round of busy professional life, the signs and symptoms, to recall O'Dwyer's expression "on which one may travel," are the only ones here to be considered. The encyclopædic description and its fulness of details are recorded in long rows of books on office shelves.

Diagnosis of acute pneumonia in infants (under two years).

Sudden onset. The beginning of pneumonitis is generally marked by abrupt and marked signs of toxæmia. The evidences of this taken together are nearly characteristic. Infants cannot answer categorical questions, and, on the other hand, they do not mislead one by false answers. It is worth noting that the intense manifestations in all stages of pneumonia seem to be coincident with the beginning of lesions and with subsequent steps of advancement. The development of toxæmia may be coarsely likened to the burning of dry leaves in the forest. Most smoke is evolved at the margin of advancing fire. A solid lung may remain some time after the crisis is past and the temperature normal. It is not apparently the coincident consolidation which causes the symptoms, not even the dyspnoea. It is the toxæmia, and this is apparently greatest during the earliest moments of exudative inflammation. This is purely clinical observation. The point is here emphasized that sudden onset of initial symptoms and later accession of similar symptoms point to developing local pneumonia. The initial symptoms are, sudden onset of fever, prostration, disturbed respiration, and pulse (respiration pulse) ratio. At this point there may or may not be râles.

Fever. Fever usually develops abruptly without any manifestation corresponding to the chill in adults, such as vomiting, convulsions, chilliness, or excessive pallor. If castor oil is given, hoping to remove the cause of fever, the temperature usually subsides temporarily, but regains its original height promptly. This behavior of the fever serves a useful purpose in the early diagnosis.

Prostration. This symptom is marked. One word in this connection deserves recognition in the standard dictionary, viz., "dopey." A mother, in any grade of life, involuntarily feels about for a word which in common parlance will express her meaning; she wishes to tell the physician the child's first symptoms, and she will surely rest at last upon the word dopey. The word prostration means something to the physician, but a child which behaves as though drugged, or doped, in any sphere of life is dopey. An infant suddenly developing fever with flushed cheeks and becoming peculiarly somnolent, induced the nurses at the Foundling Hospital with great precision to pick out such children from the nursery and transfer them to the hospital wards as pneumonia patients.

Disturbed Respiration. Pulse ratio (respiration pulse ratio). Rule: When the respiration pulse ratio departs from the normal, 1 to 4, and approxi-

* Reprinted from *U. S. P. G. R. S. Jour. of the American Med. Assoc.*

mates 1 to 3, except further indications of pulmonary disease, that is, when the respiration pulse ratio, instead of being 20 to 80, approximates 40 to 120, suspect pneumonia. One must not, of course, ride one horse to death. This rule taken with the two preceding symptoms, sudden onset, marked prostration, needs but the following to make the picture complete, viz., rales. The toxæmia associated with pneumonia apparently stimulates the respiratory centres out of proportion to that of cardiac, the result is both rapid pulse and rapid respiration, but proportionately more rapid respiration than pulse, the respiration pulse ratio often becoming 70 to 140, as all have observed.

Rales. Any kind of rales; if fine and localized in some portion of the lungs, the testimony is more convincing.

If called upon to name a limited number of early manifestations of pneumonia in infants of most value in diagnosis, I would say: Sudden onset; fever; prostration ("dopey"); disturbed respiration, pulse ratio; rales.

After these early important signs I would mention in order: Diminished respiratory murmur over one lobe or portion of a lobe; bronchovesicular respiration; bronchial voice and breathing; bronchial "whiff"; dulness; cough; pleural pains, which are not often observed. The last three signs are usually late and occur in older children.

Under the division, diagnosis, that is a full recognition of the patient's ailment, I would urge particular attention to the condition of the mouth, throat, nose, and ear drums. It goes without saying that to pleura, heart, and pericardium, joints and intestines are to be given careful attention.

Differential Diagnosis.—Pneumonia is most often confounded with meningitis, influenza, malaria, otitis media and mastoiditis, appendicitis, and enterocolitis with prostration, and in older children, with typhoid fever complicated with bronchitis.

Prognosis.—It is conceded that the prognosis of primary pneumonia in infants and young children is good, some placing it as high as 90 per cent. The figures depend on many conditions of environment and individual, personal resistance. Secondary pneumonia has an outlook depending on primary individual resistance, the amount of exhaustion suffered from the primary disease and complications, and the nature and virulence of the infecting agents of the secondary disease. Obviously, the physician will weigh all these elements on the scale before pronouncing in a given case.

Treatment.—Hygienic. Treat the patient as though it had an infectious fever. Call the disease a fever, to the laity, if such naming the disease will further the effort to treat the case intelligently. Avoid treating the case according to the indications of the thermometer alone. What one can know without the thermometer is far the most valuable. The room selected should be large, light, sun swept, devoid of unnecessary drapery, free from dust, quiet. None but healthy persons should enter this room. The bed should be placed where a gentle flow of air may envelop it in large volume. In this way it is possible to avoid a possibility of an striking a single place on the body and the much dreaded draft. The air of the whole room should drift gently through and out. The care of the patient includes cleansing

the mouth, teeth, throat, bathing the eyes, bathing the body, especially the buttocks and genitalia, cleaning and clipping the finger nails, and keeping the bed linen fresh. It is important that the patient should not pick the nose and scratch its genitalia. It is more and more the practice to bring surgical cleanliness into use in the care of infants suffering from infectious diseases. It should be scarcely necessary to refer to the great precautions to be observed in the cleanliness of bedpans, drawsheets, injection tubes (catheters), and the like. This necessity is too obvious to require further mention.

Purgation. Free evacuation of the bowels is the first indication. The fever will diminish a little, at least temporarily. Castor oil is the first aid to the injured. It clears the field for action, corrects flatulence, relieves upward pressure on the diaphragm. Hot, high saline injections serve well to eliminate flatulence. One may use castor oil alone or calomel followed by castor oil. The latter is the best one purgative for the present purpose.

Feeding. The tendency to flatulence requires constant watchfulness and precautionary measures. Putting clean milk through a dirty mouth into a dirtier stomach is disastrous. Adding to this impure milk precipitates the troubles of indigestion and flatulence. It is best to avoid milk at first, if all the conditions are not favorable to the ready digestion of milk. After thorough cleansing of the intestinal tract with castor oil, give some substitute for milk for twenty-four hours, then gradually add diluted and peptonized milk. Remember, that in the height of fever, in a severe case, digestion of milk may be quite impossible. If milk in the stomach fails to digest, you know what harm it will do throughout its entire sojourn in the intestinal tract. Substitute water, temporarily, barley water, some thin preparation of food or egg albumen; anything is better than raw milk at first. One must choose the particular substitute according to the age of the patient and condition of digestion. Remember that the stress of fever is probably to be short and that, at its maximum, digestion is nearly impossible. In the treatment of pneumonia put the whole attention on everything but the lungs. If flatulence persists, use bowel injections frequently. Purgation and courageous starvation is the first treatment in time and in importance.

All hygienic conditions should be made the best possible at the first visit. Clear the decks for action and await the indications. It is no longer to be considered a physician's battle against a foe, the treatment of an entity. It is a battle of the patient's cells against bacterial invasion and toxæmia. Our function is to make provision for a fair fight, to remove all obstacles and hindrances, to help on the side of the patient.

Antipyretics. Temperature measured on the thermometer is but one factor in diagnosis and in indications for treatment. It is all the other manifestations of toxæmia taken together which serve as a useful guide to antipyresis. The dull, apathetic condition of stupor, restlessness, *antrismus* and *antipyresis*. A deep, stupid, toxæmic sleep is readily distinguishable from the *antrismus* sleep. One of the first signs of having passed the crisis is often that peaceful, child's slumber, which we await with such anxiety. The antipyresis should be done

any of those commonly employed, excepting coal tar products. They are not calculated to safely aid the patient. Sponging, cold applications laid on, free drinking of water, cold bowel injections, cool air in the room, all these may be used. Tub baths may be used freely if they are found to quiet the patient better and disturb the patient less than sponging. Often the circulation is disturbed and the head is hot, the feet cold. A good working rule is that *the feet should be as warm as the head*. A hot footbath is the best distributor of circulation. In fact, footbaths are more useful than full baths for such purpose. Cold, flowing, fresh air is one of the best antipyretics. Keep the feet warm, and the rest of the patient will not suffer from any reasonable exposure to cold air. It has been my practice for twelve or more years to get pneumonia patients as near as possible into the outdoor open air day and night. My views on this point are so well known that I refrain from repeating them here.

Heart stimulants. Infants and children have new and uninjured hearts. Their hearts are not weak in pneumonia, are not strictly comparable to adults. Hearts are frequently overtreated in the young. They do not require regular stimulation, that is, stimulation by rule, only exceptionally do they require it. Flatulent distention must be corrected. The feet must be kept warm, as warm as the head. After that quiet and good air are required. Hot, light salines, and footbaths meet these indications.

Drugs. Wine, whiskey, and strychnine are the preferred stimulants. The wine and whiskey are to be prepared in quantity sufficient for a half day, and well diluted, the wine with three volumes of water, the whiskey with eight volumes. From the diluted wine or whiskey the nurse may give a small dose according to the indications recognized. Nurses and physicians all watch the pulse too much and the general condition too little. The experience with adults leads to this, and the same need for heart stimulants does not exist. The consequence is the children are overdosed.

Strychnine. When needed the dose should be one 120th to one 60th of a grain every four hours, according to age and needs. It should be remembered that children suffering from pneumonia frequently start and jerk in sleep anyway when taking no strychnine, and the physician need not reproach himself that he has overdosed the child when he notices it jerking a little.

Rest and quiet, promoting the general comfort. I regard these as the most important directions of all concerning the treatment of pneumonia. Remembering that our function is to aid the patient in its struggle against toxæmia, that the prognosis in primary pneumonia is good in 90 per cent. of cases, let us aid, not take charge of its struggle, not handicap the patient. Give all treatment at prescribed intervals and let the child rest and sleep uninterruptedly for three hours or more; give food and medicines, arrange its toilet at the same interruption of rest and sleep. Make the child comfortable and let it rest. Avoid poultices unless for local pain, using them then only intermittently, letting the skin become dry between applications and discontinuing as soon as possible. Do not bind them around the chest but let them against localities only. Cold applications are useful, but in my ex-

perience distress the child. They are better borne by adults.

Finally, I believe the time is near at hand when the pneumonia of infants and young children will be treated mainly by such aids as are afforded by fresh, cool air, water inside and outside the body, and careful feeding. These are not inconsistent with further medication in case of need.

Résumé.

Diagnosis. The early manifestations of pneumonia in infants are: Sudden onset; prostration ("doped"); fever; disturbed respiration pulse ratio; râles. These are sufficient for diagnosis. The further signs and symptoms are in the order of their practical value and appearing: Diminished respiratory murmur; bronchovesicular respiration; bronchial murmur and breathing; bronchial "whiff"; dulness; cough.

Treatment. Purgation, calomel and castor oil, or castor oil alone in full dose. Careful feeding to avoid flatulence. Plentiful use of water for drinking and bathing. Quiet and undisturbed rest. Fresh, cool, flowing air. Antipyretics, bathing, sponging, cool drinks, no coal tar products. Heart stimulants, wine, whiskey, strychnine.

Early recognition of complications and their treatment.

57 EAST SEVENTY-NINTH STREET.

ON THE HISTOGENESIS OF TUMORS, PARTICULARLY CANCER.

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Aided by a grant from the Rockefeller Institute for
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I. *Introduction.*—There exist at present two groups of opinions with regard to the origin of tumors. The first one, purely ætiological, is the parasitic theory; the second assumes primary tissue changes as basis for the development of tumor growth.

The parasitic idea in modern form is extremely limited in application. Even its most ardent exponents have so far only applied it to the carcinomata; but even if this theory (it can hardly be termed one) should gain more ground, it could not demand general recognition as an explanation of the important features connected with the origin and growth of tumors, for it would become necessary to account for different tumors, the mixed growths, the occurrence of two malignant tumors of different type in one individual and even in the embryo, the transitional tumors and, finally, structural differences in individual tumors. All these the parasitic theory fails and will fail to explain. Furthermore, it cannot be understood why a specific parasite should cause certain cells not only to proliferate, but also to assume definite structural characteristics.

This supposition forms, then, from the pathological standpoint at least, no basis for discussion, because, even if everyone should be satisfied as to the occurrence of definite microorganisms in certain tumors, the origin of the tumor itself and its history would still remain entirely obscure.

The second, much greater, group assumes structural deviations within tissues as primary for tumor

growths. It does this by supposing that the cause lies either in changed relation of tissue elements or within the cell from which the tumor originates.

It cannot be the purpose of this study to present a complete pathological review of this most productive field of pathological research, but it becomes necessary to outline shortly those of the present ideas of that group which form an introduction to the intelligent understanding of observations presented below.

Beginning with the idea that the origin of a growth is to be found in changed tissue relations, two supplementing theories attract attention; the older and limited theory of embryonic rests of Cohnheim, and the more extensive one of isolated germinal cell groups of Ribbert.

It is, of course, well known that Cohnheim's conception was that misplaced or not misplaced groups of embryonic cells gave origin to tumors; and this applied with considerable force to the congenital and complex tumors. But Cohnheim himself was unable to maintain this idea for the genesis of all tumors, and found especial difficulty in the very explanation of malignant tumors. At the best no idea was conveyed why a misplaced embryonic rest should begin to grow at a definite time of the organism's life, nor were the various types of malignant and transitional tumors at all clear. A much more elaborate and extensive theory, which may be regarded as a continuation of Cohnheim's, was later developed by Ribbert.

Ribbert regards as the cause of all tumors a dislocation or isolation of germinal cell groups not necessarily embryonic, which may take place during uterine or extrauterine life. He does not assume as essential any other specific cause or force, for the growth and proliferation of the tumor cells, than those which are found in all other physiological processes of growth in the body. It becomes necessary only to produce certain conditions favorable to growth to start the latent and constantly present tendency of cells to proliferate. These conditions are furnished, then, when tissue elements are separated from their physiological continuity.

Ribbert introduces further certain auxiliary hypotheses: Not every isolated germinal cell group leads to tumor growth, but such a cell group must not possess any growth restraining relations which are active in a normal structure. It cannot be arranged as an organ is, and it cannot functionate normally. It cannot contain the growth restraining tissue tension. A certain retrograde change in the cells is admitted by Ribbert as being favorable to the growth, but only secondary and not indispensable.

Lack in internal organization of an isolated germinal cell group is, then, the true basis of tumor growth. If this lack is an incomplete one and also depending upon the original structure of the part, a benign growth will result; but if this lack is complete a malignant tumor originates. Even malignant tumors are organized as such from the start.

Concretely speaking, then, Ribbert does not believe that the epithelium in cancer, for instance, proliferates unless it has become dislocated, isolated from its original situation; and he, therefore, ascribes an important role to chronic inflammatory lesions as factors in the isolation of cell groups. There are several theoretical considerations as well

as direct observations that make this theory in the main untenable.

Ribbert admits that simple isolation of cell groups is infrequently followed by tumor growth, but resorts here to the lack of internal organization and restraint of tissue tension. However, it would appear that nowhere is such a condition better illustrated than in the healing of wounds, and in the accidental or willful transplantation of epithelium in such parts. Here, also, isolation of cell groups and a lack of restraint of tissue tension are constant features, but tumors do not ordinarily follow. On the contrary, the tissue assumes here the maturing character from the very start, misplaced groups of cells are consumed and eliminated, the proliferation stops as soon as the loss of substance has been replaced, and this in spite of the fact that previous normal relations have been destroyed and never reestablished. The scar differs necessarily from former physiological conditions, causes changed relations, and disturbs the continuity of tissue; and these conditions prevail wherever healing takes place, be it skin, mucous membrane, or parenchymatous organ. We know that, under certain conditions, foreign cells may reach other organs; placental cells, for instance, reach the lungs or the liver; but ordinarily such misplaced migrated cells do not proliferate nor do they produce growth. Metastatic tumor cells do, however. Other factors must enter into this besides simple isolation, restraint of tissue tension, and normal power of growth.

I have described, some time ago, a remarkable example of tissue transplantation of well preserved portions of cirrhotic liver, incident to softening of a carcinomatous growth. Well preserved lobules, or parts of them, situated at the periphery of the broken down tumor, had been dislodged by that process, and had been passively carried into the bile ducts with softened tumor masses; from there they had reached the duodenum and the head of the pancreas. Here they had become firmly implanted by cicatricial tissue. In some instances whole lobules with surrounding portal tissues were visible within the pancreas. In these the evidences of cirrhosis with marked bile duct proliferation and jaundice were as plain as in the liver itself. In few a carcinomatous change in the liver cells could be seen clearly, as in the liver, and in these the surrounding tissue became infiltrated with cancer cells, their cicatricial restriction soon disappeared. In the others, however, a gradual replacement by fibrous, cellular tissue invading the transplanted lobules occurred early; the proliferation of the bile ducts ceased, the whole lobule or group of liver cells became atrophic and ultimately disappeared. It appears that in these transplanted lobules, or portions of them, little or no internal organization was left, and still, in spite of an already existing tendency by the epithelium of the bile ducts to proliferate, the majority of these lobules showed no evidence of beginning tumor growth. Only in those, in which we can assume that the cancerous development had commenced before they had become isolated and reached the pancreas, the tendency to proliferate indiscriminately to overcome the opposing restraint of the cicatricial tissue was manifest.

This remarkable and probably unique instance is mentioned in this connection to show how unlikely

it is that a simple isolation of cell groups, even under the conditions favoring proliferation, is sufficient to excite tumor growth.

It may as well be argued that lack of internal organization to which Ribbert is obliged to ascribe so much is the result and not the cause of tumor growth.

In order to explain malignant and benign tumors, Ribbert holds, in the latter, a greater approach to the normal organization of the isolated cell groups. But allowing that the lack of internal organization is the only cause of malignant growths, then once given, it ought to show similar results at all times. We know, however, that this is not the case, even in tumors of the same type, for it is only necessary to recall the great variety of sarcomata and carcinomata and the various forms of mixed malignant growths. Here it would become necessary to look for factors which determine this peculiar behavior in the development of cells, determine, for instance, a small round cell sarcoma in one case, a spindle, giant, or mixed cell sarcoma in another, and the combination, occasionally observed, of carcinoma and sarcoma in one tumor.

A similar difficulty is experienced with this theory in the understanding of transitional tumors, and in the explanation of the polymorphous appearance of cells in rapidly growing tumors, which frequently show morphological conditions unlike anything ever seen under normal conditions.

This last factor has always been an important point against Ribbert's contention, and has been especially emphasized by those who find the cause of tumor growth in changes in the cell character. Before reviewing shortly that second group of ideas, however, it is well to mention the attempts which have been made to explain the growth of tumors by combining the effects of changes in the cells with changed tissue relations. The old theory of Thiersch, as later followed by Waldeyer and others, assumed that carcinomata developed as a consequence of disturbed relations between connective tissue and epithelium. Thiersch held that in advanced years, as the consequence of nutritive disturbances, the proliferative activity becomes more marked in the epithelium than in the connective tissue, and that the epithelium may grow by substitution into the connective tissue. Weakness on the part of the latter prevents its resistance. More recently Adami has elaborated a theory which has for its basis the idea that, under certain conditions, cells acquire a habit of growth, in which they are aided by a reduction of tissue tension on the cells:

Active cell division and proliferation occurs only in conditions in which the cell cannot fully utilize the assimilative material and the energy stored up in the assimilation of that material in the performance of its specific function. . . . Such conditions are found in the reduction of tension on cells, and certain energies before necessary to counteract others are free, and thus becoming capable of a diversion of their purpose, or when stimulation from without results in increased assimilation and storage of nuclear and cell material which now from any condition cannot be utilized in the performance of specific functions. . . . The longer the cells are diverted from their extrinsic functions to proliferative activity the greater the momentum acquired, and the habit of growth is set up. Then they

which irritated their proliferation in the first place, and we obtain functionless cell growth.

In direct opposition to Ribbert, Hauser attributes the cause of tumors to a fundamental biological change in the cells, and refers principally to the carcinomata. His idea is based on the independence of these epithelial cells and the experimental evidence of transplantation. He regards this biological change as variation in Darwin's sense. Change in the nutritive media influences the energy of life and an excess of nutrition is to be regarded as the most important factor for variability. Such a variation may, then, be found in lessened functional activities and in the predominance of other latent or weak properties.

A sharp definition of those ideas which regard cellular changes as fundamental for tumor development is to be found in von Hansemann's theory of anaplasia. By this term is meant an entire change in the biological character of the cells, in which they lose their previously developed high differentiation and form an entirely new type of cells, again more closely resembling the undifferentiated ovum. A precedence to this idea was given by a now discarded interpretation of Weissman, of the expulsion of the polar globules from the ovum. He believed that an egg cell which previously held the differentiation of a germinal epithelial cell, became an undifferentiated egg cell by the expulsion of those chromosomes which represent the somatic properties of the cells. Von Hansemann's idea, however, originated directly from the morphological observation of asymmetric mitoses of cancer cells, which suggested to him that, corresponding to the small nucleus of one of the resulting cells, a similar loss of differentiation might occur. This morphological observation has not stood the test of time as being in any way characteristic of cancer, but the idea of anaplasia has survived as a hypothetical conception. While von Hansemann insists that anaplasia does not take place in the sense of an embryonic return, and that these cells represent an entity specific to the tumor, this idea is related to the view of older investigators.

For this reason Beneke holds that the cellular change cannot be regarded as a return, but a faulty progression of the blastomatic growth, "an unrestrained progression on the road of protoplasmic development, a cataplasia."

In a very noteworthy communication Marchand has developed these thoughts. He has formed the opinion that a faulty metabolism, which is incident to a degeneration of the cell, precedes tumor proliferation; that as the result of this process cells acquire toxic properties by which they injure the neighboring tissue, and then, unrestrained, freely invade it.

But, to return; according to von Hansemann, anaplasia itself does not give rise to tumor growth. This requires a definite stimulus. In a normal tissue such a stimulus would only produce hyperplasia, but, in an anaplastic cell, it is followed by malignant tumor growth.

To this Borst remarks that it is an inherent weakness of the theory that it can only account for malignant growths. Beneke, on the other hand, who, as we saw above, regards as the primary factor a progressive development of vegetative functions, with

diminished activity of others, believes that specifically formative irritants, characteristic for individual cells, exist. These, acting in excess, would overthrow physiological and cause blastomatic growth. He returns, therefore, in a great degree to the old idea of formative stimuli. Against all these ideas of stimulative growth Ribbert argues that it is questionable whether growth can ever be attributed to an irritant. For a stimulus acting on a cell can only produce one of two possibilities, functional activity or injury. No stimulus or irritant can ever act on isolated cells, and other tissue changes would then have to be considered. Growth as a result of stimulation, Ribbert holds, can only take place indirectly, by a permanent change in the condition of all the tissues involved.

It will be observed that the ideas of the second group do justice in a much greater degree than those of the first, to the changed morphological character of the tumor cells, the degree of which, it appears, goes hand in hand with the rapidity of growth. These latter theories assume what seems plain to most morphologists, a new cell type which, in a hypothetical way, develops or descends from normal cells. It is in just that point, however, that additional information is needed for a better understanding of this obscure change. I shall present in the following lines some morphological observations, which directly touch upon the change of tissue into tumor cells, and which will allow us to form a more satisfactory conception of the origin of tumor growth, than is possible without a morphological basis.

II. *The Evidence.*—It can readily be appreciated that an investigation into the early life of tumor growths is associated with considerable difficulty, for it is infrequent to gain possession of tumors in such early stages of their development as to allow an opinion of the exact genesis of their growth, and especially of the origin of the essential cells composing them. Ribbert and Borst properly draw attention to the misleading pictures obtained in more advanced tumors, and the frequent misinterpretation of such findings. Indeed, it cannot be doubted that many descriptions of the transformations of normal into cancer epithelium represent an invasion from other sources instead of a local change. For the growth, running along in deeper, narrow channels from an original old focus, may suddenly reenter new parts of the parenchyma at some distance and thereby create an impression, at first sight, of a new focus developed in the midst of relatively normal tissue. Such observations are especially frequently made in cancers of mucous membranes, where the glandular loops penetrate the submucous tissues and, advancing there, suddenly reenter the mucous membrane and invade the normal glandular structures. On superficial examination it would appear that we had to do with a new focus, while careful study will establish the true connection.

Out of a number of observations I shall describe in detail one which, in my opinion, offered the most conclusive testimony bearing upon the views expressed below.

The close relationship of tumor growth and chronic inflammation received early attention and consideration, partly from the clinical, but largely

from the histological, association. From early times until now this relation has figured seriously in theories of tumors. It gave the impetus to the old conception of formative stimuli and, in the very recent views of Ribbert, inflammatory changes are ascribed an important rôle in the dislocation of cell groups.

It is a matter of not infrequent occurrence to observe, in connection with the more slowly progressing inflammatory conditions, changes which very closely resemble new growths and even gradually merge into what doubtless presents itself as a tumor. We may refer here only to the bile duct proliferation of the liver in certain forms of cirrhosis, nodular hyperplasia in regenerating liver tissue and in the adrenal bodies, the formation of glandular loops in indurated areas of the lungs, and others. But it has become evident in this study of early malignant growths that inflammatory changes which precede tumors, or are intimately connected with their origin, attain importance in so far as they involve degeneration and atrophy of cells from which the tumor originates. An exceptionally striking illustration was furnished me over two years ago, in a case of primary carcinoma of the liver in a hypertrophic cirrhosis (Hanot's type), and which came to autopsy at a comparatively early stage of development. This case, already published in detail, for which reason I shall only review it here, presented many interesting features, one of which has already been spoken of in connection with the transplantation of tissues.

It was plainly revealed that the origin of the cancer was a transformation of multiple groups of liver cells, sometimes only involving few within one lobule and nearly always centrally located. These microscopic areas, best observed in those parts of the liver which showed, as yet, no gross cancer formation, demonstrated a direct change of atrophic, degenerated, wasting liver cells into cancer cells, while they were still in perfect continuity with each other and still entered into the formation of the lobule. At this very early stage such a lobule showed no other structural changes except those incident to the cirrhosis. I described fully at that time how the cancerous change in these degenerated liver cells occurred. They gradually lost their typical protoplasm, the nucleus became smaller, its chromatin structure became fainter until finally only little of it remained, with a faint rim of surrounding protoplasm. At this point some of these cells showed a very striking change, in a rapid, irregular production of rich chromatin arranged with much less structural definition than the normal nucleus, and necessarily leading to marked enlargement of it. Intimately associated with the production of this new atypical nucleus was the accumulation of a smooth, supple protoplasm, and an immediate tendency of the nucleus to divide in atypical fashion. I have been able in subsequent studies to detect three well defined stages in this cellular transformation.

The first one, which may be named the *granular degeneration*, is represented by a cell of the type of the liver cell, with extensive loss and granular degeneration of protoplasm. The nucleus has lost its structural chromatin arrangement and most of it has disappeared. There remains the form of a vesicle

cle, with little or no central chromatin, no distinct nucleolus and, at the periphery, small, rather faint, apparently unconnected, chromatin granules.

The second picture is one in which the nucleus shows marked enlargement with irregular production of small chromatic granules within the vesicle of the same type as in stage 1, but without definite arrangement or connection. A faint nucleolus may be visible. The protoplasm around such nuclei is still of the degenerated, granular type, and much wasted. This may be called *stadium regenerativum interiens*.

In the third stage, finally, these chromatin granules have largely coalesced to form one to more larger rich clumps which are connected; a pale nucleolus is distinct. At this point an accumulation of smooth, supple protoplasm takes place around the very large nucleus, stamping the cell at once as an entirely different type of cell. This is the *stadium carcinomatosum*.

A new cell type, identical with the cancer cells, was thus formed directly from the degenerated, wasting liver cells, bridged over, only, by a small mass of remaining nuclear chromatin. But these cells still entered at that time into the construction of the lobule, and showed the arrangement in rows after their individual change in cell character had occurred, and no disturbance of the lobule had taken place; ample proof that these small islands were not metastases, but primary cancerous foci. However, as soon as these new cells began to reproduce, they broke with the former physiological arrangement and structure. As they had lost the morphological character as liver cells, they now proved their new functional type by rapid independent growth, with utter disregard to their original source and surroundings. They began to infiltrate, their true malignant nature was manifest, a carcinomatous growth was established.

Not until these cancer cells had proliferated, then, was their connection with each other lost and their independence shown, and it is important to note that the secretion of bile was frequently retained in cells which had, as yet, not lost their continuity with other liver cells, but still entered into the formation of the lobule.

I entertained, at that time, the idea that cancer cells developed from preexisting degenerating parenchyma cells and from retained chromatin portions of the nucleus. This change, as shown by a progressive loss of continuity and ability to secrete bile, was to be regarded as a gradual one, and the cells, thus formed, were morphologically and functionally distinct.

It might be mentioned here that, in spite of an active proliferation of the epithelium of the bile ducts, as commonly found in Hanot's cirrhosis, the duct cells appeared perfectly uninvolved, a fact which, in my opinion, argues against a specific cancer stimulus, inasmuch as one would expect cells already proliferating to respond much quicker to such a stimulus than quiescent, degenerating cells.

This case corroborated fully the observations already made by von Heukelom, but frequently contradicted, concerning the multiple origin of cancer of the liver, and the direct transformation of liver cells into cancer cells. It was only a short time later that two publications came to my notice which

corroborated Heukelom's and my own observations.

L. Polak Daniels, in an article on the histogenesis of primary carcinoma of the liver, reports multiple, primary, carcinomatous degeneration of epithelial cells in their original situation; and Tolot, in the instance of a cancer of the liver found in a tuberculous man, and without cirrhosis, also observed the direct transformation of liver into tumor cells as follows: "Sur un assez grand nombre de points les cellules néoplastiques se développent non par transformation des cellules normales, mais au contraire en dehors de ses dernières, qui sont peu à peu refoulées et comprimées et disparaissent de la sorte. On voit alors les cellules hépatiques non dégénérées s'allonger, former des travers de plus en plus minces, tandis qu'à leurs côtés les travers des cellules néoplastiques s'étalent, larges et hypercolorées."

III. *Epicrisis*.—This rare instance allowed us to observe very definitely a gradual but direct transformation of degenerating and wasting parenchyma cells into those of a new growth, and by taking origin from a retained portion of nuclear substance. This formation took place, then, on the basis of a far advanced degeneration of the cells and directly from them, the essential features of this degeneration consisting of extensive loss of protoplasm and nuclear chromatin.

Further, the first step in the production of the tumor cells is a nucleus which is made up of structurally undefined, undifferentiated clumps of chromatin. This nucleus produces later a protoplasm quite unlike that of the ancestral cell.¹ We find, then, that a retained part of the chromatin of the original nucleus forms the connecting link between degenerating parenchyma cells and the resulting cancer cell, and that the tumor cell nucleus shows no such distinction as the normal one. It is to the nucleus, then, that we naturally turn for the explanation of these phenomena.

The experimental observations of O. and R. Hertwig, Klebs, Boveri, Verworn, Minot, and others have clearly demonstrated the intimate relation between nucleus and protoplasm and the essential rôle played by the nucleus and its chromatin in the development and in the metabolism of the cell (*cytomorphosis*, Minot). A definite interchange of substances between nucleus and protoplasm is essential to the healthy life of the cell, and disturbance in either direction is speedily followed by evidences of degeneration. This metabolism of the cell is its real process of life, the phenomena of life only its expression.

We know, for instance, that during glandular activity, augmentation of the chromatin is a constant feature (Stöhr and Garnier). Korschelt has pointed out that, in the secreting nurse cell attached to the eggs of forficula, the peripheral position of the nucleus and its richness in chromatin are undoubtedly correlated with cell metabolism. Carlier found that, in the gland cell of the newt's stomach, the chromatin spreads itself out on the inner surface of the nuclear membrane, and that this condensation

SUMMARY OF MINOT'S WORK ON CYTOMORPHOSIS DURING GROWTH AND DEGENERATION. Observations are now contemplated in this laboratory on the relative size of nucleus and protoplasm in different stages of tumor and stages of tumor growth. In the case of cancer I have described the enormous increase of the nucleus in relation to the protoplasm, during the early stage of tumor development, as very plain, and my impression is that this is common in those cells of tumors which keep up their rapid proliferation. Exact investigations of this point are needed.

is directly connected with the formation of a prozymogen. In this connection the observations of Gerhardt appear instructive. He found in the glands of rabbits after section of the chorda, focal degeneration of the protoplasm of the cell, and after section of the sympathetic, focal degeneration of the nucleus. It is, therefore, very probable that even the influence of the nerves on secretion is indirectly due to structural changes induced in nucleus and protoplasm, and their necessarily disturbed relations.

The important investigations of Eycleshymer, dealing with the relations of nucleus and protoplasm during growth, and from whose article I quote, have led him to similar conclusions with regard to the rôle of the nucleus and its chromatin in the muscle cell, "they suggest that cellular degeneration and regeneration are accompanied by volumetric structural and chemical changes in chromatin, . . . that nuclear material plays a most important part in cytoplasmic synthesis."

Of very great importance as bearing upon the subject under discussion are the recent observations on the chromidial network and two kinds of nuclei in the lowest animal life.*

There has been described by Hertwig structures within the protoplasm of low animal forms which he terms chromidia or chromidial network. They are represented by small bodies or a chromidial network within the plasma which are undoubtedly derived from the nucleus. The chromidial network may form new nuclei or even take their place, from which fact Hertwig concluded its nuclear relations. He termed the new nuclei secondary nuclei. The observations of Schaudinn have thrown considerable light on these findings. He showed that low animal forms possess in their vegetative condition a nucleus and a chromidial network, and that toward the end of the vegetative life of the organism the vegetative nucleus disintegrates, while the chromidial network forms gametes, is disassociated by marked plasmatic currents, and gives rise to two organisms with reorganizing chromatic network. Such, for instance, is the case in the amoeba of dysentery. Toward the end of its vegetative life the nucleus gives rise to plasmatic chromidia forming spores, while it itself disintegrates. In other words, the chromidial network is the *Anlage* of the sexual nucleus, and the vegetative nucleus disappears before propagation.

Now it has been found that the nature of this chromidial network is not a uniform one; in some organisms it seems to stand in close relation to the metabolism, while in others in the same relation to propagation or cell division. We may, therefore, distinguish between vegetative and germinal chromidia.

But, the observations of Schaudinn have demonstrated two kinds of nuclei in the infusoria, sexual or germinal, and vegetative nuclei. In these simplest forms of animal life both of these nuclei appear side by side. In the propagation the germinal nucleus becomes active and, after fertilization, forms a new vegetative nucleus to take the place of the old one. While it had been thought that the occurrence of double nuclei was confined to the infusoria, later

investigation has extended this to other forms of protozoan life, and that each of these nuclei is able to appear in the form of chromidia. Those of the vegetative type are known as genuine chromidia, those of the germinal type as sporetia. In some of these forms both kinds of nuclei are present in the form of one or more vegetative nuclei, and in the form of sporetia as propagative nuclei. The condition becomes somewhat more complicated where the separation of both nuclear forms occurs only temporarily for the purpose of sexual propagation. Each nucleus, however, even in these cases functionates and divides. Finally, recognition of both nuclear kinds is most difficult to observe when their separation occurs only shortly before the division, as in the amoeba coli.

These results have opened a new field for investigation and Schaudinn properly remarks that it must now be the purpose to trace these two forms of nuclear substance in the metazoan cell. The observations of Goldschmidt make this point very possible for some of the higher developed organisms, for he has been able to establish chromidial networks and their possible relation to nuclear function in the cells of ascaris.

The bearing of these investigations on the cytology of higher animal life appears to be this: that the single nucleus of the metazoan cell represents a structure of complex qualitative characters arising from fusion of chromatic substances which, in the lower forms, appear more or less independent of one another.

In view of this knowledge and the morphological observations presented in this paper it seems probable that the various parts of the metazoan nucleus and its chromatin have a direct specific connection with various functions or groups of functions; upon their integrity, definite connection, and proper relations, rests the healthy life of cells. Should, during a degeneration, an unequal loss of nuclear substance and chromatin occur in such a fashion as to retain certain parts of it which are intimately connected with certain functions, while others succumb, it would necessarily allow the remaining portions to control the future of the cell.

I believe that an analogy can be found in certain forms of hypersecretion of parenchymatous organs in which extensive degeneration of the cells is the main feature. There can be no question that the amount of secretion furnished by some of these organs during late and far advanced destruction of the whole organ is such that it cannot be attributed to a hyperactivity of remaining normal cells. I refer especially to certain forms of inflammation of mucous membranes.

Cases of chronic gastritis in which at autopsy a uniform destruction of the gastric mucous membrane is found while the secretion of gastric juice or mucoid material in very large amounts continues to the time of death, belong to this category. The same is true of the paralytic secretions of watery saliva which continue even after all nerves passing into the gland have been divided. During this process the gland itself gradually diminishes in size, becomes waxlike, and the cells of the alveoli show the resting appearance even to a greater extent than normal resting glands, and undergo atrophy. Still the hypersecretion continues

*I owe the knowledge of these relations, which appear to be of great importance in the histogenesis of tumors, entirely to Dr. James Ewing, who informs me that he has been working on that subject for some time.

until absolute loss of the glandular structure occurs. Chemical examination of these secretions indicates that they cannot be regarded as a transudation, for they contain principles specific to glandular activity, although the composition of that secretion indicates an unusual or perverse cellular activity.

In view of the experimental and anatomical evidence presented it is not unlikely that this one sided hyperactivity on the part of secreting cells represents an unequal morphological and functional loss incident to a slow degeneration; for the disintegration of the cells in all probability not being a uniform, equally progressing material and functional loss to one degree, retains some better than others. An unequal morphological and functional balance is thereby established, and the life during that slow process of destruction is carried on with functions of unequal strength and importance. Such a disturbed balance, however, leads naturally to a pre-dominance of those functions which have been better retained over those which have been weakened or entirely lost. Thus it becomes possible during this process that secreting cells may hypersecrete some substance, undoubtedly not as a result of a greater normal functional activity, but as a result of a lost functional balance acquired during their degeneration.

If we extend these thoughts to the problem of tumor formation of cells it would appear possible that, in an extended degeneration and waste of cells which is slow but progressive, the same overactivity may ultimately be taken by the lowest vegetative functions of assimilation and reproduction, when all higher ones are much weakened or abolished. These functions would gradually become more powerful, overrule others and, in some cases, after entire loss of other balancing ones, control cell life entirely.

If these ideas are borne out by further observations they would, I believe, become valuable in the explanation of tumor growths, for they would establish the fact that the tumor represents no embryonic return, no unexplainable biological change in the character of cells, but the direct result of a characteristic degeneration leading to a loss of specific parts of nuclear substance, especially its chromatin.

It is true that the embryonic cell somewhat resembles the tumor cell in its life, for here, also, the function of reproduction seems to control; but it has latent within it other potencies, the ability to develop. As nucleus and protoplasm become more differentiated, the embryonic cell shows its vast difference from the tumor cell. This has gone in the other direction. From a highly differentiated cell it has descended by loss of such structural and functional differentiation to a cell unlike any normal cell. Under no conditions could it develop or regain its former character. Its functions are not latent, as in the embryonic cell, but permanently lost. It is Marchand's great merit to place this as an important point in the distinction of tumor cells from any other young cell.

But, as I have pointed out elsewhere, it is not necessary that in the degeneration of cells allowing a predominance of the reproductive activity, so as to induce tumor growth, all other functions should cease. On the contrary, in the number of remaining functions, and their relations and importance, one would find regularity or irregularity, similarity to

the normal or utter change. Thus benign, mixed, and malignant growths result, and the change from the first to the latter becomes plausible.

The close relationship of inflammatory parenchymatous changes to tumor growths in border line cases, where distinct evidences of the tendency to atypical new growth is shown by the formation of different types of cells, and a more irregular arrangement than the normal, while at the same time a restraint in the progress and invasion by the new growth is clear, seem to indicate that instances occur in which a sufficient number of functions are retained within cells to balance and outweigh the reproductive one, and limit its absolute power and control. This, in connection with the opposing influence of the surrounding tissue, would be sufficient to keep the growth from going beyond local manifestations in such cases. This factor may well enter into malignancy and the metastatic power of all tumors. It can also be appreciated how easy it would be, under such conditions, to upset that unstable balance and then have true progressive tumor growth. Herein, in my opinion, lies the close relation between inflammation and tumors.

We find further an explanation for the metastases and infiltration of malignant tumors. Undoubtedly resistance and tension of the surrounding tissue constitute here important factors, but tumor cells have this in their favor: that, as one sided cells they can act in their capacity of growth more strongly than normal multifunctionating cells. Their power is mainly directed along the line of growth in which they are constantly aided by overproduction.

The disastrous result of their overproduction lies in the very nature of the process. If a hypersecreting cell dies, its work is finished, is lost; the organism is freed from the enemy. Not so in the tumor cell; it is constantly outlived by its own production, new cells. The organism cannot be freed from this form of degenerative hyperproduction.

It is very interesting in this connection to recall that Minot, from the embryological standpoint, especially emphasizes the tendency of mesoblastic tissues to degenerate early in life, while hypoblastic and epiblastic tissues show that tendency much later. We know that mesoblastic tumors are essentially those of youth and epithelial those of later life.

Ribbert opposes the ideas here expressed, as he holds that it would be erroneous to speak of a tumor degeneration of cells, in view of the fact that tumor growth is a progressive process, and that an injury to the cell can never produce growth. But this is a misconception of the question at issue, for these views do not assume to regard the tumor growth as a degeneration of the cell, nor that injury itself can ever produce growth, but hold that a characteristic chain of degenerative processes, as outlined above, precedes tumor growth and makes it possible.

It is left undecided whether a specific or any other stimulus is required for the activity of thus established latent forces, nor is this etiological question of much more interest to the pathologist than the spark as the cause of the explosion is to the physicist. In one as in the other case the true cause must be looked for in inherent properties of the substance.

I am under very great obligations to Professor

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SOME THOUGHTS ON MALIGNANT GROWTH OF THE MOUTH AND LIPS.*

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The oral cavity and its accessory organs is a not uncommon location for cancer. It has been variously estimated that one seventh to one third of all cancerous growths are located on the face or in the mouth. The prominence of the growth and the distressing symptoms in the late stages make cancer of this location particularly unpleasant and uncomfortable and often agonizing.

The horrible unyielding sore on the lips, the foul smelling, discharging growth on the tongue or buccal surfaces, with saliva and pus running from the mouth, make a truly pathetic picture.

The general health of these unfortunates rapidly becomes undermined from the inability to properly masticate food and from the associated infection of the stomach due to the constant swallowing of detritus and toxins. When we consider the symptoms and associate them with the essential fatality, we can well afford to match all our skill and knowledge in doing battle with this terrible affliction.

The three varieties of malignant growths met with in the mouth and lips are, epithelioma, carcinoma, and sarcoma. The latter is usually found in the bones of the jaws or the periosteum and will therefore not be given place in this paper.

Epithelioma is the form of malignant growths most commonly met with in the mouth and lips. The lips are a very common site; the lower lip much more frequently than the upper. Trendelenburg found that in 499 cancers of the face 241 were of the lower lip.

Cancer of the oral cavity is far more common in the male. Among 1,000 cancer cases in women only 13 were affected on the lower lips, oral cavity, or tongue; 8 on the lip, 3 on the tongue, 2 in other parts of the mouth. Two hundred and forty-three of these cases had mammary carcinoma. Of 1,000 cases in men 111 occurred in the oral cavity, of which 77 were on the lips, 21 on the tongue, and 13 on other parts of the oral mucosa.

Age is a distinct factor in cancer of the face and mouth. The predisposition increases with advancing years, being especially marked between the ages of forty and sixty.

Sex has a most marked effect, or to speak more accurately, the habits of sex. Men in whom smoking is almost universal, and drinking of alcohol very common, are more prone to the disease than women.

There seems to be no definite knowledge as to the contagiousness of malignant growths. There are several cases on record where there was some evidence of the transmission of a malignant growth of the lip to another and presumably normal individual. This evidence is not to be accepted as in any way conclusive or definite. I do not believe

* Read before the Philadelphia Academy of Stomatologists.

from our present knowledge of the subject that malignant growths are contagious.

Any source of irritation which is prolonged and active is an important aetiological factor in the production of the disease. Smoking and particularly pipe smoking, rough and sharp pointed teeth, teeth which are not closely coapted, constant biting of the cheek or tongue, are all predisposing factors of importance. Leucoplakia is probably the most common predisposing cause of oral cancer.

"This term, as first used by Schwimmer, is applied to an idiopathic disease characterized by the gradual development and extension of opaque, milk white patches on the mucous membrane of the cheeks, lips, and palate, but most frequently on the upper surface of the tongue, where they may extend as far back as the circumvallate papillae. On the mucous membrane of the cheek they are arranged in mosaic fashion, are small and scarcely project above surrounding level. A similar condition is found on the lips, the gums, and the palate. On the tongue, however, they gave the impression of a thin rind only a few millimetres in thickness, applied to the upper surface, at first smooth but later wrinkled and furrowed. Some of these furrows are ulcerated and penetrate more or less deeply into the mucous membrane. These patches, wherever their site, are sharply marked, but of irregular contour, and are often compared in appearance to a map. The edges may become closely approximated, and in certain places the patches are confluent. In this manner the entire upper surface of the tongue may be covered with white flakes of varying thickness. Palpation shows that these patches are hard, and in advanced conditions they feel like roughened horny plates. The furrows and the ulcerated areas are very apt to bleed at times."

A very important point in the pathology of carcinoma of the lips and oral cavity, and one which is not generally recognized, is the associated infection of the involved area. When one considers the fact that the oral cavity offers all the favorable conditions for the growth of bacteria, and as bacteria exist in the mouth under normal conditions, we can understand how they will grow and multiply under abnormal condition of cancer growth. I believe that a great deal of the early pain and enlargement of the cervical lymphatics is due to this associated infection. Later the enlargement of the glands is due to metastasis. I also believe that the inflammatory involvement of the glands favors early metastasis.

Involvement of the cervical lymphatics is of so great importance in the prognosis of the disease that I will describe their anatomy at the risk of being somewhat tiresome.

It is of little use to remove the primary growth, and leave involved lymphatics. And it is here that the x ray treatment of cancer falls short of being a complete surgical procedure. It should be limited to the local stage of the disease.

"The superficial cervical glands are composed of two groups, the external jugular and the superficial anterior cervical glands.

"The external jugular glands are superficial to the sternocleidomastoid muscle. They are four to six in number and lie along the external jugular vein upon the outer surface of the deep cervical fascia. The sternocleidomastoid muscle is beneath them. They are usually gathered in a group, a little below the parathyroid glands, but sometimes extend to the middle of

the vein. They receive vessels from the occipital, the posterior auricular, the parotid, and the submaxillary lymph glands, from the auricle, and from the skin and subcutaneous structures of the neck. From them lymphatic vessels pass to the upper deep cervical and to the lower deep cervical glands.

"The superficial anterior cervical glands lie along the anterior jugular vein, and from them vessels pass to the deep cervical glands.

"The submaxillary glands are in the submaxillary triangle beneath the deep fascia. They number three to six, are embedded in the superficial surface of the sheath of the submaxillary gland, but are not found



(From Gray, Poirer, Cuneo, and Toldt.) The distribution of the superficial lymphatics. Excision of neck cancer. Chile.

within the sheath. Occasionally one or two are found in the deep portion of the sheath toward the floor of the mouth. The middle gland of Stahr is situated at the point where the submaxillary group is crossed by the facial artery. This is the largest gland of the group. The submaxillary glands receive vessels from the nose, the cheek, the upper lip, and the external part of the lower lip, almost the whole of the gums, and the anterior third of the lateral border of the tongue. They also obtain lymph from the floor of the mouth and from the sublingual and submaxillary salivary glands. They send vessels to the jugular and to the upper deep cervical glands.

"The submental or median suprahyoid glands are situated between the anterior bellies of the two digastric muscles and upon the mylohyoid muscle. They receive lymph from the cutaneous surface of the chin, from the cutaneous and mucous surfaces of the central portion of the lower lip, from the central portions of the gums, from the floor of the mouth, and from the tip of the tongue. They send some vessels to the submaxillary lymph glands, and frequently a gland is in-

terposed on the anterior belly of the digastric muscle. They send other vessels to the upper deep cervical glands." (Gray's *Anatomy*).

In a series of thirty-six cases in the German Hospital in the past five years, the location of the growth was as follows: Lips, 14; tongue, 12; cheek, 7; tongue, lip, and cheek, 1; tongue, tonsils, and fauces, 1; lip and cheek, 1.

Of the fourteen lip growths twelve were epithelioma and two carcinoma. Of the twelve tongue growths, eight were carcinoma and four epithelioma. Of the seven cheek growths, five were epithelioma and two carcinoma.

The growth of the tongue, cheek, and lips was carcinoma. The one involving the tongue, tonsils, and fauces was epithelioma, and that of the cheek and lip epithelioma.

The glands were demonstrably enlarged in only fifteen cases on the same side with the growth and on both sides in five cases. In twenty-six of the thirty-three cases operated in, the glands were removed on both sides. In several cases the growth was so extensive and the glandular involvement so great that no attempt was made to remove them, the operation being done to relieve the patient of some of the distressing symptoms.

Of the thirty-six cases of carcinoma and epithelioma involving the buccal surfaces, fourteen were of the lip alone; of these thirteen of the lower lip, and one of the upper lip. Of the thirteen of the lower lip, nine involved one side only, and of these two had submaxillaries on same side enlarged (in one microscopical examination showed no metastasis). One had cervicals on same side involved; one had no glandular involvement; one had submaxillaries of both sides involved; one had no mention of glands made; three had glandular involvement, but location was not definitely stated; of these two had microscopical examination and showed no metastasis. One involved middle of lip; no mention of gland involvement. Three involved whole lip; one had glandular involvement of one side; one had glandular involvement of both sides; in both cases submaxillary; one had no glandular involvement. In one case involving the upper lip, the growth was on one side only, while glandular involvement was on both sides.

There were seven epitheliomas of the cheek. Of these, three had enlargement of submaxillary lymphatics on same side; two showed metastasis microscopically; one did not; four had no mention of glandular condition.

There were eleven cases of epithelioma of the tongue. Nine were situated on one part or side of tongue. Of these, two had enlargement of submaxillary glands on same side; one had enlargement of submaxillary glands on both sides; three had no glandular involvement; three had no mention of glands; two had both sides of tongue involved; one had metastasis to the same side of neck as greatest involvement; one had glandular involvement; location not stated.

There was one case of carcinoma of the tongue, and lip, and cheek. It was on one side of the mouth, and showed no glandular involvement.

There was one case involving tongue and floor of the mouth. It showed involvement of submaxillary glands on both sides.

There was one case involving lip and cheek; no mention of glands was made.

There was one case involving tongue, tonsils, and fauces; no mention of gland condition.

The primary sore of syphilis is a most contagious lesion, and is commonly found on the lips, tongue, buccal mucous membrane, and tonsils.

It is important to distinguish between chancre and cancer. The diagnosis is comparatively easy and certain. The points are: First, chancre of the lips and oral cavity is more common in women, the reverse being true of cancer. Chancre develops rapidly, and the lymphatics are involved at the same time, and are distinctly tender and painful. The chancre has a characteristic hardness of the undurated area, feeling like a stiff cardboard beneath the mucous membrane. The chancre starts as a round, shot like growth and becomes ulcerated later, while the cancer starts as a slow, indolent ulcer, slow growing and with late involvement of the glands. Chancre responds promptly to treatment, cancer not at all, except complete excision.

The diagnosis is not always easy to make, especially in the early stages, when most good can be accomplished by radical treatment. A patch of leucoplakia; a wart; a patch of persistent herpes; a fissured lip, which is rebellious to treatment, should always be viewed with great suspicion. It is well to emphasize the fact that in patients past the fortieth year of age any pathological manifestation on the lip, tongue, or buccal mucous membrane if not actually malignant is liable to become so. The nearer the corner of the lip, the more rapidly the tumor will grow, and we must therefore be especially suspicious of lesions in this locality, as they rapidly involve the buccal mucous membrane and the tongue.

The characteristic feature of epithelioma is the surrounding hardness, especially of labial epithelioma. The area of induration extends beyond the limits of the discernible lesion. Pain is a late manifestation, only becoming extreme when the disease has advanced far enough to involve the neighboring bone. It is most unfortunate that pain is not an early symptom, as it of itself would be the means of saving many lives and much suffering by driving patients to early operation.

In addition to induration, the tumor of epithelioma and carcinoma becomes elevated and ulcerated, bleeding freely on touch.

The diagnosis must be made on the age and sex of the patient; the location of the growth; the anamnesis; the induration; the ulcerated, malignant appearance of the growth, and its resistance to treatment; and early and constant involvement of the cervical lymphatics.

The prognosis depends on the character of the growth, its age, the extent of the involvement, the locality involved, and the extent of metastasis and the thoroughness with which the disease is eradicated.

Epithelioma is of a lower degree of malignancy than is either carcinoma or sarcoma. It remains local for a longer time. It involves neighboring tissues more slowly, and the metastasis is slower. It therefore offers the best prognosis. Carcinoma is more common on the tongue and buccal mucous membrane. It is apt to be rapid in growth and

metastasis, and is less favorable in every respect. However, it has its local period, and if removed at this time it can be cured. The operation, however, is so mutilating that patients are reluctant to submit to it.

As I have said before, the best prognosis is for lip growth, the next most favorable the tongue, and the most unfavorable the buccal mucous membrane. The fauces and tonsils are also extremely unfavorable sites for malignant growths.

The prophylactic treatment is of great importance. It is certainly more desirable to prevent cancer than to try to cure it. I believe that a great deal can be done to prevent cancer in the part of the body which concerns us to-night. All sources of irritation should be eradicated; rough points of teeth; overlapping teeth; teeth which are constantly biting the tongue or buccal mucous membrane had better be drawn. Great care and watchfulness should be exercised in the fitting and care of artificial teeth. Careful watchfulness as to their condition of cleanliness is necessary. The smoothness and accuracy of the fit should be looked into by the dentist at regular and frequent intervals.

Leucoplakia should be treated vigorously by antiseptic washes and cauterization. Internal treatment is also of importance, so that the salivary and mucous secretions should be absolutely nonirritating or medicated. Locally, the following wash has been successfully used in my hands:

- | | |
|---|---------------|
| B Hydrogen dioxide 30 per cent. dilution, | }aa 3i. |
| Antiseptic liquor, | |
| Potassii chlor., saturated solution, | |
| Boric acid, saturated solution, | |

Cauterization with silver nitrate is a valuable local treatment. Internally the administration of potassium iodide, even though the patient is free from specific infection, is beneficial, as iodine will be eliminated through the saliva and will aid in the treatment of the disease.

Our experience at the German Hospital in the x ray treatment of this class of cancers has not been very satisfactory. We have found that the skin cancers are the most favorable for x ray treatment, the next most favorable being those of the dry mucous membrane, i. e., the dry mucous membrane of the upper and lower lip. The most unfavorable are those within the oral cavity and that variety of epithelioma which involves both skin and mucous membrane. In our hands not one in this locality responded to x ray treatment. The failure to cure by x ray treatment is due to the fact that it does not prevent metastatic involvement of the lymphatics. It is also a question whether the x ray does not exert its greatest activity on the associated inflammatory condition of the involved area. I cannot subscribe to the enthusiastic opinion of some of our x rayists in their claims for x ray treatment of malignant growths in general. I am of the opinion that the early complete removal of the growth, the lymph channels, and glands is the only rational treatment. If we have one point of definite knowledge of the subject, it is that every cancer at some stage of its career is absolutely a local disease, and that if removed at this time there will be no metastasis nor spread of the disease, and therefore the cancer will not return.

There are many factors to be considered in de-

ciding upon the operative treatment of cancer of the mouth. The age of the patient; the condition of the organs, especially the kidneys, heart, and arteries; the character of the growth; the area of the involvement of the lymphatic glands, are points to be thought of and duly weighed. If radical treatment is carried out the most favorable location from the operative standpoint is the lower lip, the next most favorable the upper lip, the third the tongue, the last and most unfavorable the buccal mucous membrane. The most favorable time for operation is very early, in fact, so very early that there may even be some doubt as to the diagnosis. By extermination of the growth at this time when it is purely local, and at the same time removing neighboring lymphatic glands, we can cure a vast majority of these patients. The growths upon the buccal mucous membrane present a more serious condition. For some reason they grow more rapidly and show a decided tendency to spread in area. They are of a higher degree of malignancy, are much more difficult to eradicate, and are very commonly associated with infection. Lymphatic involvement is usually of both anterior and posterior chains, and altogether this location presents a very serious condition. There is no use in attempting any procedure unless one is prepared to do a complete excision of both anterior and posterior lymphatic chains. This necessarily means an extensive dissection of the neck, including removal of the internal jugular vein, the connective tissue and glands in one piece, and the splitting of the cheek back to the angle of the jaw, with the extirpation of the growth. In these cases it is not uncommon to find the submaxillary salivary gland involved in the metastatic process; when this occurs it must also be removed.

In removal of the lip growth a V-shaped incision, well wide of the growth, should be made. It is surprising how much of the lip can be excised without creating permanent deformity. A wedge shaped piece with a base of one to two inches can be removed, and subsequent to proper healing very little puckering or deformity will be noticed. In tongue growth the amount to be removed will be regulated by the extent of the involvement and the time elapsed. It may be possible in very early growth to remove that portion of the tongue which is involved, later it may be necessary to remove one lateral half of the organ, and in advanced cases the removal of the whole tongue becomes necessary. In the more extensive operations it will be wise to tie the lingual arteries in the neck before attempting the excision of the tongue. This procedure can be carried through the incision for the removal of the cervical lymphatic glands. In removing the glands in the cases of buccal involvement, it is a wise precaution to tie the facial artery through the original wound. This will make the removal of the growth very much less bloody.

1721 SURGE STREET.

Foreign Bodies in the Urethra.—In cases of suspected foreign bodies in the urethra exploration with sounds should be avoided, or very cautiously performed, as they are apt to be pushed in deeper. It is frequently possible to detect their presence by careful palpation of the penis or through the rectum. *The International Journal of Surgery.*

A PATHOGNOMONIC EYE SYMPTOM IN RABIES.*

By W. BYRON COAKLEY, M. D.,
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In October of 1905, while studying the pathology and clinical symptoms of rabies on animals entered at the New York Canine Infirmary, I noticed a peculiar scum which partially covered the left eye of a mad fox terrier dog. On wiping away this discharge I found the pupil in pin point contraction and uninfluenced by light, the cornea and conjunctiva were analgesic, and the outer layers of the former were destroyed. This animal was just entering upon the last stage of the disease and was still strong and very furious. After applying atropine at intervals of ten minutes for one hour, I failed to influence the contraction. Cocaine was then tried with the same result. I then administered large doses of atropine hypodermatically with negative results. After a wait of four hours I gave a large hypodermic injection of cocaine; the result was the same as before. At the end of eight hours after my original observation, the contracted pupil suddenly dilated to about the size of a large match head, while the pupil of the right eye remained practically unaffected. The animal at this time was very weak and unable to stand. His respiration was labored, and the heart sounds were indistinct. Two hours and thirty-five minutes from this time he died. The post mortem findings were about the same as those usually found in a rabid dog. Thinking that perhaps this contraction was peculiar to a stage in the disease with which I was not familiar I sought light on the subject in the ancient and modern literature on rabies. I was not a little surprised to find that no such observation had been recorded.

The next mad dog that was entered at the infirmary showed the same eye phenomenon as in case number one with the exception that both pupils were contracted instead of one. Atropine and cocaine were used locally and injected subcutaneously in somewhat larger doses than was used in the first experiment. The results were negative. Death took place one hour and thirty-five minutes after the pupils dilated, or nineteen hours after the last injection of cocaine. The next case which entered the infirmary with this symptom was subjected to the following experiment in an effort to locate the cause of the contraction in either the optic tract or in the cord.

CASE II.—French bull, weight thirty pounds, age nine months. Both pupils contracted to pin point at four p. m. Experiment at 5:02 p. m. The calvarium was removed by a circular incision, the longitudinal sinus were ligatured anteriorly and posteriorly, the corpus callosum was severed, the hemispheres separated so as to expose the lateral ventricles. The hippocampi were then severed at the anterior attachment, and the cortex was sectioned from the cuneus forward, until the posterior quadrigeminal bodies were reached. The effect on the pupils thus far was negative. After raising the brain anteriorly from its bed, fine sections were made through the quadrigeminal and geminate bodies, the rest of the optic tract anteriorly, the floor of the Sylvian aqueduct, and the chiasm, and still the contraction was unaffected. The cord was then severed in the upper cervical region, the left pleural cavity was opened so the contraindications could

be studied by direct palpation, and the observations noted below were recorded:

5:16 p. m. Heart beat 54, and regular. Right pupil normal, left pupil in pin point contraction.
5:17:10 p. m. Heart beat 34, and regular. Right pupil slowly dilating, left pupil slowly dilating.
5:18:40 p. m. Heart beat 11, and irregular. Right pupil slowly dilating, left pupil slowly dilating.
5:19 p. m. Heart beat 3.
5:19:30 p. m. Heart stopped. Right pupil dilated to about two thirds of its greatest circumference, left pupil dilated to the size of a large match head.

This experiment was repeated in two other cases with practically the same results.

Sectioning of Nerves, Ligaturing of Vessels, and Use of Mydriatics.

CASE LII.—Collie dog, weight seventy-two pounds, age eighteen months. Object of experiment: To determine the effects of mydriatics on the contracted pupil. At 9:20 a. m. both pupils reacted perfectly to light, but the conjunctiva was analgesic, considerably congested, and covered with a dark yellow discharge. At 10:32 the left pupil was in pin point contraction and failed to react to light, while the right pupil was normal and reacted to light perfectly. At 11:45 the right pupil was in pin point contraction and did not react to light. Atropine was applied locally to the left eye, then to both eyes, later given by the mouth, and, lastly, by hypodermic injection. The result was negative in every instance. Cocaine was then tried in the same way and with the same results. Both pupils dilated between three and four o'clock the next day, and death took place at 6:25 p. m. The post mortem examination showed nothing unusual in the internal mechanism of either eye. Microscopical examination of the brain showed ganglion cell degeneration and typical Negri bodies.

CASE LIII.—English bull terrier, weight thirty pounds. Object of experiment: To determine the effects on the contracted pupil of section of the third nerve. 3:35 p. m., the pupils reacted to light, and the cornea and conjunctiva were analgesic. The left pupil was normal and reacted to light perfectly. The cornea and conjunctiva of this eye were not analgesic. 7:25 p. m., the third nerve of the right side was sectioned at a point immediately above the ophthalmic division of the fifth, where it leaves the ganglion. The result of this experiment was positive, the pupil dilating immediately. Microscopical examination of the brain showed large numbers of typical Negri bodies in the hippocampus major.

CASE LXXXIV.—Large fox terrier dog, weight twenty-three pounds, age seven months. Object of experiment: To determine the effects on the contracted pupils of stimulation of the sympathetic nerve cavernosus plexus of one eye. 9:40 the pupils were both in pin head contraction and did not react to light, the outer layers of both corneas were destroyed close to their inner margins and the conjunctival surfaces were bathed in a dark gray discharge. The corneas and conjunctiva of both eyes were analgesic. 11:20 a. m. the sympathetic of the left side was strongly stimulated, and was immediately followed by a moderate degree of dilation, the pupil returning to pin head contraction at once on removal of the stimulus. The right pupil was unaffected by the experiment. The microscopical findings in the brain were the same as in case I.

CASE CXLVII.—Irish terrier, weight twenty-nine and a half pounds, age seven years. Object of experiment: To determine the effects on the contracted pupils of ligaturing all of the vessels of the optic nerve. 10:40 p. m. the left pupil was in pin point contraction, and was influenced by light. The contraindications

*Read at the New York Academy of Medicine, Section I, Ophthalmology, April 16, 1907.

I wish to thank Dr. Miller and Dr. Rohrer for the many courtesies extended to me during my investigations.

431 RIVERSIDE DRIVE.

MEDICAL EXPERIENCES: THE DOCTOR.*

By THERESA BANNAN, M. D.,
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The science and art of medicine seem to answer more than any other calling the various demands of the intellect for development. All types of physician are possible. The requirements for the ideal are high. Without being perfect, he must be normal, of good education and decent manners. His common sense and judgment should be sufficient to float him in the tide of knowledge surging upon his professional infancy, to steer him safely between the shores of skepticism and abstruse science, between the nonessential and the necessary. He must not disdain theory, which leads to discovery and progress, nor must he follow its flight, lest the proved ground slip from under his feet. He must be a scientist but cease not to be a practitioner, lest the scientific doubt stay the needful act. His powers of observation need constant exercise, yet if he sees too clearly, his usefulness becomes embarrassment when his patient will not see, or the jury flouts his views. He must be vigorous and decisive, yet kind and gentle, honest and expedient. His morals would seem to be his own concern when they did not affect his professional skill; yet, though a reprobate may be loved with that love akin to pity, it is unstable when respect is lacking. A doctor who is a considerate elder brother to the wife and children and servants within his own home, can be trusted in the homes of others. Such a man is true to the trust of his profession, cherishing it above all personal advantage or gain, keeping it unsullied from the breath of self aggrandizement, unpolluted by commercial measures. With him the honor of his colleagues is safe, their patients secure from defection to his seductive sympathy. To his own patients, weak and miserable, he is strength and comfort, without familiarity or mawkish sentimentality. A father confessor in their shame, a wise counselor in their faltering, a quick actor in their need, a sympathetic friend in their sorrow, a merciful judge in their punishment. This he may easily be, and is, within the nature of man. To be each of these at all times, in all moods, in every case, is superhuman.

"Trust thou not man, for he is a mind diseased:
Pluck from the memory a rooted sorrow;
Raze out the written troubles of the brain;
Cleanse the stuffed bosom of that perilous stuff
Which weighs upon the heart?"

That surely can the physician do by the knowledge of those laws of mind and matter, operated by Omnipotence. The doctor cannot cure, for life and all other things, man's intellect and brute instinct, are of God; but when for ages and ages, man has observed the operation of laws and recorded his knowledge, a science is born. In medicine, the mind is more and more the subject of interest in its manifestations of physical ills. Faults of bodily structure produce idiocy and many other nervous dis-

eases; errors of nutrition cause imperfect development; while disordered function leads to insanity and crime. The very words hypochondriac and melancholic put the mental disease beneath the ribs and in the liver. Overwork and foul air give a physical cause for mental disease. The mind of itself may profoundly disturb the physiological mechanism until proper medication restores the equilibrium of sound mind in the sound body.

The effects of physical disorders are far reaching, but their appreciation is at hand in the medical inspection of school children. Little ones, whose air passages are occluded by inflammatory growths, which vitiate the air they breathe, partly suffocate them in sleep, dull their hearing, and put them in the rank of defectives, blossom into new life and intelligence when these obstructions are removed. Abnormalities of vision are at the root of much stupidity; decaying teeth impair the vitality, weakening the mind and body. The ever present problem of truancy will find its solution in physical needs.

Some one has said there never was a philosopher with a toothache. Dyspepsia is responsible for much that is horrible in history, and in literature, and in art. Anæmia, hysteria, and tuberculosis have begotten false doctrine, and superstition, and persecution. Drunkenness and drug habits often result from unpalatable meals, and many a family jar is avoided by an appetizing odor. The "perilous stuff that weighs upon the heart" may find relief in Lenten fast, or other dietetic discipline. Comfort of body predisposes to generosity and benevolence and the after dinner hour is propitious for petitions. So,

"All good things
Are ours, nor soul helps flesh more
Now than flesh helps soul!"

The habit of observation, so sedulously cultivated and so important to the physician, is not easily laid aside, but obtrudes itself into the hours which should be for his play. Even in church, he finds himself studying the heads of his fellows, rear view or profile. Ears, necks, shoulders, and coloring speak to him their plain language. A new face is an open book. The minister becomes a physiological demonstration. So in the theatre the art of the actor is constantly being sacrificed in estimating the man, even to the recesses of his mind. Incongruity of physique and rôle becomes painful, while harmonious conditions give a doubly exquisite pleasure for compensation.

Other obtrusions of professional habits are common. He is prone to refer everything to the physical world, to the realm of fact, to give little play to the imagination, scant welcome to the poet's frenzy and the novelist's creation. Music, however, hath its charm for him in that Hellenic sympathy of Apollo's tutelage. He is excluded from much social communion as one supposed to be interested only in things medical. He is entertained with the history of some one's illness or the wonderful ability of a favorite doctor, or the exciting details of a surgical experience. On the other hand, his presence may embarrass in recognition of his greater knowledge of things, and the ambitious narrator loses an opportunity of an audience. What the doctor said is of surpassing interest.

The much needed play constantly dutes the mind and man. The things to which he eagerly turns and

* Read before the New York Academy of Medicine, December 1, 1906.

intensely enjoys in the line of his chosen endeavor, are revolting and a bore when they cross his primrose path or stalk him to Olympus. Friendship becomes a difficult relation. The Hippocratic oath provides fraternal care of the physician's own family, but the friend patient is left to become the patient friend.

The doctor, in his close and sacred relation to women and children, exercises and develops to a high degree the qualities generally ascribed to woman-kind. Like the priest, the offices obliterate the officer. Not so completely, however, as to keep the field of medicine for masculine hands, nor to silence that natural appeal of the weaker to the stronger sex for protection and aid. The woman physician, in addition to all the other inducements of professional life, answers the demand of those who prefer their own sex, and of her colleagues who, for the immediate or ultimate good of a patient, advise her services. As midwife and nurse, woman has always done and must do the greatest part of the world's medical work, with instinct and tradition to guide her on her untutored way; but the woman physician shares the sphere of medical science. That she may meet a corresponding sex appeal has been demonstrated in the profession of nursing.

Many patients expect their female physicians to endorse and foster the opinion that women ought to consult those of their own sex—a doubtful compliment, and a suspicious bait. With training and character and inclination equal to that of the average medical man, women physicians ask no concessions. To succeed, they must have not only the qualities of the successful man, but talents to meet the handicap of novelty, prejudice, and restricted patronage.

There is in the science and art of medicine a peculiar element of mysticism surrounding and enshrouding its priests, which they can neither dispel nor explain. A principle in law, a doctrine in religion, a problem in education, can be grasped and understood by the average mind; but in medicine even the trained mind fails, the familiar of the temple becomes confused, and the mysticism prevails. Mr. Cleveland, in an address before the New York State Medical Society, stood a pathetically dramatic figure before this enshrouded fane—as one wearied by a long journey through the perils of the deep and the dangers of the land, stopping at many shrines with prayer and votive offerings, arrives at last before the greatest of the temples, and, with despairing voice and gesture, calls upon the god to disclose himself. And the oracle is silent.

In the court of justice, the physician seeks to explain the principles so clear to his own mind, the facts so repeatedly confirmed, the probable cause, the expected issue, the underlying influences; and the jury in the presence of these incomprehensible data, reject them all. They remember a convincing manner, a magnetic personality. Lawyers care nothing for the disease picture unrolled to the medical senses, but require the positive lines which sketch the legal claim. This various point of view with the inherent mysticism is responsible for the many trials of the medical expert. There is no remedy present, nor is there need of one. After all, the twelve good men and true, chosen from the different fields of labor, are far more apt to sift the grains of

truth from the chaff of legal and medical technicality than any body of men from a single field of work, and so removed from the equalizing influence of average experience. A medical prevaricator must have the same measure as any other man of similar proclivity; yet a board of medical experts to act as jury on the testimony of their colleagues, and serve up their gleaned kernels to be mixed again and sifted in the minds of the twelve, seems to be the best solution offered of this vexed question.

Medical progress has extended the average term of life many years, but medical education in its effort to keep up with discovery is losing sight of the very essence of the doctor's need, the power to grapple with disease. Every shortcoming has a sure cure remedy, an added course or two to the college curriculum. The professors, many of whom with little preliminary training and a scant two years of a medical course, have efficiently and honorably met the demands of their profession, do not hesitate to increase the already grievous burdens of the undergraduates. The specialist, himself often full blown by a few weeks in the metropolis, adds his exactions to the requirements for the doctor's degree.

The care of the sick requires the best efforts of the whole lifetime. The best physician is not he who knows the most, nor he who can carve most dexterously, but he whose qualities of mind and heart win the opportunity for his skill and good judgment. No young practitioner enters with a stroke the full current of medical practice, and many years may pass before he has used up the knowledge acquired in college. His most perplexing problems are not in the course, and chance plays no small part in his professional career. It is the training and postgraduate experience, the necessary information, and the bedside wisdom, rather than the specialized science which fits one to relieve suffering. Scientists in medicine have their place on the skirmish line, or in the van, but the rank and file have the battle to sustain. Whether the course be two years or eight, the recent graduate in medicine must disarm the laity who alternately suspect a propensity to experiment upon them, and consider the opportunity sufficient recompense for his services. He can never become skilful without practice, and may not with it, though a patient is not a good judge of skill. Having chosen his physician, he thereby accords him mighty, if not the highest, faculties, and his judgment is in abeyance. Twenty sufferers, to whose attending physicians the community justly attribute different degrees of ability, will each maintain, to the limit of his strength, the superior learning, character, and skill of the one he has chosen. The fervor of the allegiance is equalled by the swiftness of its transfer, when accident or some sordid financial matter ushers in a medical successor.

In medicine, too, it is art to conceal art. The greatest physicians use the simplest tools so deftly that the work done seems insignificant and appreciation fails; whereas the unskilful, blundering with erring judgment and much ado, confounds the understanding to applaud. So the great actor, trained to the very eyelash for his part, treads the stage with natural ease, and charms the audience to complete illusion; while another, struggling for expression,

shares with them the visible effort, and then their own approval of the participated act.

There are few, if any, disappointments in the practice of medicine. If

"The proper study of mankind is man," here is unlimited opportunity. More interesting than a romance is the life and adventures of the tiny enemies of health; more powerful than a sermon, the wonderful phenomena of the human body. The pulse first sensible to the student's touch, the glimpse through the microscope, the bedside visit, the joy of birth, the mystery of death, the many sided mind, thrill one like an electric flow.

"Here, work enough to watch
The Master work, and catch
Hints of the proper craft, tricks of the tool's
True play."

503 WARREN STREET.

Therapeutical Notes.

For Excessive Sweating in Tuberculosis.

R Menthol,2.0 grammes;
Salicylic acid,4.0 grammes;
Spirits of lavender,200.0 grammes.
M. S. Sponge the surface of the affected regions with solution.

Journal de médecine, April 21, 1907.

Pile Ointment.—Andhoui recommends the following local application (*Journal de médecine de Bordeaux*, April 7, 1907):

R Extract. belladonnæ, }ââ 1.0 gramme; gr. xv;
Extract. opii, }
Antipyrinæ,3.0 grammes; gr. xlv;
Cetati plumbi subacetatis,10.0 gramme; 3iiss;
Unguenti,30.0 gramme; 3j.

M.

Radium for Chronic Rheumatism.—Robin presented to the Académie de médecine a communication by Dominici upon the action of radium in chronic rheumatism. The apparatus consisted of a metallic screen or shield covered with radium in the form of powder. It was stated that the radium exercised a remarkable effect—resolution of the swelling, disappearance of pain, disappearance of contracture, and the return of function.—*Journal de médecine de Bordeaux*, April 7, 1907.

Postgrippal Gangrene of the Lung Treated by Antistreptococcic Serum.—Belliboni (*Gazzetta degli ospedali*, May 26, 1907) reports a case of a victim of grippe, who shortly afterwards had the physical signs of pulmonary gangrene, characterized by a putrid, extremely fetid expectoration, and by a spot of dulness in the apex of the right lung, with local increase of vocal fremitus. The author gave to the patient daily injections of 10 c.c. of antistreptococcic serum. After the third injection, the sputum lost its fetid character, and the cough ceased. After three more injections, the patient was considered cured. The physical signs at the right apex had entirely disappeared, except that the breath sounds were a little harsh and prolonged at the former spot of infiltration.

Gangrene of Pharynx Following a Dose of Calomel.—Lemoine and Caudron report the case of a single woman, sixty-two years of age, who took

some calomel in a capsule for an attack of constipation. Unfortunately, the cachet came apart in the throat, the calomel causing a violent fit of coughing. The powder was partly rejected by coughing and expectoration. To relieve the irritation in the throat, milk was swallowed. Twenty-four hours later she complained of pain on swallowing food, so that she could take only liquids. Upon examination, a few days subsequently, Lemoine found a grayish eschar in the centre of the pharynx, and extending to the left side. It was surrounded by a slightly elevated zone of congestion. Applications of hydrogen dioxide were made and, at the end of three weeks of treatment, the slough came away and the wound cicatrized.—*Le Nord médical*, April 1, 1907.

Subcutaneous Injections of Gelatin for Cancer.—In order to check hæmorrhage from a cancer, Frantz Hauer (official proceedings of the Hungarian Academy of Medicine) resorted to subcutaneous injections of gelatin, which had been recommended in a medical journal. The first effect noticed was a febrile reaction, which for a time looked serious; but shortly afterward it disappeared, and the hæmorrhages stopped. Encouraged by this result, he continued the injections, and presently saw that the patient appeared sensibly improved. The wounds cleared off, the pain became less or disappeared entirely, and the patient gained in weight. In one patient the tumor was completely cured. In several others the cure was almost complete, while in five others no appreciable effect was observed. The experiments will be continued.—*Journal de médecine de Bordeaux*, April 7, 1907.

Bismuth Subnitrate in the Treatment of Gastropathies and Enteropathies.—Hayem recently presented a communication at the Society of the Internes of the Hospitals of Paris (*La Clinique*, May 31, 1907) upon the treatment of digestive disorders by bismuth subnitrate. Declaring it to be practically innocuous and free from the objections of treatment by metals generally, he especially advocated its use for gastralgia. He has employed it for many years, in duodenal as well as gastric ulcer, and for the pain of hyperchlorhydria. In these cases the bismuth is far superior to sodium bicarbonate, which momentarily relieves, but in the end aggravates the hyperchlorhydria. The pain of alcoholic gastritis, of medicinal gastritis, or of ulcerating cancer, is much relieved by bismuth. With the stopping of the pain, the increased flow of saliva is checked, and the spasm of the pylorus ceases. He simply orders 15 to 20 grammes of the salt, to be given in half a glassful of water. In the latter dosage, it exerts some laxative effect, and Hayem therefore uses it in constipation, in mucomembranous enteritis, and in all cases of enteritis accompanied by constipation. In the intestine, he asserts that the subnitrate absorbs hydrogen sulphide and forms the bismuth sulphide, disengaging nascent nitric acid, which is astringent and antiseptic. The remedy may be continued in doses of 20 grammes for an indefinite period, as Mathieu and Hayem have had patients who took kilogrammes of bismuth without suffering any inconvenience.

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A CASE OF PLAGUE IN SAN FRANCISCO.

On the evening of May 23, 1907, a sailor from the steam tug *Wizard*, engaged in towing lumber schooners from San Francisco to Coos Bay, Oregon, was admitted to the Marine Hospital, San Francisco, suffering from what was at first thought to be a simple bubo. The patient died suddenly on the morning of May 26th. The autopsy and bacteriological findings, which were confirmed by Surgeons Austin, Long, and Currie, proved the case to be one of bubonic plague (*Public Health Report*, June 28, 1907). The sailor had been sleeping on the tug for at least six weeks. He had taken his meals at a boarding house in San Francisco, particularly during the period from April 27th to May 21st, during the greater part of which the tug was in the harbor of San Francisco. On the 29th of May the tug struck an obstruction and sank in ten minutes. The crew were transferred to the schooner in tow, and later they were transferred in two parties to two other vessels. These men were examined and, as they presented no evidence of the disease, released. The vessels on which they were brought back to port were fumigated and released. The San Francisco Board of Health has been informed of the result of the bacteriological examination. The Board of Health is reported to have disinfected the building in which the patient took his meals and to be engaged in the destruction of the rats in the neighborhood of the house, at the dock at which the tug lay while in the harbor of San Francisco, and at certain resorts in Chinatown which it is known the

sailor frequented. Here is an opportunity at hand for the San Francisco Board of Health to show what may be done in the way of plague prophylaxis. It is apparent that plague is latent in San Francisco. The problem before the San Francisco Board of Health is not only to kill and examine rats caught about the localities frequented by a patient dead of plague, but also to make a systematic canvass of the rat population of the entire city; catch every rat possible, and, after proper tagging, have each carcass examined bacteriologically for evidences of plague infection. After the bacteriological examination has been made the carcasses should be burned. If the bacteriological examination reveals *Bacillus pestis* in any carcass, the location at which the animal was caught should be gone over most carefully; cleaned up, disinfected, and cleared of its rat population. It is only by a systematic campaign of this character that safety may be obtained. The Public Health and Marine Hospital Service will take care of imported infection; it is the task of the Board of Health of the City of San Francisco to prevent its spread on shore.

ON A SPECIFIC ANTIBODY IN GENERAL PARESIS.

The solution of the problem of the etiology of general paresis grows nearer to a satisfactory preciseness year by year, although it cannot yet be said that it is definitely solved. The work of Fournier, Erb, and others has prepared the way for looking at the destructive process as being linked in some manner with the syphilitic virus. What the precise mode of such relationship may be remains for future research.

A new link in the chain has been recently forged by the researches of Wassermann and Plaut. Before a meeting of the Gesellschaft für Psychiatrie und Nervenkrankheiten of Berlin, held in December, 1906, Plaut, of Munich, reported on the finding of a specific syphilitic antibody obtained from the cerebrospinal fluid of general paretics. These antibodies were present in thirty-eight out of forty-eight cases examined. In six patients the findings were negative, while in four there were reasons for doubt. In some of the patients tests were made with the blood serum, and in ten instances the serum gave a definite reaction to syphilitic antibodies. This occurred in those sera in which the cerebrospinal fluid was also positive. In a large number of nonparetic and nonsyphilitic psychoses tests for the antibodies showed their absence.

The presence of antibodies in the cerebrospinal fluid seems to bear no definite relation to the age of the patient, duration of the illness, nor to its intensity, as the reaction is more or less constant under

great variation in these factors. On the other hand, however, a marked variation may be found in individual patients at different times, and the inference is drawn by the authors that it is possible that there exists a certain periodicity in the production of these antibodies, such production being at times almost nil, at other times very apparent. What relations such perturbations show to remissions is not considered. In four cases of probable cerebral syphilis no antibodies were found. This is not interpreted by the authors.

Plaut and Wassermann are not as yet certain as to the site of origin of these antibodies. In all of the cases reported on at the Berlin Society the cerebrospinal fluid never contained any fewer antibodies than the blood serum, yet it is uncertain so far whether the antibody is of neural or of hæmic origin. If originating within the elements of the central nervous system, then it is certain that we have to deal with a specific type of change in the nervous tissues, and a syphilitic process of a definite and yet different type develops in the nervous tissues.

The results are of great suggestiveness, and open a new avenue of research in a field much in need of further investigation.

THE OCCURRENCE OF *BACILLUS DYSENTERIÆ* IN NORMAL AND DIARRHÆAL STOOLS.

Since the successful isolation by Shiga, in 1897, of an organism from the mucus of dysenteric stools which he stated was the specific cause of bacillary dysentery, much study has been given to the bacteriology of intestinal diseases accompanied by the symptom complex known as dysentery. Organisms similar to or identical with the *Bacillus dysenteriae* of Shiga have been isolated by Kruse; by Flexner, Barker, Strong, Musgrave, Craig, Vedder and Duval, Park and Dunham, and Duval and Bassett, and numerous other investigators, from the stools of infants suffering from summer diarrhoea. As the various organisms isolated by the different workers differ in some slight degree, Hiss has suggested their division into four groups, according to their action on carbohydrates.

In a study of the bacteriology of normal and diarrhæal stools for the detection of organisms belonging to the dysentery group, Dr. Jessie Weston Fisher (*Journal of Medical Research*, May), has employed thirty-seven patients; eighteen of whom were normal and nineteen of whom were suffering from mild diarrhoea. In obtaining material from some of the normal individuals for examination a fenestrated rectal tube was passed into the rectum for four or five inches, after the administration of

an enema of normal salt solution, and the mucus, swabbed from the wall of the rectum through the openings, was inoculated into suitable culture media.

As a result of the study the author found that in all of the diarrhæal cases, however brief the duration, in which blood or bloody mucus was found in the stool, *Bacillus dysenteriae* of the Flexner type was present, with the exception of two mild cases. In one of these a bacillus of the Shiga type was recovered, and in the other an organism of the Duval lactose fermenting type was found. The Flexner type of organism was found twice in cases of simple diarrhoeas, indicating that the organism may be the cause of mild diarrhoeas. The Shiga type was never found in normal intestines nor in mild diarrhæal stools. Although no type of *Bacillus dysenteriae* was isolated from normal stools a "dysentery-like organism," called *Bacillus F*, was recovered from 44.4 per cent. of normal stools, from the stools of 10.5 per cent. of cases of simple diarrhoea, and from the stools of 0.01 per cent. of cases of dysentery. In agglutination and absorption experiments this organism was found to produce specific agglutinins for itself, but not for types of dysentery, colon, or typhoid. It differs from all three of these organisms in its reaction to litmus milk and some of the carbohydrates. It appears to belong to those organisms known as pseudodysenterics. It produces permanent acidity in litmus milk; it is pathogenic to guinea pigs; it does not liquefy gelatin; it is non-motile; it ferments lactose, maltose, saccharose, galactose, dextrose, mannite, and glucose; but gives no appreciable reaction with dextrin or inulin. It inhibits the growth of both the Shiga and the Flexner types of *Bacillus dysenteriae* in test tube cultures.

THE GENESIS OF CARCINOMA.

Professor Ribbert, of the University of Bonn, Germany, in his *Die Entstehung des Karzinomes (Beiträge zur Entstehung der Geschwülste, zweite Ergänzung*, Bonn, Friedrich Cohen, 1907) observes that the investigations referring to the origin of cancer do not at present emphasize enough the importance of observations made in the human body. Such investigations should aim at a solution of the question of the origin of the changes in the epithelial cells. Why are these cells separated from their normal relation to the surrounding tissue and thus, apart from the matter of nutrition, made entirely independent bodies?

The author tries to solve this problem. His experiments lead him to state that cancer formation is preceded by a prodromal period during which a greatly increased formation of epithelial cells takes place, together with a change of the cells of the con-

nective tissue or with the production of a new layer of granulation cells situated beneath the epithelium. This prodromal state may originate in a circumscribed embryological disturbance or in an inflammation in the layer of epithelial cells. Epithelium and connective tissue are no longer in their proper, normal, physiological relation with each other or with their surrounding tissues. During this time the carcinoma is formed by spores which the epithelium sends into the connective tissue which reacts to this invasion in a manner similar to that observed during the formation of glandular tissue. These spores are sent out by an abnormal epithelium, they are atypical and have no functional connection with an also abnormal connective tissue, they, therefore, find no obstructing limit to their growth. During this developmental state the cancer grows independently, becomes more and more emancipated from the other cells of the body, and acts as a foreign element, as a parasite. The downward growth of the epithelium is not the only important characteristic of cancer, but the suppression of the physiological combination with the connective tissue, which suppression produces isolation from the physiological relation to other cells and leads to an adaptation of the epithelial cells to a new condition of existence, is even of greater significance.

THE SERUM DIAGNOSIS OF MALTA FEVER.

Those who have to do with cases of Malta fever as isolated instances of infectious disease have been disappointed with the results of the agglutination test as an aid to the diagnosis. The failure of the test may be due to faulty technics or to a poor strain of the organism. The importance of the test, if it is specific, cannot be overstated.

In order to demonstrate the specificity of the reaction, Bassett-Smith (*Journal of Tropical Medicine and Hygiene*, May 15, 1907) presents the results of a study of the serum reactions with the blood serum of 150 cases occurring consecutively in the wards of the Haslar Hospital. The usual technics were employed, using clear serum in a dilution of 1 to 30, and both microscopical and macroscopical tests were made. The blood of forty-one pathological conditions was examined, and all were negative, except four. Of these four positive reactions, two were in cases of appendicitis in persons who had lately returned from Malta and who had Malta fever in addition to the appendicitis; the third case was in the person of one who had suffered from an attack of Malta fever two years previously, and the fourth had been a patient in a hospital in Malta for a long time, although there was no record of his having suffered from a distinct attack of undulant fever. Ten specimens of blood of the series were tested

for the agglutination reaction in dilutions below 1 to 30, and one of them gave a positive reaction in dilutions up to 1 to 10. The agglutinating properties of the blood are not destroyed by keeping or by heating the serum to 60° C. (140° F.), and dead cultures are found to give reliable reactions.

The author believes that in acute cases the reaction is unmistakable, clumping occurring almost immediately. On the other hand, in chronic cachectic cases the reaction is often incomplete, slow, and obtainable in low dilutions only. When the reaction is positive in a 1 to 30 dilution it may be considered conclusive of Malta fever past or present. Critien (*Journal of Tropical Medicine and Hygiene*, June 1, 1907) agrees with this conclusion. On the other hand, a negative reaction does not so positively indicate an absence of *Micrococcus melitensis* infection.

Pulmonary tuberculosis, in its early stages, is the most difficult disease to distinguish from Malta fever, with the exception of the typhoid and paratyphoid infections. The paper by Critien, above referred to, shows that tuberculous disease does not produce agglutinins capable of clumping *Micrococcus melitensis* in dilutions of 1 to 10 and 1 to 20.

WOMEN AS NURSES AT THE FRONT.

J. Taburno, of St. Petersburg, in his *Truth about the War with Japan*, furnishes strong evidence that the place for women nurses in war is not at the front. His observations in the Russian army show that the presence of women nurses among the fighting men is decidedly objectionable from both a moral and a military standpoint. The Japanese had no women nurses in the field, as they took the ground that their presence would be detrimental to the service in the conditions existing in active field work. That the Japanese did not suffer by their exclusion of women from the zone of military activity seems to be proved conclusively by the statistics made public by Baron Ozawa, vice-president of the Red Cross Society of Japan, in an address before the International Red Cross Conference in London last month. As reported in the *Army and Navy Journal*, Baron Ozawa said that the Japanese ambulance corps dealt with 622,688 cases during the war between Russia and Japan, while the number aided in hostile camps and on hostile ships raised the total number of cases treated well above a million. This service was rendered at a cost of less than \$2,500,000. One of the orators at the conference, General Priou, a French delegate, took quite the opposite ground, advocating an increased use of women as nurses. Admiral Rixey, of the United States Navy, has recently put forward a plea for trained women nurses in the Naval Hospital, but not, of course, on ship board

In our own army the woman nurse found lodgment during the war with Spain, though the results of the experiment were not altogether happy. On the whole, it would seem that, while women are useful as nurses at base hospitals, their presence in the field is apt to prove of doubtful advantage.

Obituary.

FRANK H. GETCHELL, M. D.,
OF PHILADELPHIA.

Dr. Getchell died at his home, 1432 Spruce Street, Philadelphia, on Thursday, June 27th, aged seventy-two years. Dr. Getchell was born in Maine. He was graduated from Dartmouth Medical College in the class of 1862 and from the Jefferson Medical College in the class of 1871. During the civil war he was surgeon in the Third Maine Volunteers, and later did hospital duty in the military hospitals about Philadelphia. He was a member of the Philadelphia County Medical Society, the Medical Society of the State of Pennsylvania, and the American Medical Association, and a Fellow of the College of Physicians of Philadelphia.

News Items.

Personal.—Dr. Presley M. Rixey, Surgeon General of the United States Navy, has been advanced from the grade of Medical Inspector to that of Medical Director. The Surgeon General ranks as Rear Admiral.

Foreign Personal.—The death of Professor Max Schüller, of the University of Berlin, occurred on June 18, 1907, in the sixty-sixth year of his age. Professor Schüller has devoted several years to investigations in the ætiology of cancer, in the effort to isolate the cancer bacillus.

Improvements at the University Hospital, Philadelphia.—Plans have been drawn for extensive additions to the medical wings of the University Hospital and for the rebuilding of the front of the hospital in the prevailing style of university architecture, which is Elizabethan.

The Commencement of the Training School for Nurses of the State Hospital for the Insane at Norristown, Pa.—Commencement exercises were held on the evening of June 20th. Ten men and three women received the diploma of the school.

Harvard University Medical School.—At the commencement exercises of Harvard University, held on Wednesday, June 26th, the degree of Doctor of Medicine was conferred upon sixty-four candidates. Of this number sixteen received the additional honorable mention, *cum laude*.

Consolidation of Medical Journals.—The *Interstate Medical Journal* (St. Louis) announces the purchase of the *St. Louis Courier of Medicine*, one of the oldest medical journals in the West, and its consolidation with the *Interstate* on July 1, 1907.

Philadelphia Personal.—Dr. A. L. Edgerton Crouter, Superintendent of the Pennsylvania Institution for the Deaf and Dumb, Mt. Airy, has been appointed delegate from the United States to the International Conference of Teachers of the Deaf, to be held at Edinburgh, from July 30th to August 1st.

Buffalo Old Home Week.—Those of our readers who were formerly residents of Buffalo, N. Y., are requested by the Old Home Week Committee to send their addresses to the committee, in order to receive souvenir invitations to the celebration and reunion, to be held from September 1st to September 7th, inclusive. The offices of the committee are at 100 West Main Street, Buffalo, N. Y.

Charitable Bequests.—By the will of William C. Burk, Sr., of the County of Bucks, in the City of Philadelphia, the sum of \$100,000 is bequeathed to the County of Bucks, to be used for the purpose of establishing a fund to maintain a Deaf and Dumb Asylum, to be known as the William C. Burk Deaf and Dumb Asylum.

By the will of George H. Earle, Sr., two trust funds of \$1,500 each are founded. One is for the benefit of the Women's Branch of the Philadelphia Society for the Prevention of Cruelty to Animals and the other is for the benefit of the American Antivivisection Society.

The Army Medical School.—According to the *Army and Navy Journal* the Secretary of War has decided to lessen the requirements for medical officers of the National Guard to enter the Army Medical School. Hereafter no physical or mental examination will be required, and applicants will only need to furnish certificates from the governor of their qualification and good moral character. The last class from the Army Medical School has been ordered to the Philippines, and will sail July 25 on the *Buford*.

The Medical Society of New Jersey.—At the annual meeting of this society, held at Long Branch, on June 25th-27th, the election of officers resulted as follows: President, Dr. Edward J. Ill, of Newark; vice-presidents, Dr. David St. John, of Hackensack; Dr. B. A. Waddington, of Salem; and Dr. T. H. Mackenzie, of Trenton; recording secretary, Dr. W. J. Chandler, of South Orange; corresponding secretary, Dr. Daniel Strook, of Camden; treasurer, Dr. Archibald Mercer, of Newark. The next meeting will be held in Cape May.

The New York State Board of Medical Examiners.—At a meeting held on June 24th examination subjects were assigned as follows: Anatomy, Dr. W. S. Ely, Rochester; hygiene and sanitation, Dr. Eugene Beach, Gloversville; physiology, Dr. R. H. Williams, chemistry, Dr. F. S. Farnsworth, Plattsburgh; surgery, Dr. Floyd M. Crandall, New York; obstetrics and gynecology, Dr. William Warren Potter, Buffalo; pathology, Dr. Lee H. Smith, Buffalo; bacteriology, Dr. F. W. Adriance, Elmira; diagnosis, Dr. W. S. Searle, Brooklyn.

The Philadelphia Pathological Society.—At the semi-monthly meeting of the Pathological Society of Philadelphia, Dr. W. M. L. Coplin presented a paper for Dr. W. S. Foster on the Eosinophile Cells in Acute Infectious Diseases. Dr. J. N. Henry and Dr. Randle C. Rosenburger reported a case of suppurative cerebrospinal meningitis caused by the bacillus typhosus in pure culture without the customary intestinal lesions of typhoid. Dr. D. Rivas described an improved and rapid test for indol in bouillon cultures and the presence of this substance on meat sugar free bouillon. Dr. Allen J. Smith presented card specimens.

The Flushing, L. I., Hospital and Dispensary.—According to the statement that the Flushing Hospital Benefit Association has recently submitted to the Board of Trustees of the Flushing Hospital and Dispensary, the sum of \$15,240.65 was the net proceeds of the recent circus and carnival held at the Ingleside grounds for the benefit of the institution. The circus and carnival lasted three days and the performers were, with few exceptions, amateurs. Three years ago the association held a fair for the same institution and the proceeds amounted to over \$11,000. With part of the funds raised from the circus it is intended to build a nurses' home adjoining the hospital on a plot recently purchased by the trustees.

The Philadelphia Free Hospital for Poor Consumptives.—The ninth annual report of the Free Hospital for Poor Consumptives has just been received. It contains the address of the president, delivered at the annual meeting of the society, held early in March of the current year. There is a summary of the history of the society from its foundation to the present time, and a statement of the reasons for the conversion of the hospital into a partial pay institution. During the year \$465 was received from the estate of James Henry Askin Brooks; \$420.37 from the estate of Julia Brynes; and \$95 from the estate of Matthew Dittman. We think that the report would be of more value to medical men interested in the work of the institution if a little more space had been given to the medical management of the hospital and less to the details of administrative work, lists of annual contributors, and the like.

The Health of the Canal Zone.—The report of the Chief Sanitary Officer of the Canal Zone for the month of April shows that the sanitary conditions are up to the high standard set by Colonel Gorgas from the time he assumed the administration of sanitary affairs in the Isthmus. There were 41 deaths from disease during the month, 19 from dysentery, 7 from amebic dysentery, 1 from beriberi, 28 from tuberculosis of the lungs, 2 from abdominal tuber-

colosts, 1 from general tuberculous, 5 from bronchopneumonia, and 65 from pneumonia. The total deaths numbered 334, in a population of 97,815, corresponding to an annual death rate of 40.97 in 1,000 population. The death rate among the white American employees was 8.7 in 1,000; among the employees at large the death rate was 38.67 in 1,000. The morbidity rate among the employees was 21 in 1,000. Mosquito work and general sanitary measures proceeded as usual.

Chattahoochee Valley Medical and Surgical Association.—The semiannual meeting of this association will be held at Opelika, Ala., July 9-10, 1907. The following programme has been issued: A Case of Gun Shot Wound of the Neck, by Dr. T. H. Street, of Alexander City, Ala.; Simplification of Surgical Technics, by Dr. W. H. Hudson, of Montgomery; Typhoid Fever, by Dr. S. H. Newman, of Dadeville; Observations in Medicine and Surgery During Three Decades, by Dr. Onslow Regan, of Alexander City; Malaria, by Dr. W. Weedon, of Roanoke, Ala.; Bone Tuberculosis, by Dr. W. D. Gaines, of Lafayette; Infant Feeding, by Dr. A. J. Coley, of Alexander City; The Present Day Status of Ether and Chloroform as Anesthetics, by Dr. H. S. Bruce, of Opelika; Puerperal Eclampsia, by Dr. J. H. Horsley, of West Point, Ga.; The Doctor as a Sociological Factor, by Dr. J. G. Palmer, of Opelika; Oration by Dr. A. L. Harlan, of Alexander City; The Treatment of Inoperable Cancer, by Dr. Henry R. Slack, of LaGrange, Ga.; The Diagnosis and Treatment of Scabies, by Dr. W. E. Maxwell, of Kellyton, Ala.; Some Thoughts on Refraction, by Dr. T. E. Mitchell, of Columbus, Ga.; Report of a Case of Removal of a Large Chicken Bone from the Intestine of a Man Seventy-two Years Old, by Dr. Julius Jones, of Rockford, Ala.; Angioneurotic Edema, by Dr. W. J. Love, of Opelika. The officers of the association are as follows: President, Dr. J. A. Goggans, Alexander City, Ala.; first vice-president, Dr. O. S. Justice, Central, Ala.; second vice-president, Dr. W. E. Maxwell, Kellyton, Ala.; secretary, Dr. W. J. Love, Opelika, Ala.; treasurer, Dr. A. J. Coley, Alexander City, Ala.

The Association of American Teachers of the Diseases of Children.—A meeting of professors of pediatrics and hospital clinicians in that branch was held at the Marlborough-Blenheim, Atlantic City, on June 3rd. Many of the best known pediatricians of this country were present and a permanent organization was effected, which bears the name "The Association of American Teachers of the Diseases of Children." Professors, associate professors, and lecturers in medical colleges of the United States, Canada, and Mexico, are eligible, also hospital and dispensary staff members actively engaged in treating children. The principal objects of the organization are to advance the study of children and their diseases and raise the standard of the teaching of pediatrics in medical colleges and its practice in hospitals, dispensaries, and private practice. The association elected the following officers: President, Dr. Samuel W. Kelley, Professor of Diseases of Children, Cleveland College of Physicians and Surgeons, Medical Department of Ohio Wesleyan University; vice-president, Dr. Charles Douglas, Professor of Diseases of Children and Clinical Medicine, Detroit College of Medicine; secretary, Dr. John C. Cook, Professor of Diseases of Children, Postgraduate Medical School and Hospital of Chicago; treasurer, Dr. George H. Cattermole, Professor of Diseases of Children, Colorado School of Medicine; censors, Dr. W. C. Hollopeter, Professor of Diseases of Children, Medicochirurgical College of Philadelphia; Dr. H. M. McClanahan, Professor of Diseases of Children, University of Nebraska College of Medicine, Omaha; Dr. R. B. Gilbert, Professor of Diseases of Children, Louisville University, Medical Department.

The Resident Staff of Johns Hopkins Hospital.—The new heads of the resident's staff for the coming year will be Dr. C. P. Emerson, medical; Dr. R. T. Miller, surgery; Dr. D. B. Casler, gynecology; and Dr. Henry J. Storrs, obstetrics. After the lapse of a year the house staff will include Miss G. F. Henry, a graduate of the past year. The other graduates, who have accepted positions to serve on the incoming staff, are Dr. P. W. Clough, Dr. G. J. Heuer, Dr. W. D. Gatch, Dr. J. G. Hopkins, Dr. C. F. Davidson, Dr. W. F. Shallenberger, Dr. J. H. Chestnut, Dr. R. K. Cunningham, Dr. C. G. Guthrie, Dr. J. T. Smith, Jr. At the meeting of the trustees of Johns Hopkins Hospital, held on June 18, several important changes in the internal affairs of the hospital were made. The most important of these was the creation of the new office of assistant super-

tendent, to fill which Dr. Ruppert Norton, who is now acting superintendent in the absence of Dr. Henry M. Hurd, was appointed. The trustees also decided on another important step—that of attaching a charity worker to the dispensary department. The latter position will be filled by a woman, who has not yet been named. The resignation of Dr. W. F. M. Sowers, chief resident surgeon at the hospital, was accepted, and Dr. Stephen H. Watts was appointed to the place until September 1, when he will leave to accept a position as superintendent of the University Hospital at Charlottesville, Va. On September 1, Dr. R. T. Miller, who recently returned from studying in Europe, will become resident surgeon at the hospital.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending June 29, 1907:

	June 29, 1907.		June 22, 1907.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	54	6	58	13
Smallpox.....	1	1	2	1
Varicella.....	154	6	62	3
Measles.....	762	24	661	33
Scarlet fever.....	401	29	320	26
Whooping cough.....	31	12	28	3
Diphtheria.....	356	41	396	29
Tuberculosis pulmonalis.....	317	142	380	155
Cerebrospinal meningitis.....	9	16	12	11
Totals.....	2,084	281	2,118	260

The Mortality of Baltimore.—The death rate in Baltimore during the week ending June 29 was the lowest in four years, and three of the 173 deaths reported to the health department were caused by the heat, sunstroke being given as the primary cause. It was the hottest week of the summer. There was one death from measles, which has been quite prevalent in Baltimore for some time past. During the corresponding week of 1906 178 persons died in Baltimore, compared with 247 in 1905 and 221 in 1904. The annual death rate in 1,000 of population last week was: Whole, 15.28; white, 14.45; colored, 19.64. The principal causes of death were: Typhoid fever, 3; measles, 1; diphtheria, 1; consumption, 30; cancer, 7; apoplexy, 5; organic heart diseases, 11; bronchitis, 2; pneumonia, 9; diarrhoea, under two years of age, 7; Bright's disease, 20; congenital debility, 10; old age, 3; suicides, 2; homicides, 1; accidents, etc., 17. The following number of cases of infectious diseases were reported, as compared with the corresponding week of last year:

	1906.	1907.
Diphtheria.....	8	16
Scarlet fever.....	5	12
Typhoid fever.....	7	43
Measles.....	15	43
Mumps.....	1	11
Whooping cough.....	12	1
Chickenpox.....	1	3
Consumption.....	12	17

Statement of Mortality of Chicago for the Week Ending June 22, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of midyear populations—2,107,620 for 1907 and 2,049,185 for 1906:

	June 22, 1907.	June 15, 1907.	June 23, 1906.
Total deaths, all causes.....	607	571	423
Annual death rate in 1,000.....	15.02	11.13	10.76
Sexes.....			
Males.....	325	323	238
Females.....	272	248	185
Ages.....			
Under 1 year of age.....	120	107	60
Between 1 and 5 years of age.....	56	71	33
Between 5 and 20 years of age.....	10	12	36
Between 20 and 60 years of age.....	264	248	214
Over 60 years of age.....	117	103	80
Principal causes of death.....			
Apoplexy.....	13	13	6
Bright's disease.....	51	51	36
Bronchitis.....	14	13	6
Consumption.....	76	63	54
Cancer.....	33	33	23
Convulsions.....	3	9	1
Diphtheria.....	13	11	5
Heart diseases.....	41	43	41
Influenza.....	0	0	1
Infantile diseases, acute.....	32	39	20
Measles.....	9	10	2
Nervous diseases.....	34	22	19
The elbow.....	76	86	57
Scarlet fever.....	10	12	11
Suicide.....	8	9	6
Sunstroke.....	1	0	1
Typhoid fever.....	6	2	4
Unknown, other than suicide.....	16	20	32
Whooping cough.....	8	7	3
All other causes.....	135	126	95

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

June 27, 1907.

1. Transmissibility and Curability of Cancer.
By WILLIAM SEYMOUR BAINBRIDGE.
2. Acute Epiphyseal and Periosteal Infections in Infants and Children.
By J. S. STONE.
3. An Outbreak of Diphtheria Due to Infected Milk.
By CHARLES HARRINGTON.
4. Cold Air in Incurable Consumption.
By HERBERT C. CLAPP.

1. Transmissibility and Curability of Cancer.—Bainbridge gives the following points which, he thinks, may be safely adduced from the mass of conflicting evidence in reference to the cancer problem: 1. That the hereditary and congenital acquirement of cancer are subjects which require much more study before any definite conclusions can be formulated concerning them. 2. That in the light of our present knowledge they hold no special element of alarm. 3. That the contagiousness or infectiousness of cancer is far from proved. 4. That evidence to support the theory of contagion or infection is so incomplete and inconclusive that the public need not concern itself with it. 5. That the public need merely be instructed to apply the same precautionary measures as should be brought to bear in the care of any ulcer or open wound. 6. That the danger of the accidental acquirement of cancer is far less than from typhoid fever, syphilis, or tuberculosis. 7. That in the care of cancer cases there is much more danger to the attendant of septic infection, of blood poisoning from pus organisms, than from any possible acquirement of cancer. 8. That the communication of cancer from man to man is so rare, if it really occurs at all, that it can practically be disregarded. 9. That in cancer, as in all other diseases, attention to diet, exercise, and proper hygienic surroundings is of the utmost importance. 10. That cancer is local in its beginning. 11. That, when accessible, it may, in its incipency, be removed by radical operation so perfectly that the chances are overwhelmingly in favor of its non-recurrence. 12. That once it has advanced beyond the stage of cure, in many cases suffering may be palliated and life prolonged by surgical means. 13. That while other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest means of cure.

2. Acute Epiphyseal and Periosteal Infections in Infants and Children.—Stone states that among infants and children many bone and joint lesions are seen which differ materially from those which occur in adults. The character of all lesions involving the bones of infants and children depends largely on the anatomy of the epiphyses and to a less extent of the periosteum. This is true whether the trouble is traumatic, infectious, or, for lack of a better term, constitutional. The epiphyseal lines are a very frequent seat of infection, are a source of mechanical weakness, and are the seat of numerous constitutional lesions. The strong periosteum is a source of mechanical strength and influences the spread of infectious processes. The author reports a few cases from which the point of special interest is the exact situation of the original focus of infection. At operation it is rarely possible to determine the location of the original focus accurately. It seems probable that it is usually either the epiphyseal line close to the periosteum or the periosteum near to the epiphyseal line. The reasons for this belief are the following: This point seems usually to be the centre of the abscess. The condition is brought on by the same factors which bring on true epiphysitis, a slight trauma

combined with the presence of the infecting organism. The early symptoms are identical with those of acute epiphysitis. These abscesses occur most frequently at the age at which epiphyseal injuries are most common. The location of these abscesses, their course, their symptoms, and whole clinical history differs absolutely from those of abscesses originating in lymph nodes and also from those originating among the muscles and fasciæ. There is probably in all varieties of cases an infection beginning in or close to the epiphyseal line. Suppuration occurs. The pus spreads along the anatomical lines of least resistance. These depend on the exact spot in the epiphyseal line at which infection occurs, which presumably is determined by the exact nature of some trivial trauma inflicted, and the exact anatomy of the epiphysis. His cases illustrate the following varieties of lesions originating in the epiphyseal line: 1. Acute epiphysitis resulting in the sequestration of the epiphysis and incidental involvement of the joint. 2. Acute epiphysitis with perforation into the joint resulting in an acute articular abscess. 3. Acute epiphysitis with perforation outside the joint into the extraarticular tissues. An extraarticular juxtaepiphyseal abscess. 4. Acute epiphysitis with extension beneath the periosteum, a dissecting periostitis. A dissecting periostitis is found occasionally away from the epiphyseal line and without evident lesion in the bone even on careful search. The only rule for early treatment which can be laid down is to follow the pus to its farthest limits whether into the bone or not, and when this has been done the parts beyond should under no circumstances be invaded. The ultimate treatment must depend upon varying conditions to be met as they arise.

3. An Outbreak of Diphtheria Due to Infected Milk.—Harrington describes an epidemic of diphtheria which could be traced to milk. In the family of a farmer, who sold milk to a dealer, was found the source of infection. A member of this family was seized with the disease, the cooler in which the milk was mixed was washed in the house by the person who had charge of the sick member. The farmer himself came down with the disease, and the dealer's son, who drank from the milk, was one of the earliest victims. Prompt action on the part of the local authorities in excluding from sale the milk of the farmer brought the outbreak to an immediate close.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

June 11, 1907.

- Specialism in Its Relation to General Medicine. (Continued.) Address at the Section on Laryngology and Otology.
By S. MACCUN STONE.
2. Nonoperative Treatment of the Middle Turbinate.
By J. A. STUCKY.
3. The Bacteriologic Values of Some Widely Advertised Antiseptics.
By J. M. VESICANT and EDWARD KEITH LUTTS.
4. The Relative Value of the Medical and Surgical Knowledge to That of the Laboratory.
By F. B. FAYAN.
5. The Early or Premature Symptoms of Pharyngeal Anemia.
By JOHN A. LUTTS.

2. Nonoperative Treatment of the Middle Turbinate.—Stucky observes that the nonoperative treatment of the middle turbinate may consist in (1) correction of faulty intestinal metabolism, (2) restoration of body resistance, and (3) treatment of the diseased or irritated area. The primary cause of the average case of disease or irritation of the middle turbinate which does not require surgical treatment, those cases of vasomotor rhinitis, spasmodic rhinitis, and influenza system, and the exciting factor in precipitating the acute attack is not so frequently due to exposure to colds and draughts as to overindulgence in or of immoderation eating and drinking.

3. **The Bactericidal Values of Some Widely Advertised Antiseptics.**—Verhoeff and Ellis have tested various antiseptics. The microorganism on which the tests were made was the *Staphylococcus pyogenes aureus*. The antiseptics tested contained the active constituents of probably all those in practical use. They may be classified as follows: Antiseptics which, acting alone in the strength specified, fail to destroy the vitality of the microorganisms after an exposure of over four hours. Those which acting alone are more or less effective, but which when mixed with an equal volume of hydrocele fluid fail to destroy the vitality of the microorganism after an exposure of over two hours. Their results lead the authors to state that no nonirritating chemical antiseptic can be effective in the presence of serum. In a word, no chemical antiseptic can destroy microorganisms within the tissues without injury to the latter.

5. **The Early or Premonitory Symptoms of Pernicious Anæmia.**—Lichty reports twenty cases of pernicious anæmia, which occurred among about 7,300 patients seen in a general medical and consulting practice. The average age was fifty-five years, the youngest being twenty-seven years and the oldest eighty years. Eleven were males and nine females. All cases had at some time an achylia gastrica. Fourteen had remissions varying from a few months to five or six years. The spleen was enlarged in three cases. Seventeen patients have died. In only two were autopsies made. The autopsies were noted for the absence of positive lesions. The treatment followed was based on the necessity of rest, fresh air, abundance of nutritious food, a rational consideration of the gastrointestinal symptoms, and the almost marvelous effect of arsenic. When arsenic could not be taken by the mouth, the hypodermic use was not followed with favorable results. When the gastrointestinal symptoms could not be controlled, the administration of arsenic was useless and even harmful at times.

MEDICAL RECORD.

June 29, 1907.

1. Massage of the Prostate and Stripping the Seminal Vesicles,
By FERDINAND C. VALENTINE and TERRY M. TOWNSEND.
2. A New Method of Identification Superseding Dactyloscopy,
By PAUL PRAGER.
3. Diagnosis and Treatment of Gastric Ulcer,
By WILLIAM A. DICKEY.
4. Asthma: Observations on Three Hundred Cases,
By EMMETT L. SMITH.
5. Mental Symptoms in Nasal Affections,
By PERCY FRIDENBERG.
6. The Experimental Effects of Tobacco Upon the Nervous System,
By L. PIERCE CLARK.
7. Diet in Pulmonary Tuberculosis,
By HERBERT C. CLAPP.

1. **Massage of the Prostate and Stripping the Seminal Vesicles.**—Valentine and Townsend state that the usefulness of massage of the prostate and stripping the seminal vesicles is daily in evidence, when these organs are involved in acute, subacute, or chronic urethritis. Both are not negligible in the first evidences of abscess of these organs. The value of prostatic massage and stripping the vesicles in aberrations of the sexual function is still *sub judice*. Yet the practice forms a useful adjuvant to other treatment in these cases. The gynecological position is in all regards the normal one for the class of work now under consideration. The lubricant must be sufficiently coherent that much of it will be carried into the rectum by the finger and not swept off as the anus is penetrated. Glycerin is too hygroscopic for this purpose and in some cases acts as quite an irritant to the rectal mucosa. Olive oil is very much thinned by the temperature of the rectum and thus loses much of its efficiency as a lubricant. Gomenol, 33 per cent., serves both as a

lubricant and local anæsthetic in hypersensitive cases. Gouley's lubricant, however, serves admirably in the majority of patients. If properly prepared, it has all the characteristics required. The apex of the prostate should be the first point of attack. The finger is partly bent and slightly withdrawn with each downward stroke. The strokes at first are performed very gently and their force gradually increased until the point massaged is felt to grow softer under the compressing finger. The same process is repeated for each lobe, extending the manipulations higher and higher until the base of the organ is reached, whenever this is possible. Ordinarily extrusion of prostatic juice from the meatus will begin before the finger has attained the middle of either lobe. After the prostate has been sufficiently massaged, stripping the vesicles is performed in the same manner, except that lateral strokes are added to those from above downward. These lateral strippings must be performed on each side from without to the median line, on account of the angle which each vesicle forms upon itself. Without these lateral strippings only the lower part of the vesicles could be relieved.

4. Asthma: Observations on Three Hundred Cases.

—Smith bases his observations on three hundred asthmatic patients. He says that while it is evident that even in true asthma there is vasomotor disturbance, it is not the vasomotor distention in the bronchial mucosa, but the asthma is due to the pressure on the asthmato-genous points in the nasal fossæ. This acts on the pneumogastric nerve, and explains the various phenomena of true asthma. This pressure irritation may be on the nasal septum or rarely there may be no occlusion of the nares, and it may be due to a closed empyema of the ethmoid cells or sinusitis. This is the pathology of true asthma, and it is confirmed by physiological experiments. It also can be confirmed in every case of true asthma by relieving the pressure on these areas, which gives almost instant relief to the spasm. The relief is made permanent by such treatment as will prevent such pressure. If a person is chilled, or has cold, wet feet, or if the air is cold, or cold water is applied to the entire bodily surface, the result is vasoconstriction of the skin, and as the blood leaves the skin it causes internal congestion and increases the nasal pressure, which aggravates the asthma. However, if the skin circulation is normal, the effect of inhaling cold, dry air is to contract the nasal mucous membrane and to relieve the dyspnoea in proportion as the nasal engorgement is relieved. Moist heat to the skin surface produces vasodilatation, and as the skin reddens the nasal engorgement is relieved. The inhalation of chloroform for asthma may act (1) by local anæsthesia on nasal turgescence, (2) by lowering arterial pressure, or (3) by the inhibition of the heart. The action of iodine in asthma, when favorable, he believes is due to its well known action in reducing glandular (bronchial) swelling and pressure, and to its specific action on the nasal tissues. In cases of arteriosclerosis there are attacks of dyspnoea simulating asthma, and the action of iodine in these cases has often been credited as helping asthma. The nitrites are general vasodilators, and amyl nitrite, nitroglycerin, sodium nitrite, and erythrol tetranitrate act as such for from one minute to six hours. Any relief from the use of these in true asthma comes from their action in equalizing the entire vascular system and relieving the pressure on the asthmato-genous areas. The use of adrenalin in asthma acts only as a local vasoconstrictor, and gives temporary relief in proportion as the turgescence in the nose is relieved. The internal or hypodermic use of adrenalin in asthma has been entirely unsatisfactory in his observation. Sprays or nebulized solutions in the nasal cavities act by relieving the pressure on the asthmato-genous areas. Atropine in maximum dose diminishes the reflex excitability of the

pneumogastric nerve. This not only gives temporary relief in asthma, but is useful in other conditions controlled by the pneumogastric nerve.

6. The Experimental Effects of Tobacco Upon the Nervous System.—Clark draws the following conclusions from the animal experiments with tobacco poisoning: It is fairly proved that tobacco is primarily a cardiovascular poison. Its acute toxic effects on the neuromuscular apparatus are, first, as an excitant and mild convulsant; second, motor nerve depressant, and finally a paralyzant of the central and peripheral nerves of the heart and lungs. Its chronic toxic effect on the nervous system (as yet so inaccurately studied) is to induce toxic congestion of the brain, spinal cord, and peripheral nerves; inducing finally in the latter, a mild type of degenerative neuritis. The toxic coefficient, even in animals, under strict test, is so very variable as to vitiate much of the attempt to derive any definite conclusions of its effects on the nervous system in man.

7. Diet in Pulmonary Tuberculosis.—Clapp gives the following dietary, subject to modifications, which will convey some idea of how consumptives with good digestion should be fed, if under weight: Breakfast—7:30 a. m. Fruit, cereal, coffee, toast, or muffins, one raw egg, two glasses of milk. Lunch—10 a. m. Two raw eggs, two glasses of milk, crackers. Dinner—12:30 p. m. Soup; rare roast beef, or lamb, mutton, chicken, turkey, steak, chops, sweetbreads, or raw chopped beef; potatoes, two vegetables chosen from among stewed tomatoes, corn, peas, beans, squash, spinach, beets, onions, turnips, asparagus, cauliflower, celery, etc.; salad; baked or stewed apples or a simple pudding, custard, cornstarch, farina, rice, junket, or bread pudding. Lunch—4 p. m. Two raw eggs, two glasses of milk, bread, or cheese sandwich. Supper—6:30 p. m. Hot or cold meat, bread, milk toast, fruit or sauce, tea, one raw egg, and two glasses of milk. Lunch—9 p. m. Two glasses of milk.

BRITISH MEDICAL JOURNAL.

June 15, 1907.

1. Some Affections of Speech. By Sir W. H. BROADBENT.
2. Clinical Remarks on a Case of Cerebrospinal Meningitis or Spotted Fever, Treated by Lumbar Puncture and Vaccine Injections: With Recovery.

By H. MACKENZIE.

3. Circumcision as a Rite and as a Surgical Operation.

By I. BLAND SUTTON.

4. On the Radical Cure of Urethral Stricture by Internal Urethrotomy.

By J. MAC MURDOCH.

5. Congenital Hypotonia (Congenital Amyoplasia).

By C. COOMBS.

6. Opsonins in Relation to the Specific Treatment of Tuberculosis.

By J. E. SQUIRE.

7. Contribution to the Value of Complete Vocal Rest as an Aid to Recovery from Laryngeal Tuberculosis and Allied Conditions During Sanatorium Treatment.

By H. G. FELKIN.

2. Cerebrospinal Meningitis. Mackenzie reports a severe case of cerebrospinal meningitis occurring in a girl, aged six years. The chief features of the case are summarized as follows: Temperature continually above normal for the first eighteen days, mainly between 101° and 104° F. The removal of fluid by lumbar puncture always relieved symptoms. The child usually slept for eight or ten hours after each puncture. There were two well marked relapses. There was no diarrhoea, purpura, being necessary upon two occasions. No important treatment was given beyond vaccine and lumbar puncture: the vaccine was prepared from organisms cultivated from the fluid withdrawn by lumbar puncture. The diplococcus was present in seven out of the nine specimens of fluid withdrawn. Injection of the vaccine caused asthma and hyperemia of tongue around injection site. After an extended period of lumbar puncture the writer considers that it is of great

value in all forms of meningitis. It should be performed as soon as the nature of the case is diagnosed, and should be repeated at short intervals, especially where there are signs of intracranial pressure. The immediate improvement in the patient's condition after lumbar puncture is usually most striking. The needle of an ordinary antitoxine syringe should be used and the fluid allowed to come away drop by drop, as it usually does, and should be collected in a test tube. As a rule, no suction should be employed. In this case in nine punctures nearly nine ounces of fluid were removed. It is impossible to say how far the child's recovery was due to the lumbar punctures and the vaccine injections, respectively.

6. Opsonins and Tuberculosis.—Squire reviews the subjects of the opsonins and opsonic index of the blood in general and as a means of controlling the tuberculin (vaccine) treatment of tuberculosis. In tuberculosis the position is somewhat as follows: In some localities within the body bacilli are established and are producing toxins; the cells in the immediate neighborhood are overtaxed and are unable to produce sufficient protective substances to deal with the attack. The rest of the body is not infected, so that the blood does not contain the stimulus to protective metabolism by the leucocytes, and the general opsonic index remains low. The general protective power of the blood may be raised, but this does not affect the conditions in the disease area. Injection of tuberculin to raise the general opsonic index will not cure the disease, although it may, and probably does, protect the body against general infection and may limit the spread of the disease locally. So far it is extremely valuable, especially if the individual's opsonic index was naturally low, but only as an adjunct to other treatment, such as removal by surgical means of the disease focus. Scraping operations in surgical tuberculosis should never be undertaken without ensuring that the opsonic index of the patient is high enough to guard against general infection. There appears to be some possibility of overstimulating the reaction powers of the cells by introducing toxins into the circulation, especially when the toxine is already present from disease. Overstimulation paralyzes physiological activity. Such a result is sometimes seen in the production of diphtheria antitoxine, when as a result of too much toxine, the cells in the horse's body cease to respond and cannot resume their specific activity until after a long rest. The negative phase which occurs after tuberculin injections is probably something in the nature of a result of temporary overstimulation. Taking it altogether, it appears that in those diseases, such as tuberculosis, in which the bacteria produce endotoxins and which are, for a time at least, localized, injections of toxines may be useful in prophylaxis, either in guarding against possible infection from without or against autoinfection from the disease area, but are of little use in the actual cure of the disease. So that the author is as yet unconvinced of the wisdom of Wright's method of treating pulmonary tuberculosis by the introduction into the body of a further supply of tuberculous toxine. The procedure is too risky with our present incomplete knowledge as to the formation of antibodies, and the conditions regulating the specific protective reaction of the leucocytes. For cure we want excess of antibodies within the area of the disease.

7. Vocal Rest in Laryngeal Tuberculosis.—Felkin reports eleven cases of laryngeal tuberculosis in which complete vocal rest was carried out, in combination with sanatorium treatment. The beneficial results were most striking. The rest should be complete, and even whispering being prohibited in all cases, any effort being thus to be avoided. The laryngeal movement is associated with, and causes the disease, so that as far as possible

sible be done away with. The nearer the disease approaches the cords, arytoids, or arytoid folds, the greater is the importance of laryngeal rest. No fool will ever get cured of pulmonary tuberculosis; this is even truer of laryngeal tuberculosis. Nasal breathing should be encouraged as a habit, because it is a further safeguard against useless coughing. In febrile cases isolation in bed almost ensures silence. The resultant improvement itself acts as a powerful incentive to the patient to persevere.

LANCET.

June 15, 1907.

1. Pelvic Inflammations in the Female (*Ingleby Lectures*, 1), By I. WILSON.
2. Experimental Researches on Specific Therapeutics (*Harben Lectures*, I), By P. EHRLICH.
3. The Treatment of Cardiac Dilatation, By SIR D. DUCKWORTH.
4. The Causes of Colitis, with Special Reference to Its Surgical Treatment. With an Account of Thirty-six Cases, By J. P. L. MUMMERY.
5. Sacrococcygeal Teratoid Tumor, with Formation of Metastases in the Groin, By S. PRINGLE.
6. Notes of a Case in Which Glycosuria, Depending Upon Cholecystitis and Cholangitis, Disappeared After Drainage of the Bileducts, By C. W. M. MOULLIN.
7. Meditations on Gout. (Written During an Attack), By C. MERCIER.

3. **Cardiac Dilatation.**—Duckworth states that in dilatation of the heart the main indications for treatment are first to promote the power of the heart's walls, and, secondly, to relieve the venous engorgement which has arisen from their loss of function. The more pressing duty is to unload the venous system. It is seldom that a general venesection from the arm can be justified, unless it be of small amount, not more than six or eight ounces. Direct bleeding is oftener better done by the application of six or eight leeches to the epigastric or hepatic regions. The process of leeching is a source of more relief and comfort than the amount of depletion would indicate. A poultice should be placed over the leech bites, which encourages further depletion and induces a favorable hyperemia over a large surface. The hepatic congestion should be further relieved by purgation, the best purgative being mercury in some form. It is the best agent for lowering the resistance in the arterioles and capillaries, and thus relieving the labor of the exhausted cardiac walls. The dietary is important. It should be rather dry if it can be borne. Small feeds every three or four hours with solid or semisolid food are best. Much fluid with the meal is objectionable, as it depresses the stomach and the heart. Alcohol is commonly necessary, and is best given as old brandy, not more than two to four ounces in the twenty-four hours being given. Hot water should be given in the morning to promote diuresis; when the heart is once relieved, the urinary flow is more free. Ascites, if urgent, may demand tapping, and extreme oedema of the legs must be dealt with by Southey's trocar. There is often difficulty in securing adequate rest and sleep at night. Recumbency is seldom possible, and the patient may be allowed to sit in a properly adapted chair with support for the arms and a rest arranged for the head to lean somewhat forward.

4. **Colitis.**—Mummery, from a study of thirty-six cases, has been driven to the conclusion that colitis, or colica mucosa, has no more claim to be described as a disease than diarrhoea or hæmatemesis. It is a symptom or condition which may result from a number of different diseases of the colon of widely different characters. The causes for the condition are in many cases confined to the lower part of the sigmoid flexure and rectum; it is here that stagnation and pressure occur from constipation and that irritant materials collect. Diarrhoea is of course a prominent feature, but in almost all cases there is an antecedent history of constipation. Bleed-

ing occurs in about two thirds of the cases, in most cases being accounted for by the fact that definite ulceration is present in the bowel. Mucus is present in the stools in practically all cases. It may be thin and fluid, thick and gelatinous, or in shreds and strings. Large mucous casts are often present. Enterospasm is occasionally seen. This is a localized contraction of the bowel, often resulting in a temporary intussusception. It most usually occurs in the descending colon or sigmoid flexure, and is accompanied by extreme pain localized to that portion of the abdomen in which the contracted portion of the bowel lies. There is definite inflammation of the mucosa in sixty-six per cent. of the cases. The mucous membrane is usually injected and bright red, and the surface dull and granular. Ulcers, if present, are shallow, of an irregular outline, and have a granular base. Ulceration is usually, but not always present when the symptoms are severe. Appendicitis may cause colitis in several ways, and removal of an inflamed appendix is often followed by a complete cure. Adhesions are also an important factor. In the inflammatory conditions complete rest in bed is advisable, and irrigations, if properly carried out, furnish the best results. The irrigation must be done with a douche, and the reservoir must not be raised more than one or two feet above the anus. A simple alkaline lotion is best; hydrogen peroxide may be used if there is much ulceration. The most difficult cases are those in which there is hypertrophic catarrh. Stimulating injections here give the best results. In cases in which no local cause can be found to account for the symptoms, and in which no material improvement has followed careful medical treatment, surgical interference is indicated. Laparotomy should be performed; any adhesions divided; an unduly lax sigmoid mesentery should be shortened; and a retroflexed uterus fixed in the normal position, etc. The advisability of resecting any thickening or ulceration of the bowel wall may have to be considered. The operation of ileo-sigmoidostomy is not advisable, except in a few exceptional cases, and where it is the only means of saving the patient from becoming a chronic invalid.

7. **Gout.**—Mercier, as a result of personal experience, formulates the following hypotheses regarding gout: 1. Gout is due to uric acid, but not to mere excess of uric acid. It is due, not to a quantitative, but to a qualitative alteration of the urates in the blood. 2. The combination of uric acid which produces gouty symptoms is not always the same. There are probably many urates, all noxious, and all proof against separation by the kidney, but which differ in their pathological effects. 3. The articular cartilages may secrete a substance which has a predominant power of breaking down the combination of uric acid with its organic ally, and converting it into sodium urate. So that the breaking down of the peccant combination (i. e., an acute attack of gout) is, on the whole, as conservative to the organism as the action of leucocytes on bacilli.

LA PRESSE MEDICALE.

July 22, 1907.

1. The Seroreaction of Syphilis, By C. LEVADITI.
2. Revaccination, Puncture, or Grattage, By SAINT YVES MENARD.
3. Twenty-first Reunion of the Anatomical Society, Würzburg, April 24 to 27, 1907.

2. **Revaccination.**—Menard considers that inoculation by grattage, or scraping, exposes the patient much more to danger of complications, such as tumefaction, lymphangitis, adenitis, abscess, and a slow recovery, than that by simple puncture, while it does not greatly increase the percentage of success in revaccination.

June 1, 1907.

1. The Normal Blood Resistance in the Adult, By A. CHATELARD and H. RENDU.

2. Hernial Obstruction in the Infant. By A. BROCA.
3. Massage and Ionisation in Affections of the Joints. By DUKEV.
4. Saline Infusions Before Chloroform Narcosis. By R. ROMME.

2. **Hernia in an Infant.**—Broca reports the occurrence of an indolent irreducible inguinal hernia in a child, one year old.

June 5, 1907.

1. Bacillary Dysentery. Its Treatment With Serotherapy. By VAILLARD and DOPTER.
2. Muscular Physiology. Gymnastics of the Scapula.

1. **Serotherapy of Dysentery.**—Vaillard and Dopter distinguish between the two forms of dysentery, that due to the presence of a protozoan, the *Amoeba dysenteriae* or *Entamoeba histolytica* of Schaudinn, and that due to the presence of a certain bacillus, known as the bacillus of dysentery, and it is with the treatment of the latter form of the disease that this paper deals. They state that the systematic use of antidyenteric serum not only reduces the mortality to a marked degree, but also relieves the suffering and hastens the recovery. It is injected subcutaneously into the cellular tissue with the usual antiseptic precautions in doses which vary according to the time of intervention, the gravity of the case, and the age of the patient. In adults, in cases of moderate severity, twenty c.c. may be given at first, and this dose is often sufficient to determine a reduction of the symptoms and a rapid recovery. If after twenty-four hours have passed the colic persists in its former intensity and the stools still remain very frequent, a renewal of the injection is indicated. Sometimes a third injection of a smaller quantity is useful to hasten the recovery. In the severer forms of dysentery from forty to sixty c.c. may be injected in a single dose, followed by decreasing doses, according to its effect on the intestinal trouble. In very severe cases the doses may be increased to eighty, ninety, or a hundred c.c., divided into two injections during the course of the day, followed by decreasing doses. In children the doses are smaller. Relapses are exceptional and may easily be met with by a single injection of the serum. The annoyances which accompany the use of this serum are those which accompany the use of all therapeutical sera, the production of urticaria, polymorphous erythema, arthralgia, and myalgia, which may be accompanied by a slight rise in the temperature. Adults are more subject than children to these febrile erythematous manifestations. They may be avoided, or at least lessened, by the ingestion of two or three grammes of calcium chloride on the day of the injection and on the two following days. The use of ten cubic centimetres gives an immunity against this form of dysentery which lasts from six to twelve days. This can be utilized in families where there are children to protect, and persons who are exposed to the contagion.

LA SEMAINE MEDICALE

June 5, 1907.

1. Gastronixorrhoea. By I. CHENINISSE.
2. The Prognostic Value of a Child's Hemorrhage.

1. **Gastronixorrhoea.** Cheninisse says that the diagnosis of gastronixorrhoea is naturally based on the direct proof of a large quantity of mucus in the stomach when fasting, while at other times, during the period of digestion, the mucous secretion is entirely normal.

June 12, 1907.

1. Myopathy Following Typhoid Fever. By GUILLAIN.
2. Can Pregnancy Be Resorbed? By R. BOVIS.

1. **Myopathy Following Typhoid Fever.**—Guillain says that this condition is little recognized, as not described in the textbooks on medicine to which he has had access, either French or foreign, and yet it dis-

serves a place among the numerous complications of typhoid fever. He classifies the forms of myopathy met with after typhoid in three groups: 1. That in which the muscular changes are of the acute stage and characterized by granular, waxy, vacuolar degeneration of the striated fibres, by vascular and interstitial lesions, hæmorrhages, and abscesses. These lesions may be latent clinically, or may manifest their presence by a certain functional impotence, or by the classical symptoms of muscular rupture, hæmatoma, or abscess. 2. That of muscular hypertrophy usually following vascular lesions, true segmentary, nonprogressive angio-myopathies. 3. That of progressive myopathy, pseudo-hypertrophic, or atrophic in form, which beginning during the convalescence from typhoid fever follows a chronic course covering many years. It is the last group with which Guillain specifically deals in this article.

2. **Can Pregnancy Be Resorbed?**—De Bovis reviews the few articles on this subject to be found in literature, and concludes that at present it is impossible to answer the question categorically.

BERLINER KLINISCHE WOCHENSCHRIFT.

May 20, 1907.

1. Further Studies Concerning the Tubercle Bacillus and the Antituberculous Serum. By A. MARMOREK.
2. Headache and Its Physical Treatment. By RIEDEL.
3. A Case of Congenital, Monolateral, Isolated Fissure in the Upper Lid (Blepharochisis). By L. MEYER.
4. Concerning Iodoform. By PIORKOWSKI.
5. Sarason's Ozet Baths.

By P. C. FRANZE and L. PÖHLMANN.

6. Concerning Quinquaud's Phenomenon and Its Frequency in Nondrinkers, and in Alcoholism, Hysteria, Tabes, and Other Nervous Diseases (Continued).

- By I. MENOR.
7. The Self Retaining Catheter, Its Use and Method of Employment. By J. VOGEL.
8. From a Trip for Study in Russia. II. By A. MAGNUS-LEVY.

2. **Headache and Its Physical Treatment.**—Riedel distinguishes several different forms of headache and suggests appropriate treatment for each. Hyperæmic headache, in which it is a matter of no importance whether the hyperæmia is of the substance of the brain or of its membranes, is treated by cold applications to the head and hot baths of the feet. Anæmic headache, usually due to general anæmia or chlorosis, calls for warm cloths on the head and hot compresses on the brow or on the nape of the neck. Rheumatic headache, which is in reality a myositis rheumatica, is to be treated by massage and warm applications. Neuralgic headache is to be treated in the same manner, but reflex headaches, which frequently counterfeit the neuralgic, are not benefited thereby, and can be relieved only by searching out and removing the cause of the reflex disturbance. In headaches due to neurasthenia hydrotherapy is of great service.

3. **Congenital Fissure of the Upper Lid.**—Meyer reports a case of congenital coloboma of the left upper lid met with in a child, two and a half years old. The defect was triangular with its base at the ciliary margin, its apex about the middle of the lid. The margins of the coloboma were not provided with lashes. The fissure was closed by means of a plastic operation. Meyer says that only eight or ten similar cases have been reported.

4. **Iodoform.**—Piorkowski considers iodoform a desirable substitute for iodoform.

May 27, 1907.

1. General Studies Concerning the Respiratory Apparatus. By K. LANGE.
2. On the Effect of the Respiratory Apparatus on the Blood. By K. LANGE.
3. On the Effect of the Respiratory Apparatus on the Blood. By K. LANGE.
4. On the Effect of the Respiratory Apparatus on the Blood. By K. LANGE.
5. On the Effect of the Respiratory Apparatus on the Blood. By K. LANGE.

4. The History of the Development of the Theory of Basal Cell Cancer, By H. CÖNEN.
5. Concerning Quinquad's Phenomenon and Its Frequency in Nondrinkers and in Alcoholism, Hysteria, Tabes, and Other Nervous Diseases (*Concluded*), By L. MINOR.
6. Practical Criminal Psychology, By H. MARX.
7. Concerning Gymnastics in Schools, with Special Reference to the Gymnastics of Breathing, By A. LEWANDOWSKI.
1. Refraction Coefficients of the Blood Serum.—Engel considers that the refractometric test is the means best fitted for the clinical detection of hydræmia.
8. Lead Poisoning from Bullets After Gunshot Injuries, By BRAATZ.
9. Phimosi, an Important Cause of Internal Disease in Children, By WITZENHAUSEN.
10. A New Fixation and Compression Contrivance for X Ray Photography, By KÄSTLE.
11. An Armamentarium for the Public Vaccinator, By GROTH.
12. A Tampon Box with a Spool Arrangement, By SCHEVEN.
13. Report of the Year for the Out Door Department of the Surgical Clinic at Munich, By GEBELE.
14. Historical Account of the Use of Extract of Hyoscyamus as a Narcotic, By KLEIN.

1. The Sleeping Sickness and Progressive Paralysis.

—Spielmeyer considers that these two diseases are closely related pathologically, clinically, and biologically.

2. The Roentgen Rays in the Diagnosis of Diseases of the Stomach.—Grödel describes the manner in which he uses the x rays in the diagnosis of diseases of the stomach and in the study of the morphology and physiology of that organ. The article is elucidated by a number of drawings.

5. Abdominal Arteriosclerosis.—Perutz reports several cases of severe abdominal pain which he ascribes to sclerosis of the abdominal arteries.

7. Examinations of Urine.—Grube takes the position that every physician should make his own examinations of the urine of his patients instead of relying on a chemist to do the work. He then goes into the details of the necessary examinations, and finally concludes that only one quantitative examination is necessary, that for sugar, all others being qualitative.

9. Phimosi.—Witzenhausen asserts that in early boyhood phimosis should receive more attention than it is accustomed to. It may be the cause of internal diseases in boys in which obstipation and its consequences are prominent. It exerts a harmful influence on the intestinal organs and the digestive power of the children which persists in later years when the primary cause has long passed away; it is known that self correction of phimosis is frequently the case, may affect the entire constitution and predispose to other diseases. Therefore as soon as symptoms appear which may be ascribed to the phimosis this condition should be remedied as quickly as possible. The most certain correction is by circumcision.

THE JOURNAL OF NERVOUS AND MENTAL DISEASE.

June, 1907.

1. Ambulatory Automatism, By HUGH T. PATRICK.
2. Two Cases of Dislocation of the Eyeball Through the Palpebral Fissure, By BEVERLEY R. TUCKER.

1. Ambulatory Automatism.—Patrick cites Pritres's definition: By the term ambulatory automatism is understood a pathological syndrome appearing in the form of intermittent attacks during which the patient, carried away by an irresistible impulse, leaves his home and makes an excursion or journey justified by no reasonable motive. The attack ended, the subject unexpectedly finds himself on an unknown road or in a strange town. Swearing by all the gods never again to quit his penates, he returns home, but sooner or later a new attack provokes a new escapade. To this he adds that while the patient may not act exactly like himself during his erratic trip, usually there is nothing obviously pathological in his conduct; and that on returning to normal consciousness, no knowledge remains of what transpired during the ambulatory period. In its widest sense the disturbance occurs as a manifestation of quite diverse diseases. It has been observed as a posttraumatic state, in the disturbed consciousness of alcoholism, as a postepileptic phenomenon or epileptic equivalent and as one of the voicings of hysteria. The author cites six such cases of his own, to be

5. Quinquad's Phenomenon.—Minor arrives at the following conclusions: Quinquad's phenomenon is neither specific nor pathognomonic of alcoholism, and is frequently very marked in moderate drinkers and in total abstainers. It is met with rather rarely in exophthalmic goitre, paralysis agitans, arthritis deformans, and other inflammations of joints, and in certain stages of fresh hemiplegia. It is completely wanting in old hemiplegias with contractures, probably also in muscular contractures of other origin, in Dupuytren's contracture, and in radial paralysis. It is very frequent, more frequent than in other diseases studied by the author, in tabes. Next in frequency it appears in hysteria, and then in the third or fourth place in alcoholism. The differentiation of the alcoholic tremor from Quinquad's phenomenon is rendered the more difficult because the former appears in two forms, the temporary and the permanent. The temporary tremor is met with, at least in Russia, in all alcoholics almost without exception, and so in this sense dominates Quinquad's phenomenon, while the permanent tremor is met with more rarely and is entirely independent of Quinquad's phenomenon. It may appear either before or after the latter. Notwithstanding the frequency of its occurrence sufficient grounds are lacking to justify the consideration of Quinquad's as a physiological phenomenon. There is much to favor the theory that it is a delicate indication of neuromuscular weariness, a delicate sign of various hypotonic conditions. The flickering of the interossei muscles described by Lauschner is fully confirmed in patients with tabes, but the relation of this to Quinquad's phenomenon is still undetermined. Satisfactory proof is also wanting, that the place of origin of Quinquad's phenomenon is in the tendon sheaths or the joints. The best tactile method of examination is to have the hands hang suspended in the air with the elbows slightly bent, the fingers spread, not flexed, but extended, and the tips of the second, third, and fourth fingers placed on the hand of the examiner at an angle of 45°. The acoustic method is one in which the fingers and a phonendoscope are placed on a resonator. This method is more convenient, more exact, more uniform, and more productive.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT.

May 28, 1907.

1. The Sleeping Sickness and Progressive Paralysis, By SPIELMEYER.
2. The Use of the Röntgen Rays for the Diagnosis of Diseases of the Stomach, By GRÖDEL.
3. Concerning the Result and Explanation of Percussion in Pleurisy with Exudation, By BACHMANN.
4. The Investigation of the Reflex Vestibular and Optic Movements of the Eye, By BARANY.
5. Concerning Abdominal Arteriosclerosis (Angina Abdominis) and Related Conditions, By PERUTZ.
6. The Technics of the Agglutination Test of the Blood by Means of "Typhoid Gall Tubes" (Typhusgall-Jerühre), By KAYSER.
7. Concerning Examinations of Urine in Practice and Concerning a Quantitative Determination of Sugar Suited

added to the literature, which comprises twenty-seven observed in France, six in Italy, five in England, one in Germany, and two in America.

DUBLIN JOURNAL OF MEDICAL SCIENCE.

June, 1907.

1. Our Debt to Ireland in the Study of the Circulation. By GEORGE A. GIBSON.
2. The Early Diagnosis of Perforated Gastric Ulcer. By WILLIAM GEORGE HARNETT.
3. A Practical Note on Disease of the Infant. By CYRIL H. M'COMAS.

2. The Early Diagnosis of Perforated Gastric Ulcer.—Harnett observes that in difficult and doubtful cases, before making a diagnosis, the following acute abdominal conditions must be considered and excluded: (1) Perforated duodenal ulcer; (2) ruptured ectopic gestation sac; (3) acute perforating appendicitis; (4) acute intestinal obstruction; (5) acute pancreatitis. 1. The diagnosis of perforated duodenal ulcer is very difficult, since this condition, up to recently, has been itself rather obscure, and a diagnosis of perforation rarely made ante mortem or previous to operation. 2. Ruptured ectopic gestation sac. This condition occasionally simulates perforation of a gastric ulcer. 3. Acute perforating appendicitis. A perforation of the appendix may occur suddenly, the first symptoms being coincident with the onset of the perforation. In these cases the patient is suddenly seized with violent pain in the right iliac fossa, accompanied by collapse, vomiting, rigidity, first confined to right side of abdomen, but soon becoming general; distention, with paralysis of lower bowel and tympanites. In these cases, when seen early, local tenderness and resistance and muscular rigidity are the most valuable diagnostic signs, the pain in the right iliac fossa being deceptive and often simulated by other conditions. 4. Acute intestinal obstruction. In this condition, usually due to an internal strangulation, the patient is generally in perfect health when suddenly seized with acute abdominal pain, usually referred to the umbilicus or epigastrium. There is marked collapse and pallor, and vomiting soon sets in, which later becomes bilious and finally stercoraceous. The abdomen is at first flaccid, and there is no marked tenderness on pressure, distention coming on gradually. The pain is usually paroxysmal, and the vomiting may be considered as a most valuable diagnostic sign. 5. Acute pancreatitis. This condition is rarely diagnosed during life, although successful treatment has been recorded in a few instances. The symptoms closely simulate those of acute peritonitis—viz., intense pain and vomiting, accompanied by severe collapse, frequent pulse, marked tympanites, with some pyrexia, and a variable amount of constipation.

THE PRACTITIONER.

June, 1907.

1. Valvular Disease of the Heart. Tricuspid Regurgitation. By R. CRAWFORD.
2. Duodenal Ulcer. By B. G. A. MOYNIHAN.
3. The Pretuberculous Stage of Pulmonary Tuberculosis. By J. J. GALBRAITH.
4. The Early Diagnosis and Cure of the Presuppurative Stage of Amoebic Hepatitis. By I. ROGERS.
5. Post Partum Hemorrhage. By E. S. BISHOP.
6. The Evidence and Arguments Relating to the Milkmaid's Leg Case. By W. J. SMITHSON.
7. On Retinal Embolism, with Two Cases in Which a Normal Standard of Central Visual Acuity Was Retained. By C. O. HAWTHORNE.
8. The Treatment of Dropsy by Depuration of Solids. By C. E. HARTFIELD.

2. Duodenal Ulcer.—Moynihan thinks the first question in respect to treatment concerns the value of medical treatment. Thus he considers as distinctly less

valuable in duodenal ulcer than in gastric ulcer. The former is a far more serious condition than the latter, hæmorrhage being more frequent and less amenable to treatment, perforation more likely to happen, and operation of a more serious character requisite. For these reasons the question of surgical treatment should be considered at an early period of the disease. The operation which the author performs is posterior gastroenterostomy. He has had but two deaths in one hundred and one operations, and most of the results have been very favorable. He recommends that a very rigid diet be used for at least three months after recovery from the operation, and that an alkaline bismuth mixture be taken if there is tendency to acidity. This precaution is essential, for the increase of appetite which usually follows a successful operation has frequently induced over eating and the formation of a jejunal ulcer. The surgical treatment at an early period is deemed warrantable, because of its slight risk and its excellent results.

3. The Pretuberculous Stage of Pulmonary Tuberculosis.—Galbraith believes it is now recognized that upon the early detection of this disease depends in a large measure the success of treatment. He defines the pretuberculous stage as that period when the physical signs are indefinite and are insufficient of themselves to justify a diagnosis of pulmonary mischief. Other points which he emphasizes are the following: 1. For a long period, previous to diagnosis the disease is advancing from a small deeply seated lesion, causing a toxæmic condition setting up various symptoms and modifying the course of intercurrent diseases. 2. The variety and continuance of these symptoms constitute a clinical picture which when recognized by experience should suggest the possibility of latent tuberculosis. 3. Various methods, clinical and scientific, are available for rendering the diagnosis more certain. 4. In cases in which a tentative diagnosis is followed by appropriate treatment, the results justify the course adopted.

4. The Early Diagnosis and Cure of the Presuppurative Stage of Amoebic Hepatitis.—Rogers observes that suppuration of the liver is frequently preceded by fever lasting for weeks or months with few symptoms which are referable to the liver. Even with marked symptoms of acute hepatitis it is often impossible to decide as to the presence of an abscess without an exploratory operation. If leucocytosis is present with acute hepatitis it frequently indicates that suppuration has occurred. The groups of cases considered in this paper include cases of acute hepatitis complicated with dysentery, cases without dysentery and not treated with ipecac, cases without dysentery and treated with ipecac, and cases without dysentery or liver symptoms and treated with ipecac. It is remarked that if leucocytosis is present with amoebic abscess the polymorphs are not greatly increased. It is deemed somewhat remarkable that in a third of the author's cases an unsuccessful operation was followed by cure when the patient was subjected to treatment with ipecac. Naturally the author is an earnest advocate of the ipecac treatment, and he concludes from his analysis that even without symptoms of dysentery there may be a latent hepatitis caused by the access of amœbe to the liver by way of the portal circulation. Destroying these organisms means aborting the suppurative condition.

5. Post Partum Hemorrhage.—Bishop, in his paper, agrees with Hermann upon this subject, namely the latter is saying that the modes of stopping bleeding after labor may be divided into three groups according to their principal aim, which is (1) to make the uterus contract; (2) to plug the blood; (3) to constrict the blood-vessels. The further quotes Hermann, writing on

Difficult Labor as authority for the intrauterine injection of solution of iron perchloride, 1 to 6, to stimulate the uterus to contract and clot the blood, the clotting being necessary in those cases in which the uterus has lost its contractile power. Such practice is not free from danger, and bimanual compression of the uterus is to be preferred, but it is to be resorted to when the last named measure and drugs, and packing and injections of hot water have all failed, and one is forced to act directly upon the blood. It should not be forgotten that while compression of the uterus may stop bleeding and save life, if it is too violent it may also lead to a long period of acute trouble with metritis, salpingitis, or pelvic peritonitis.

6. The Evidence and Conclusions Relating to the Mulkowal Tetanus Case.—Simpson states that this accident occurred in connection with the inoculations for plague in India in 1902 and 1903. The object of the investigation in this case was to ascertain where the contamination of the serum used for inoculation took place, whether at the laboratory, in transit, or at the place of inoculation, also how it occurred. Of one hundred and seven people inoculated at Mulkowal the first nineteen developed tetanus, the remaining eighty-eight did not develop it. The nineteen were inoculated from the same bottle, with the same syringe, and other facts which are narrated prove that the contamination took place at Mulkowal. Other facts show that while the accident was possible by an infected needle, as well as by a contaminated fluid, the details of the operation point to the faulty handling of the bottle and the contamination of the fluid as the primary cause of the calamity. In other words, the bottle was contaminated with tetanus germs at Mulkowal by omission of the necessary technics for sterilizing the forceps, cork, and mouth of the bottle.

7. On Retinal Embolism, with Two Cases in Which a Normal Standard of Central Visual Acuity Was Retained.—Hawthorne states that retinal embolism is usually announced by the occurrence of sudden and complete blindness which either remains permanent or undergoes a slight improvement after a time. If the sudden loss of sight has been preceded by temporary visual disturbances or interruptions the diagnosis of embolism becomes a reasonable one, even though blocking of the central artery is certain, thrombosis, endarteritis, or arterial spasm being the possible factors which account for the vascular obstruction. In the two cases which are narrated there was retention of a full measure of central visual acuity. The cases are not less interesting even if a thrombus or other agent is substituted for embolus as explanation of the arterial obstruction. The blood supply in these cases, though cut off from the greater part of the retina, remained effective in the macular region. Diagrams illustrating the conditions found are given, and these show that central vision was preserved, owing to the presence at the outer part of the disc of a cilioretinal artery which was a branch of the ciliary system, and was distributed to the macular region.

8. The Treatment of Dropsy by Deprivation of Salt.—Hadfield observes that investigators of the pathology of oedema have obtained striking results by controlling the quantity of salt in the diet of dropsical patients. The discovery that oedema could be produced by administration of a certain quantity of salt led to the more important observation that deprivation of salt could reduce an existing oedema. Experiments were made in cases of oedema with nephritis, with hepatic cirrhosis, in pleurisy with effusion, with tuberculous peritonitis, and with cardiac disease in which the above statements were verified. Three theories relating to this subject are called to mind: 1. The retention of chlorides in the blood stream due to the morbid con-

dition of the kidney itself, which leads to relative impermeability of the organ to chlorides. 2. The retention is a simple physical process, entirely secondary to the retention of water in the body. 3. The body tissues are so changed that they are enabled to hold in combination with themselves a larger quantity of salt than usual.

REVUE DE CHIRURGIE

June 10, 1907.

1. Diastasis of the Inferior Peroneotibial Articulation, By E. QUELUS.
2. The Technique of Pancreatectomy, By A. DESJARDINS.
3. Wounds Inflicted by Hunting Weapons and their Subsequent Infection, By NICLOT and ROMARY.
4. Hypertrophic Osteoarthropathies of Tuberculous Origin, By H. ALAMARTINE.
5. Gaseous Hydatid Cysts of the Liver, By F. DÉVÉ.
6. Congenital Luxation of the Hip, By P. LE DAMANY.

2. The Technique of Pancreatectomy.—Desjardins believes that the surgery of the pancreas has not advanced to the same degree as the surgery of other abdominal viscera. The removal of the organ is possible, and has been accomplished in thirty cases, two of them being total, the others partial. Recovery took place in sixteen of the cases. From the physiological study of the subject, it is decided that only a partial ablation of the organ would be justifiable, a sufficient portion being left for the continuance of function with the hope that the organ might be renewed to a greater or lesser extent. The operation may be performed at one or at two sittings, according as time is an element of importance in the procedure. The administration of chlorinated lime, for some days prior to the operation, is recommended to lessen the tendency to profuse hemorrhage. The various steps of the operation, which is a very complex one, are described and illustrated.

3. Wounds Inflicted by Hunting Weapons and Their Subsequent Infection.—Niclot and Romary believe that a wound inflicted with a sporting rifle should be regarded as superficially infected. The wounded area should be shaved and cleansed as quickly as possible after the accident. A bath with a warm but mild antiseptic should be administered if possible, potassium permanganate or hydrogen peroxide being preferable. There should be no attempt to extract the bullet, no probing of the wound, but a short seton may be passed into the wound, and if it can be passed through to the place of exit of the bullet it may be advisable to inject suitable solutions from the exit to the entrance. The dressings should then be carefully applied, amputations and resections in wounds received at short range being avoided when possible. For wounds received at long range a dry sterilized gauze dressing will suffice, though some authors recommend the use of alcohol or warm artificial serum. The subsequent treatment should be such as the usual surgical principles would indicate.

4. Hypertrophic Osteoarthropathies of Tuberculous Origin.—Alamartine states that the clinical study of the conditions in which these osteoarthropathies, constituting the syndrome of Marie, appear together with the accessory phenomena which accompany them, furnishes information in regard to their relations with tuberculosis. From seven to twenty per cent. of the cases are associated with tuberculosis, especially with the pulmonary form and less frequently with tuberculosis of the bones, glands, and genital organs. A large number of cases are associated with painful subacute conditions which suggest a pseudorheumatism. The pains resemble the pain of rheumatism, and the joints are swollen. Subacute polyarticular rheumatism of tuberculous type may be associated with the syndrome of Marie, also various lesions of the spine, va-

rious cutaneous lesions, diabetes, and congenital cardiac troubles.

5. **Gaseous Hydatid Cysts of the Liver.**—Dévé has collected fifty-one cases of this form of tumor which he reports in detail. One of the signs which is considered noteworthy is a clear tympanitic percussion note at the upper limit of the tumor. This is thought to be attributable to the presence of the stomach behind the cyst, before it has ruptured, or it may be due, on the other hand, to the formation of gas within the suppurating cyst. Other significant symptoms are the peculiar discoloration of the skin, pain in the region around the tumor, and subacute peritonitis which develops should the cyst rupture spontaneously.

6. **Congenital Luxation of the Hip.**—Le Damany arrives at the following conclusions as the result of his investigations, comparing reports from French sources with those from South America, Madagascar, Indo-China, and Africa. The frequency of this condition increases with the degree of civilization attained, its maximum being reached in females in the white race. In no other congenital affection has this anthropological development shown so predisposing an influence. Hare lip, clubfoot, torticollis, and hydrocephalus are almost as frequent in black children as in white. The author regards this as a very important point in the pathogenesis of this condition.

THE MILITARY SURGEON

July, 1907.

1. The Training of the Medical Officer of the State Forces to Best Qualify Him for Local Service and for Mobilization with National Troops (*Enno Sander Prize Essay*). By JAMES EVELYN PILCHER.
2. Some French Impressions of the Surgery of the Russo-Japanese War. By CHARLES S. BUTLER.
3. The Work of the Army Board for the Study of Tropical Diseases in the Philippine Islands. By PERCY M. ASHBURN and CHARLES F. CRAIG.
4. An Epidemic of Cerebrospinal Meningitis Occurring at the United States Naval Training Station at Newport, R. I. By NORMAN J. BLACKWOOD, MIDDLETON S. GUEST, JOHN H. IDEN, and JOHN L. NELSON.
5. The Treatment and Prevention of Surgical Shock. By J. LISANDRO MEDINA.
6. A Case of Traumatic Displacement of the Right Kidney with Rupture of the Right Lower Lobe of the Liver. By MONTAGU W. HOUGHTON.

1. **The Training of the Medical Officer of the State Forces to Best Qualify Him for Local Service and for Mobilization with National Troops.**—Pilcher concludes his very interesting paper in saying that there is a need of special study upon the part of medical officers of the National Guard and State troops to fit themselves for work in their own forces, not only in local service, but in connection with the national services in time of war and in peaceful mobilization. The most essential feature in the effort to secure harmonious action with other State troops and with the national forces is uniformity of training, particularly along the lines of medicomilitary administration. The most important element of the medical officer's training is confessedly the highest grade of efficiency in military hygiene, medicine, and surgery. But of great importance and overlapping these to a considerable degree is a familiarity with medicomilitary administration, without which indeed the proper practice of military medicine, surgery, and hygiene will be impossible. The medical officer must become deeply acquainted with the proper methods of selecting recruits. He must be able to control his men, commanding the respect, not only of the hospital corps, but of the sick under his direction; he must be an authority beyond dispute upon camp location and organization; he must understand the principles and practice of field hospital construction and composition; he must have experience in the instruction and drill of

the sanitary soldier; and he must be prepared to protect his service and assist his comrades by a thorough acquaintance with the records of his department. To crown all these and to add to his efficiency in every respect, there must have developed in him an enthusiasm based upon loyalty to the nation and interest in his profession, which shall impel him at all times to labor unceasingly and incessantly for the good of the service which has honored him with its commission.

Proceedings of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Twenty-second Annual Meeting, held in Washington, on Tuesday, Wednesday, and Thursday, May 7, 8, and 9, 1907.

The President, DR. FRANCIS P. KINNICUTT, of New York, in the Chair.

(Concluded from vol. LXXXV, page 1108.)

Clinical and Pathological Studies of Arteriosclerosis.

—DR. WILLIAM S. THAYER and Dr. M. FABRYAN, of Baltimore, had studied sixty-one cases in patients varying from fifty-six to over eighty-three years of age, in order to determine the gross and histological characters of the normal radial artery. Early in life the radial artery was a delicate tube, having an intima which was made up of a single layer of endothelium resting on an elastic membrane. The adventitia was relatively thick. As the individual grew the artery became larger, the intima was thickened by the addition of a second layer of elastic tissue, and connective tissue cells appeared between the two layers of elastic tissue. The media became thickened and the adventitia remained about the same. By the end of the second decade the artery had reached its full development. All the coats were relatively thick, and the intima was composed of two well developed layers of elastic tissue with connective tissue cells and a few muscle cells between them. In the third and fourth decades the changes were not great. The artery presented delicate transverse striae when opened, and these striae became obliterated when the vessel was put upon the stretch. In individuals who had undergone muscular strain both the media and intima were thickened, and there was an extra layer of elastic tissue. At the points of greatest thickening a delicate network of elastic fibres was found, also some connective tissue thickening. The elastica was thin and sometimes stretched. In the fifth decade the special thickening of the intima began. The media showed the greatest average thickening. In six out of nineteen cases areas of calcification were found in the deeper layers of the intima, and there was some calcification of the media, with hypertrophy of the muscle fibres. From the fifth decade on, connective tissue appeared in the fine meshwork of the elastica, and calcification extended. In the eighth decade the artery became a sclerotic, calcified tube. In one case there was definite bone formation. The normal artery progressively thickened throughout life. Therefore, it was difficult to draw lines between the normal and the pathological. The normal radial artery was often unquestionably palpable, and there was apparent thickening. In the majority of cases, if the radial arteries were thickened, the aorta and the mesenteric arteries would also be thickened. An unduly thickened radial artery meant that the individual had been subjected to some abnormal strain or that he had been unable to resist some special individual circumstance.

Cerebral Types of Arteriosclerosis.—DR. ALFRED STENGL, of Philadelphia, said that cerebral arteriosclerosis often gave rise to a syndrome similar to progressive muscular atrophy, but not occurring in many places in

which it was diagnosed, or it might be a terminal manifestation. In fact, coma, stupor, convulsive attacks, and psychic manifestations were due to arteriosclerosis quite as frequently as they were to toxæmia, brain disease, and the neuroses. Many neuroses might be due to arterial disease. Attention to the circulatory conditions was important in the treatment by eliminative methods.

Further Studies on Arteriosclerosis.—Dr. I. ADLER and Dr. O. HENSEL, of New York, presented a statistical study of experimental arteriosclerosis. Out of ninety rabbits used for their experiments, fifty-two were subjected to injections with nicotine. As the experiments multiplied the positive results diminished in proportion. There were twelve cases in which macroscopic lesions were found. The many negative results and the spontaneous changes that occurred in rabbits on account of disease and senility made it doubtful whether the injections themselves were the real cause of the arteriosclerosis. At all events, the experimental injection of nicotine would hasten and augment any natural tendency to arteriosclerosis.

Dr. HENRY SEWALL, of Ann Arbor, asked what part of the arterial system was specifically involved in producing the functional changes which depended upon arterial elasticity. Was it in the peripheral vessels, the splanchnic area, or some specific organ, or did it depend upon the extent of involvement?

Dr. ABRAHAM JACOBI, of New York, said that arteriosclerosis was never a uniform process all through the body. One symptom of senility was a sudden change of temperament. It was a threatening symptom, and indicated that the person would, in all probability, die soon. The condition might be due to arteriosclerosis.

Dr. WEAVER reported two cases.

Dr. JOSEPH SAILER, of Philadelphia, referred to three cases of arteriosclerosis due to syphilis which resembled uræmia and which were improved by mercury. He also referred to a case of arteriosclerosis which gave rise to the symptoms of intermittent claudication.

Dr. WILLIAM S. THAYER, of Baltimore, said that when the radial artery was unduly thickened it meant that there was some inherent weakness in the vessel or that the patient had been subjected to undue strain. In the majority of cases there were similar thickenings in the aorta and in the splanchnic area, and therefore the lesion was serious. Calcification in the intima of the radial artery was more common than in the media, and was the usual regressive change.

Motor Insufficiency Due to Perigastric and Duodenal Adhesions.—Dr. FRANK BILLINGS, of Chicago, referred to the importance of gastric motor insufficiency. Perigastric and periduodenal adhesions frequently produced it. These adhesions might be due to infection of the gallbladder, infection of the stomach, aside from ulcer, tuberculous peritonitis, surgical procedures, and ulcer of the stomach. They produced the symptoms of motor and sensory disturbance. The condition might be acute, and then it was often mistaken for ulcer, subacute or chronic. The diagnosis was made by percussion and inflation.

Dr. JOHN H. MUSSER, of Philadelphia, said that adhesions sometimes occurred during or after an attack of typhoid fever. Pain might not be a prominent feature of the symptomatology; but motor insufficiency and vomiting were often extreme. He referred to a case in which vomiting was very troublesome. An operation discovered adhesions obstructing the duodenum and the pylorus. The relief was only temporary; vomiting recurred and was followed by death.

Gastric Disturbances Associated with the Presence of an Excess of Acid.—Dr. JOSEPH SAILER, of Philadelphia, said that elaborate estimations of the chemical constituents of the stomach contents were of no clinical value. The estimation of the total acidity and

the presence of free hydrochloric acid aided little as a guide to therapeutics, because we did not learn enough about the condition of the stomach. He had lately adopted the method for estimating the total quantity of the gastric secretion and the Münier method with ferric sulphate. The latter method gave fifty per cent. of error; but as the technique improved the error would be less. His work was based upon the study of 1,800 cases.

On the Lenhartz Treatment of Gastric Ulcer and Hyperchlorhydria.—Dr. S. W. LAMBERT, of New York, had had occasion in two cases of gastrouler to adopt the Lenhartz method of treatment. One was that of a man who, after the starvation treatment, had a typical attack of scurvy. The other was that of a woman with hæmatemesis in whom starvation did not check serious bleeding. The Lenhartz treatment was then begun and she gradually improved and finally recovered. In four other cases treated by this method from the beginning recovery followed. In several cases of hyperchlorhydria the treatment was followed by satisfactory results. Although this series of cases showed no failures, it did not mean that the method was infallible. The conclusions of Lenhartz regarding its applicability were warranted, however.

Dr. B. W. SIPPEY, of Chicago, said that in the treatment of gastric ulcer more attention should be paid to the state of secretion in the stomach between the hours of 10 p. m. and 6 a. m. In many cases at 1 or 2 a. m. from 300 to 500 c.c. of corrosive gastric juice could be obtained from the stomach. This secretion prevented healing of the ulcer. To prevent it he fed the patient every hour during the day and gave alkalis at night. Lavage at 10 p. m. gave relief in some cases.

The Effects of Nauheim Baths on Blood Pressure.—Dr. P. K. BROWN, of San Francisco, detailed experiments made upon himself in which he had found that the Nauheim bath raised blood pressure. In cases of very advanced myocarditis, arteriosclerosis, and arteriosclerotic renal conditions the blood pressure was not raised. In normal persons the pressure was raised 15 to 20 mm. of mercury after a bath, and persisted for four hours. Drugs could not produce this result. In many acute diseases such a raise in blood pressure was an important aid to treatment. In many cases of pneumonia, even of the alcoholic type, the patient might be treated by baths, so that he would not require drugs.

ACIDOSIS.

This subject was discussed at a session held in conjunction with the American Physiological Association.

Dr. OTTO FOLIN, for the physiologists, gave a critical review of the more important points in the theory of acidosis. In general he did not think the acid intoxication theory would materially suffer as a result of recent investigations of these questions. The primary cause of acidosis in diabetes was still obscure, as was the cause of the diabetes itself. At the same time the ground had been cleared, especially by studies regarding the fatty acids and their carbon atoms. The alkaline therapy of diabetic coma had not been so accepted as it should be if acidosis was the only cause of the coma. The use of sodium carbonate alone was not in accord with physiological principles. There were indications that this might be dangerous or, at least, less efficient than mixtures of sodium, calcium, and potassium carbonates.

Dr. E. P. JOSLIN, of Boston, for the physicians, traced the development of the acidosis theory. Late experiments did not confirm the importance of betaoxybutyric acid as compared with other acids. In some cases of diabetes acid production was not great, the body apparently losing its power to respond to stimuli and produce a large amount of urine. The treatment of acid-

osis was to-day in many ways hopeful. An important principle was that the increase of oxidation meant more than the introduction of a few ounces of alkaline substances.

Dr. A. E. TAYLOR, of Berkeley, Cal., called attention to a frequent clinical mistake, namely, that because the symptoms in diabetes were due to acidosis the coma in fulminating cases of other types coming on in a few hours was due to the same cause. This could not be. The symptoms and the acidosis must both be due to some ulterior cause.

Dr. JAMES TYSON, of Philadelphia, asked how the new theories under discussion aided in the treatment of an ordinary case of diabetes.

Dr. JOSLIN said that treatment had been changed but little. We watched the increase of acid in the body better than before, and took measures to prevent its rise to an unsafe limit.

The following officers were elected for the ensuing year: President, Dr. James Tyson, of Philadelphia; vice-president, Dr. Victor C. Vaughan, of Ann Arbor; secretary, Dr. Henry Hun, of Albany; treasurer, Dr. J. P. Crozer Griffith, of Philadelphia; recorder, Dr. S. Solis-Cohen, of Philadelphia; councillor, Dr. Shmon Flexner, of New York.

The following active members were elected: Dr. James Carroll, United States Army; Dr. Henry A. Christian, of Boston; Dr. Reid Hunt, of Washington; Dr. M. J. Rosenau, of Washington; Dr. Torald H. Sollmann, of Cleveland; Dr. A. E. Taylor, of Berkeley, Cal.

The following associate members were elected: Dr. E. Libman, of New York; Dr. C. N. B. Camac, of New York; Dr. Joseph H. Pratt, of Boston; Dr. Robert D. Rudolf, of Toronto; Dr. Samuel McC. Hamill, of Philadelphia; Dr. Louis B. Wilson, of Rochester, Minn.

The following papers were read by title: Auscultation and Percussion Ratios in Pulmonary Tuberculosis, by Dr. John S. Billings, Jr., of New York; The Diagnostic Significance of the Iodine Reaction of the Leucocytes, by Dr. I. P. Lyon, of Buffalo; Charts Illustrating Short Attacks of Increased Temperature Apparently of Nervous Origin, by Dr. James J. Putnam, of Boston; The Mode of Closure of the Ductus Arteriosus and Its Bearing Upon Thoma's Theory of Arteriosclerosis, by Dr. Oskar Klotz, of Montreal; Experimental Liver Necroses—Enzymes, by Dr. Richard M. Pierce and Dr. H. C. Jackson, of Albany; X Ray Examinations in Pulmonary Tuberculosis, by Dr. Francis H. Williams, of Boston; Observations on the Failure of the Radial Pulse When the Arms are Elevated Above the Head, by Dr. Henry Sewall, of Ann Arbor.

Letters to the Editors.

DOUBLE CONGENITAL ATRESIA OF THE EXTERNAL AUDITORY CANALS WITH ATRESIA OF THE BONY CANALS.

2040 SEVENTH AVENUE,

NEW YORK, June 6, 1907.

To the Editors: I beg to report this case on account of its great rarity, it being the only case on record, so far as I am able to ascertain.

Miss B. consulted me in reference to a postnasal catarrh from which she was suffering, and upon examination I noticed this condition of her ears. As far as she knew, she was born under normal conditions, no instruments having been used at her birth. Examination of her ear shows a condition of microtia. I passed several fine needles through the external auditory canal to ascertain whether there were any open-

ings in the bony canal. I found none. The right ear showed the helix overhanging the anthelix and an abnormally large tragus, with a blind pocket above the tragus half an inch deep. The external auditory canal was seen as a blind pocket three eighths of an inch deep. C1 and C5 heard an inch from the ear. C2, C3, and C4 were not heard at all. The watch was heard half an inch from the ear. Bone conduction was present, as shown at all points of the application.

The left ear was much smaller than the right ear, and the crus of the helix was not separate, coming directly from the skin. The cavity above the tragus was displaced upward. The tragus was abnormally large and was also displaced upward. The external auditory canal was a blind pocket half an inch deep. Both external auditory canals were well supplied with sebaceous and ceruminous glands. There was no bone conduction at all, and the watch was not heard at all.

In looking up records I find that the nearest cases reported to the character of mine are those reported by E. E. Holt in 1889, who reported a case of atresia of both external auditory canals following a chronic purulent otitis media of long standing, and by Jurgens (Warsaw) in 1903, who reported a case of congenital atresia of both external auditory canals in a baby, three months old. He was unable to get any data, owing to the child's age.

If any physician has seen or heard of a similar case, I should be pleased to hear from him.

A. J. HERZIG.

Book Notices.

The Nursling. The Feeding and Hygiene of Premature and Full Term Infants. By PIERRE BUDIN, Professor of Obstetrics, University of Paris; Director of the Clinique Tarnier, etc. Authorized Translation by WILLIAM J. MALONEY, M. B., CH. B., Fellow of the Obstetrical Society of Edinburgh. One Hundred and Eleven Diagrams in Color, and Other Illustrations. London: The Caxton Publishing Company. New York: The Imperial Publishing Company, 1907. Pp. xxiv-199.

This translation of Budin's widely known work is extremely well done and the volume is a most creditable one. It consists of ten lectures and presents the results of great observation and broad experience. Most of the portion devoted to premature infants is excellent in the extreme. The lectures devoted to the healthy full term nursling contain much that is of interest and value. To the specialist in pediatrics, who is well informed upon all phases of the subject, the work is a valuable contribution. To the general practitioner, however, who is less able to sift the subject matter and judiciously select, there are portions which would be very misleading. The author believes in sterilizing milk and objects to pasteurization. Moreover, he believes in using undiluted cow's milk in feeding very young babies. To the American physician it seems a strange argument that undiluted milk is preferable because of its simplicity. The author says that it is a complicated process when the dilution is made according to the infant's age. When the same milk is dispensed to infants of all ages, the mother's duties are made easy, as well as the work of dispensaries and hospitals. He introduces strong arguments against diluted cow's milk on the ground that the sugar and fat are so reduced in amount that the child does not obtain sufficient nourishment. From a reading of the book, one would get the impression that there was some method by which the cream could be reduced and the strength of sugar and fat maintained. In fact, the author gives no information that he has knowledge of

any method of artificial feeding except two, viz., with cow's milk in full strength and with cow's milk simply diluted with water. After expressing very decided opinions, he finally acknowledges that his experience has been too limited to warrant dogmatic statements as to the most advisable form of artificial feeding during the first few weeks of life. This he explains upon the ground that he uses his best efforts to induce breast feeding. In this direction his work is excellent, and no better or stronger arguments are to be found. When the mother's supply is not adequate for the infant's use, he makes use of all the milk she is able to furnish, sometimes with the happy result of an abundant supply developing even in very unpromising cases. It seems probable that the author does not have to contend with the difficulties in this direction which confront the American physician.

The charts and tables are worthy of particular mention. They are admirable in appearance and are constructed with great care. Many of them are of great scientific and practical value.

Diseases of Children. A Manual for Students and Practitioners. By GEORGE M. TUTTLE, M. D., Attending Physician to St. Luke's Hospital, Martha Parson's Hospital for Children, and Bethesda Foundling Asylum, St. Louis. Series Edited by BERN B. GALLAUDET, M. D., Demonstrator of Anatomy and Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York, etc. Second Edition, Revised and Enlarged. Illustrated with Five Plates in Colors and Monochrome. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. 392. (Price, \$1.50.)

The expediency of works of this type has on various occasions been questioned in these pages. The student is inclined to rely too much on short compends of this character which cannot give a sufficiently comprehensive knowledge of any subject. They undoubtedly have their place in the educational scheme, but in some schools they have been much abused. The redeeming feature in the present case is the excellence of the work. As far as such a book can do, it covers the field of pædiatrics exceedingly well.

La Question sexuelle exposée aux adultes cultivés. Par AUGUSTE FOREL, ancien professeur de psychiatrie à l'Université de Zurich. Paris: G. Steinheil, 1906. Pp. viii-604.

The author states that he has endeavored to study the sexual question in its scientific, ethnological, pathological, and social aspects and to find the best solution of the numerous problems that are related to it. His opinions on the sexual question have been evolved from his study of the human brain, from psychology, from animal biology, and from long experience as an alienist who is as much occupied with normal mentality and questions of social hygiene as with pathological mentality.

He shows that the sexual question is very complex and that we may not expect to find a simple solution, as with the questions of alcoholism and addiction to drugs. These latter may be solved by one word—suppression; stop slavery, stop the use of alcoholic drinks in our regimen; they are not concerned with the normal conditions of human existence, which, in fact, they may be said to imperil. But the sexual instincts have their roots in life itself, for in man, as in all other living beings, the end of all sexual function, and consequently of sexual love, is the reproduction of the species.

He describes the reproduction and evolution of living beings and the natural methods and organs associated with reproduction. The normal and pathological phases of the sexual appetite are described, the clas-

sification of Krafft-Ebing being followed in the review of sexual psychopathology. Nine chapters are devoted to the social feature of the subject, that is, to the relation of the sexual question to the different features of the social life of man.

The author has sought to show that, from an elevated point of view, sexual life may be as attractive as it is useful. Much has been associated with it that is hateful and infamous. But the latter is due to salaciousness and selfish, brutal passion, to folly allied with ignorance, and to erotic curiosity and mystic superstitions.

Traitement chirurgical du cancer du colon. Par le Dr. JOSEPH OKINCZYC, prosecteur à faculté de médecine, ancien interne lauréat des hôpitaux (médaillon d'or, 1906). Paris: G. Steinheil, 1907. Pp. 212.

As an assistant to Hartmann, the author has had an opportunity to observe a relatively large number of cases of cancer of the colon; and because of the apparent rarity of these cases, of the difficulty of early diagnosis, and of the very variable results of treatment, he has made this form of cancer a subject of special investigation.

His studies indicate that the most important factor in this morbid process is an early diagnosis; when that is made, the most efficacious therapeutics is colectomy. The monograph is well illustrated, and is a useful contribution to the literature of this important subject.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph. D., M. D., Assistant Professor of Pathology in the University of Chicago. Philadelphia and London: W. B. Saunders Company, 1907.

Medical Abstracts. Anatomy, by Stewart L. McCurdy, A. M., M. D.—Physiology and Embryology, by Frederick A. Rhodes, M. D.—Histology and Bacteriology, by A. B. Walgren, B. S., M. D.—Materia Medica and Therapeutics, by Charles A. Orr, A. M., M. D.—Chemistry, by John Inglis, A. B., A. M., M. D.—Surgical and Medical Emergencies, by Stewart L. McCurdy, A. M., M. D. Pittsburgh, Pa.: Medical Abstract Publishing Company, 1906.

Beiträge zur Entstehung der Geschwülste. Zweite Ergänzung zur Geschwulstlehre für Aerzte und Studierende. Von Dr. Hugo Ribbert, ordentlicher Professor der allgemeinen Pathologie und pathologischen Anatomie, Direktor des pathologischen Institutes in Bonn. Mit 40 Abbildungen. Die Entstehung des Karzinomes. Bonn: Friedrich Cohen, 1907.

Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Erkrankungen des Urogenitalapparates. Herausgegeben von Priv.-Doz. Dr. Albu, Berlin, Prof. Dr. R. du Bois-Reymond, Berlin, etc. Redigiert von Geh. Med.-Rat Prof. Dr. M. Nitze, Berlin. Dr. S. Jacoby, in Berlin. Nach Nitze's Tode unter Mitwirkung von Prof. Dr. A. Kollmann, in Leipzig. I. Jahrgang. Bericht über das Jahr 1905. Berlin: S. Karger, 1906.

Diagnosics of the Diseases of Children. By LeGrand Kerr, Professor of the Diseases of Children in the Brooklyn Postgraduate Medical School, etc. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. (Price, \$5.)

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of small pox, yellow fever, cholera, and plague, have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending June 8, 1907.

Smallpox, United States.			
Places.	Date.	Cases.	Deaths.
Illinois, Beulahville	June 9-15	1	
Illinois, Galesburg	June 9-15	1	
Illinois, Toltet	May 14-June 15	1	5

Illinois—Peoria	June 8-15	7
Illinois—Springfield	June 13-20	2
Kansas—Kansas City	June 9-15	1
Kansas—Topeka	June 9-15	2
Kentucky—Covington	June 15-20	15
Kentucky—Louisville	June 15-20	6
Louisiana—New Orleans	June 8-15	6
Maryland—Baltimore	June 15-22	1
Massachusetts—Lawrence	June 9-15	4
Missouri—St. Louis	June 15-20	1
Ohio—Cincinnati	June 14-21	1
Ohio—Cleveland	June 7-14	1
Texas—San Antonio	May 25-June 1	23
Utah—General, 4 counties	June 9-15	9 imported.
Washington—Spokane	June 9-15	10
Wisconsin—Milwaukee	June 9-15	10

Smallpox—Foreign.

Africa—Algiers	May 1-31	8
Argentina—Rosario	May 13-20	12
Austria—Trieste	May 18-25	1
Brazil—Mannos	May 25-June 1	1
Brazil—Para	June 1-8	4
Brazil—Pernambuco	Apr. 15-20	56
Brazil—Rio de Janeiro	May 16-23	1
Canada—Halifax	June 15-22	1
China—Amoy	May 18-25	Present.
China—Hankai	May 11	1
China—Hongkong	Apr. 27-May 11	27
China—Shanghai	Apr. 27-May 11	4 foreign; 23 deaths; 45 natives.
Colombia—Santa Marta	June 1	1
Egypt—Cairo	May 13-20	2
Germany—Bremen	June 1-8	10
Germany—Bremen	May 4-11	2
Germany—Bremen	May 18-25	1
Great Britain—Southampton	June 1-8	2
India—Bombay	May 21-28	1
India—Calcutta	May 11-18	34
India—Madras	May 1-8	2
Hawaii—Honolulu	June 25	1 imported from S.S. <i>Kauai</i> ; from Madeira.

Italy—General	May 31-June 6	32
Italy—Florence	June 2-9	4
Italy—Naples, vicinity	June 2-9	1
Mexico—Agua Calientes	June 9-15	9
Mexico—City of Mexico	May 18-June 1	3
Russia—Moscow	May 18-25	6
Russia—Odessa	May 25-June 1	4
Russia—Riga	May 25-June 1	11
Siberia—Vladivostok	Apr. 27-May 5	2
Spain—Valencia	June 2-9	2
Straits Settlements—Singapore	Apr. 27-May 4	1
Turkey—Bagdad	May 5-11	Present.
Turkey—Bassorah	May 11-25	Present.
Venezuela—La Guaira	May 25-June 8	Present.

Yellow Fever—Foreign.

Brazil—Para	June 1-8	1
Brazil—Rio de Janeiro	May 12-26	4

Cholera—Foreign.

India—Bombay	May 11-18	1
India—Calcutta	May 11-18	56
India—Rangoon	May 11-18	2

Plague—Foreign.

Africa—Cape Colony, King Will.		
Bam's Town	May 4-11	2
Brazil—Para	June 1-8	10
Brazil—Rio de Janeiro	May 12-19	2
China—Hongkong	Apr. 27-May 11	19
Egypt—Alexandria	May 25-30	1
Egypt—Assiut Province	May 25-30	8
Egypt—Bent-Suef Province	May 25-30	1
Egypt—Girgeh Province	May 25-30	1
Egypt—Keneh Province	May 25-30	15
Egypt—Minieh Province	May 25-30	8
India—General	Apr. 27-May 4, 8, 9, 17, 27	77,776
India—Bombay	May 21-28	95
India—Calcutta	May 11-18	263
India—Rangoon	May 11-18	34
Japan—Osaka	May 20-27	Present.
Japan—Sasebo	May 20-27	1
Japan—Yokohama	May 25-June 8	3
Peru—Lima	May 25	Present.
Peru—Tumbes	May 10	1
Peru—Trujillo	May 10	2
Straits Settlements—Singapore	May 11-18	2

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers in the United States Public Health and Marine Hospital Service, for the seven days ending June 29, 1907.

- BAGNETT, E. E., Pharmacist. Directed to proceed to Evansville, Ind., and report to the medical officer in command, for duty and assignment to quarters.
- BREITMAN, W. C., Passed Assistant Surgeon. Granted leave of absence for three days, from June 27, 1907.
- GASSAWAY, JAMES M., Surgeon. Granted leave of absence for twelve days, from June 24, 1907.
- GLEASON, C. M., Acting Assistant Surgeon. Granted leave of absence for twelve days, from June 18, 1907.

GORMAN, T. V., Pharmacist. Relieved from duty at Memphis, Tenn., and directed to proceed to Ellis Island, New York, reporting to the Chief Medical Officer, for duty and assignment to quarters.

KNOWLES, RALPH, Acting Assistant Surgeon. Granted leave of absence for seventeen days, from July 7, 1907.

MCBRIDE, C. R., Pharmacist. Relieved from duty at Cebu, P. I., and directed to return to the United States, reporting arrival at New York.

ROBERTSON, H. MCG., Assistant Surgeon. Directed to report to the chairman of the Board of Examiners, Washington, D. C., July 18, 1907, to determine his fitness for promotion.

RODMAN, J. C., Acting Assistant Surgeon. Granted leave of absence for three days, from June 16, 1907.

ROWLES, J. A., Acting Assistant Surgeon. Granted leave of absence for ten days, from July 15, 1907.

RUCKER, W. C., Assistant Surgeon. Directed to report to the chairman of the Board of Examiners, Washington, D. C., on July 18, 1907, to determine his fitness for promotion.

SHERER, J. M., Pharmacist. Directed to proceed to Memphis, Tenn., reporting to the medical officer in command, for duty and assignment to quarters.

STILES, CH. W., Chief, Division Hygienic Laboratory. Directed to visit the States of North Carolina, South Carolina, Georgia, Alabama, and Mississippi, for special temporary duty, upon completion of which to rejoin station.

STIMSON, A. M., Assistant Surgeon. Directed to report to the chairman of the Board of Examiners, Washington, D. C., on July 18, 1907, to determine his fitness for promotion.

TRASK, J. W., Assistant Surgeon. Directed to report to the chairman of the Board of Examiners, Washington, D. C., on July 18, 1907, to determine his fitness for promotion.

WALKER, R. T., Acting Assistant Surgeon. Granted leave of absence for ten days, from July 8, 1907.

WARD, W. K., Assistant Surgeon. Directed to report to the chairman of the Board of Examiners, Washington, D. C., on July 18, 1907, to determine his fitness for promotion.

WETMORE, W. O., Acting Assistant Surgeon. Granted leave of absence for eight days, on account of sickness, from June 6, 1907.

WHITE, J. H., Surgeon. Granted leave of absence for seven days, from June 8, 1907.

WILSON, J. G., Acting Assistant Surgeon. Granted leave of absence for seventeen days, from July 21, 1907.

Appointments.

E. E. Barnett and J. M. Sherer appointed pharmacists of the third class, June 21, 1907.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending June 29, 1907.

BANISTER, J. M., Lieutenant Colonel and Deputy Surgeon General. Ordered to proceed from Fort Riley, Kas., to Omaha, Neb., for temporary duty as chief surgeon of the Department of the Missouri.

DAVIDSON, W. T., Captain and Assistant Surgeon. Granted fifteen days' leave of absence.

DUNN, J. C., Captain and Assistant Surgeon. Upon return to Fort Missoula, Mont., from leave of absence, will proceed to join the 3d Battalion, 6th Infantry, in the field en route to Helena, Mont.

HOWARD, D. C., Major and Surgeon. Leave of absence extended twenty-five days.

PHALEN, J. M., First Lieutenant and Assistant Surgeon. Ordered to accompany the 2d Battalion, 30th Infantry, at San Francisco, Cal., upon completion of this duty ordered to return to station, Fort Logan H. Roots, Ark.

SMITH, C. A., First Lieutenant and Assistant Surgeon. Granted thirty days' sick leave of absence.

YOUNG, T. D., Captain and Assistant Surgeon. Granted leave of absence for thirty days.

The following named assistant surgeons have been advanced from the grade of First Lieutenant to that of Captain, to date from June 24, 1907:

C. H. Connor, W. T. Davis, Nelson Gapen, J. C. Gregory, J. W. Grissinger, H. S. Hansell, S. E. Lambert, C. F. Morse, H. S. Purnell, W. L. Pyles, W. M. Smart.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending June 29, 1907:

BRADLEY, G. P., Medical Director, retired. Detached from the Navy Yard, Portsmouth, N. H., and ordered home.

BROWN, H. L., Assistant Surgeon. Detached from a course of instruction at the Naval Medical School, and ordered to the Naval Recruiting Station, Oklahoma, Okla.

BYRNES, J. C., Medical Inspector. Detached from the Naval Academy and ordered to duty as fleet surgeon, first division, Pacific Fleet, on board the *West Virginia*, sailing from San Francisco, Cal., about July 25, 1907.

CASTO, D. H., Acting Assistant Surgeon. Detached from the Naval Recruiting Station, Baltimore, Md., and ordered to Washington, D. C., on July 1st, for examination for appointment as an assistant surgeon in the Navy, and then to report to the Surgeon General of the Navy for further orders.

DERR, E. Z., Medical Director. Detached from the Navy Yard, Boston, and ordered to the Navy Yard, Portsmouth, and to additional duty in command of the Naval Hospital at that place.

DONELSON, M., Acting Assistant Surgeon. Detached from duty with Naval Recruiting Party No. 3, and ordered to Washington, D. C., on July 1st, for examination for appointment as an assistant surgeon in the Navy, and then to report to the Surgeon General of the Navy for further orders.

EDGAR, J. M., Surgeon. Detached from the *Wabash* and ordered to the Navy Yard, Boston, Mass.

HAINES, B. F., Acting Assistant Surgeon. Ordered to the Naval Hospital, Philadelphia, Pa.

HEINER, R. G., Assistant Surgeon. Detached from a course of instruction at the Naval Medical School, and ordered to duty with the Marine Detachment at Camp Harrington, Williamsburg, Va.

HOLCOMB, R. C., Passed Assistant Surgeon. Detached from a course of instruction at the Naval Medical School, and ordered to the Naval Hospital, Norfolk, Va.

KENNEDY, J. T., Passed Assistant Surgeon. Detached from a course of instruction at the Naval Medical School, and ordered to Danville, Va., for duty with recruiting party No. 3.

MARSTELLER, E. H., Surgeon. Unexpired portion of sick leave revoked; ordered to the Naval Recruiting Station, Baltimore, Md., on July 1st.

MAYERS, G. M., Passed Assistant Surgeon. Detached from the *Marietta* and ordered to the *Ohio*.

MILLER, J. T., Acting Assistant Surgeon. Detached from a course of instruction at the Naval Medical School and ordered to the *Rhode Island*.

MILLIGAN, J. D., Pharmacist. Detached from the *Fish Hawk*, and when discharged from treatment at the Naval Hospital, Norfolk, Va., ordered home and granted sick leave for six weeks.

OHNESORG, K., Passed Assistant Surgeon. Detached from the Navy Yard, Boston, Mass., and ordered to the *Wabash*.

PORTER, F. E., Assistant Surgeon. Detached from the *Rhode Island* and ordered to the *Franklin*.

REEVES, I. S. K., Passed Assistant Surgeon. Detached from the *Franklin* and ordered to the *Marietta*.

Births, Marriages, and Deaths.

Married.

ATKINS—DAVIS.—In Atlantic City, New Jersey, on Thursday, April 4th, Dr. George Hulings Atkins, of Philadelphia, and Miss Estella M. Davis.

AXFORD—TYSON.—In Philadelphia, on Wednesday, June 26th, Dr. William Axford and Miss Katherine A. Tyson.

DODSON—PEARCE.—In Alhambra, Illinois, on Saturday, June 22nd, Dr. C. A. Dodson and Miss Betty T. Pearce.

FAIRFAX—RANDOLPH.—In Logan, Ohio, on Wednesday, June 26th, Dr. Henry Reginald Fairfax and Miss Nell Virginia Randolph.

FRALEY—PYLE.—In Philadelphia, on Wednesday, June 26th, Dr. Frederick Fraley and Miss Mary Lapsley Pyle.

GRAVES—HERING.—In New York, on Wednesday, June 19th, Dr. George Graves and Miss Margaret Hering.

HAMMOND—REED.—In Albany, N. Y., on Wednesday, June 19th, Dr. Frank Eugene Hammond and Miss Marietta Knott Reed.

HANCOCK—WILSON.—In Philadelphia, on Wednesday, June 26th, Dr. Judson Hancock and Miss Martha Wilson.

HARRIG—TIBBITTS.—In Albany, N. Y., on Tuesday, June 25th, Dr. Percival W. Harrig and Miss Lotta May Tibbits.

HAYES—MYER.—In Auburn, N. Y., on Tuesday, June 18th, Dr. Pliny Harold Hayes and Miss Agnes Adelaide Myer.

HAZARD—WHITE.—In Philadelphia, on Wednesday, June 26th, Dr. Elmer Clark Hazard and Miss Pearl A. White.

HIRST—HARRAUGH.—In Seoul, Korea, on Monday, March 11th, Dr. Jesse Watson Hirst, of Philadelphia, and Miss Sadie Belle Harbaugh, of Washington, D. C.

HOLDER—TAYLOR.—In Philadelphia, on Wednesday, June 26th, Dr. Charles A. Holder, of Colorado Springs, Colorado, and Miss Margaretta Bonsall Taylor.

JONES—RICHARDS.—In Philadelphia, on Monday, June 24th, Dr. James W. Jones and Miss Sara Richards.

KELLEY—MATTHEWS.—In Philadelphia, on Tuesday, June 25th, Dr. John Hopkins Kelley and Miss Harriet Matthews.

MENTZER—JONES.—In Philadelphia, on Thursday, June 27th, Mr. Edwin E. Mentzer and Dr. Emily Jones.

WOLVERTON—DONNELL.—In Philadelphia, on Tuesday, June 25th, Mr. Charles A. Wolverton and Dr. Sara M. Donnell.

Died.

BAKER.—In Altoona, Pennsylvania, on Tuesday, June 25th, Dr. Sylvester C. Baker.

BREWER.—In Philadelphia, on Thursday, June 20th, Dr. Mary Brewer.

COX.—In Johnston, South Carolina, on Friday, June 26th, Dr. S. J. M. Cox, aged sixty-one years.

DIETRICK.—In Youngstown, Ohio, on Sunday, June 23rd, Dr. John Dietrick, aged sixty-three years.

DUHART.—In Lafayette, Indiana, on Sunday, June 23rd, Dr. J. L. Duhart, aged fifty-seven years.

FRANKLIN.—In Westminster, Maryland, on Monday, June 24th, Dr. Benjamin Gorsuch Franklin, aged sixty-four years.

FULTON.—In Atlantic City, N. J., on Sunday, June 23rd, Dr. Henry W. Fulton, of Pittsburgh, Pennsylvania, aged seventy years.

GETCHELL.—In Philadelphia, on Thursday, June 27th, Dr. Frank Horace Getchell, aged seventy-two years.

HART.—In Pennington, N. J., on Sunday, June 23rd, Dr. Israel Hart, aged seventy-nine years.

KENNEDY.—In Louisville, Kentucky, on Saturday, June 22nd, Dr. Orville A. Kennedy, aged forty-two years.

LAWYER.—In Cobleskill, N. Y., on Saturday, June 22nd, Dr. Ezra Lawyer, aged eighty years.

LONG.—In Anderson, Indiana, on Sunday, June 23rd, Dr. Henry Long.

MACINTOSH.—In Philadelphia, on Monday, June 24th, Dr. James W. MacIntosh, aged thirty-five years.

MUNGER.—In Knoxboro, N. Y., on Wednesday, June 19th, Dr. Charles Munger, aged sixty-six years.

PARKER.—In New York, on Tuesday, June 24th, Dr. Willard Parker.

PENNINGTON.—In Arcadia, Louisiana, on Saturday, June 22nd, Dr. T. H. Pennington, aged seventy-four years.

SHARP.—In Arcade, N. Y., on Monday, June 17th, Dr. James J. Sharp, aged seventy-eight years.

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Original Communications.

SUBCUTANEOUS RUPTURE OF THE SPLEEN.

BY ELLSWORTH ELIOT, JR., M. D.,
New York.

The literature dealing with the subject of subcutaneous rupture of the spleen has been so carefully collated in the statistics of Bessel-Hagen, of Berger, and of Carstens, as well as in the subsequent recent statistics of Horz, that little attention need be devoted to that part of the subject. It is interesting to note that this condition was diagnosed and the patient's life saved by splenectomy as early as the latter part of the seventeenth century, and that, subsequent to that time, isolated instances of successful splenectomy for either prolapsed spleen or for rupture continue to be reported until, in more modern times, the introduction of aseptic methods and the more widely diffused skill in diagnosis have greatly multiplied the frequency and success of this life saving operation.

That pathological conditions of the spleen, especially those due to the infectious fevers, the acute and chronic forms of malaria, the various forms of pernicious anemias and the different varieties of neoplasms predispose to rupture of that organ and that, under such circumstances, rupture may occur after a relatively slight trauma, are well known facts. This paper is concerned only with the consideration of those cases in which, at the time of the accident, no one of these different conditions was present. Under these circumstances, the spleen may be ruptured by violence received directly from some rounded object in the left hypochondrium beneath the costal arch, or indirectly, through the contiguous ribs, of which one or more may be fractured; or the laceration may be due to some violence acting upon the abdomen as a whole, such as occurs in run-over accidents. There are also a few instances of rupture of this organ in which the violence is received on the right side, a form of rupture by *contrecoup*, and still more rarely, other cases in which rupture follows a fall upon the feet from a considerable height.

The lesions are not always limited to the spleen, but in many instances include damage to adjacent viscera, especially the liver, kidney, colon, stomach, and pancreas, the diaphragm and lung, and not infrequently in addition to the broken ribs fracture of other long bones, or even of the pelvis and skull. Such associated lesions when not involving an abdominal viscus are chiefly important not only in materially increasing the gravity of prognosis, but

also in the fact, that by directing attention to distant organs, they obscure the more serious injury, and thus delay or cause to be entirely overlooked the rupture in the spleen.

The lesions in the spleen vary greatly. In the mildest cases, the capsule remaining intact, the hæmorrhage is small, and infiltrates the parenchyma of the organ only, which from its soft yielding consistency may be almost doubled or trebled in size. In the severest cases, the spleen may be completely divided into two or more fragments, which, if entirely detached from the pedicle become loose bodies in the peritoneal cavity and may even be found in as remote a part as the right iliac fossa. Simultaneously the laceration may invade the hilus and more or less completely lacerate the vessels which enter and leave at that point. The type of laceration also varies considerably; the organ may be so generally contused as to form a pulpy mass or the lines of laceration may be well defined and either regular, irregular, or of stellate shape, involving generally the internal more than the external surface. If not confined within the capsule of the organ, the blood passes almost in every case directly into the greater peritoneal cavity; if, however, the rupture occurs in the internal surface directly behind the hilus, the blood escapes into the omental bursa of the lesser peritoneal cavity. This condition, although necessarily rare, obtained in the case of Lamarchia in which, after a suture of a rent in the outer surface of the spleen, the patient died and the autopsy showed an additional rent behind the hilus leading into the lesser cavity, which had not been discovered at the time of operation. This case is often misquoted to demonstrate the futility of suture as an effective hæmostatic in rupture of the spleen. As a matter of fact, the autopsy proved that the suture had satisfactorily checked all bleeding and that, barring shock or other unforeseen complication, recovery would have taken place, had the sutured laceration been the only source of hæmorrhage. Lamarchia frankly states that had the hidden laceration been discovered, he would have removed the spleen without hesitation.

A fatal termination is to be expected in those cases where the hæmorrhage continues until the patient is exsanguinated. That the hæmorrhage sometimes spontaneously ceases, however, is proved by a number of cases in which the patient had died from some associated lesion, where the laceration in the spleen has been found firmly closed by thrombus, as well as by other cases in which, at the time of operation, the hæmorrhage had ceased and recovery had followed the removal of the clotted

blood from the peritoneal cavity without disturbing the site of laceration. In such favorable circumstances, in the absence of operation, the extravasated blood would either be absorbed and disappear, or, if present in large quantity, it might form a sharply defined cystic tumor in the left side of the abdomen.

The symptoms of subcutaneous rupture of the spleen depend upon the extent and rapidity of the hæmorrhage. In a considerable number rapid loss of blood is fatal within a very short time. In a larger number, several hours may pass before there is any evidence of internal hæmorrhage. Occasionally the first indication of hæmorrhage will be delayed from twenty-four to seventy-two hours or even longer, a clinical picture which can be explained by a sudden renewal of bleeding, temporarily checked shortly after the trauma, through some inadvertent movement of the abdominal wall or diaphragm, or possibly by the fact that the hæmorrhage, at first confined within the limits of an untorn capsule, eventually ruptures that barrier and escapes freely into the peritoneal cavity.

It is needless to emphasize the importance of accurate diagnosis before exsanguination takes place in all cases which are not immediately fatal. Hence a careful consideration of the objective symptoms seems justifiable for valuable time is often lost through error in diagnosis and published reports of cases seem to indicate that, not infrequently the strength of the patient is subjected to the additional strain of needlessly long and erroneously placed incisions in an effort to recognize the source of the hæmorrhage.

During the first hours after the accident, the patient, in a condition of shock, complains of severe pain in the left hypochondrium which is intensified by attempted movement of the body and by deep inspiration. Similar symptoms are observed in fracture of the ribs, differing, however, in the fact that, in rupture of the spleen the shock is more intense, while the pain is more constant and severe and of increasing intensity. There is frequently one or more attacks of vomiting. The position of the patient is usually dorsal with marked disinclination to move to either side, especially to the right. Respiration is chiefly thoracic, the descent of the diaphragm being scarcely perceptible in the upper abdominal segment, especially on the left side. There is no asymmetrical distension or bulging of the abdomen.

There is well defined tenderness in the region of the spleen, extending from that point a variable distance downward, according to the extent of the hæmorrhage. Muscular rigidity is nearly always constant and pronounced. Although present over the entire abdomen it is much more marked over the upper part of the left rectus, involving to a lesser extent the lower part of the same muscle. It is also very prominent in the lower part of the costal arch, and any attempt to press the unbroken eleventh and twelfth ribs toward the vertebral column is not only painful but meets with great resistance. In cases with extensive hæmorrhage, the normal area of dullness is greatly enlarged in a downward and forward direction, the left flank giving a particularly dull if not almost flat note. The area of dullness, and by many to shift ac-

cording to the position of the patient, but under such circumstances the rapid coagulation of the blood, together with the natural restriction of adjacent omentum and loops of intestine must frequently retard any sudden movement of the clotted blood as a whole to another segment of the abdomen. Theoretically, as Ballance has suggested, such a change should not influence materially the position of the coagulum, but only of its expressed serum. Practically, however, the quantity of serous exudate within the first twelve hours after the accident is so small that it could have possibly no effect on the percussion note, and for that reason the not infrequent presence of shifting dullness in these cases must be ascribed to the fact that the rapidity of hæmorrhage favors the accumulation of a considerable amount of fluid blood in the peritoneal cavity. The propriety of eliciting this symptom must, however, be seriously questioned. The necessary change in the position is a great hardship and might very easily increase the severity of the hæmorrhage or bring about its renewal when it had spontaneously ceased. In both the cases, reported in this paper, no attempt was made to turn the patient over to the opposite side as the diagnosis and consequent operation seemed to be justified by the other symptoms. Small amounts of blood can sometimes be detected by auscultatory percussion, the stethoscope being placed over the centre of the suspected area and relative dullness being elicited by gently tapping with the extremity of a finger the adjacent abdominal wall. This should always be practised at the first examination in order that any change in subsequent examinations, repeated at frequent intervals, may be immediately recognized.

Considerable information may sometimes be gained by placing the end of the stethoscope in close contact with the abdominal wall and then quickly but gently depressing it toward the abdominal cavity. The accumulated blood is thereby sufficiently disturbed to yield a rubbing friction sound that is conveyed to the examiner's ear. The end of the stethoscope should be small and connected by tubing to the ear pieces. This physical sign, elicited by what may be called "dipping" percussion, has been practiced by the writer during the past six months and during that time has yielded a positive result in several cases of extravasation of blood into the joint and connective tissue planes as well as in one case of ectopic gestation. It has also been of considerable value in determining the early presence of a fibrinous exudate in inflammation of the appendix.

Of these different symptoms the most important and those on which chief reliance must be placed in making correct diagnosis, are undoubtedly the muscular rigidity and the dullness or flatness in the flank. The writer wishes especially to call attention again to the value of costal resistance or the force encountered in depressing various segments of the costal arch toward the vertebral column. This has been repeatedly tested in inflammatory processes of the liver, gall-bladder, stomach, pancreas, and kidney; and in both cases reported in this paper its well marked development materially aided in the diagnosis. It is also essential to keep this physical sign in mind in distinguishing between damage to the costal arch or ribs only, and

damage to the spleen as well. If the lower part of the costal arch is the site of fracture or of dislocation the eleventh and twelfth ribs are not usually involved, and inasmuch as they are not connected with the costal arch, pressure directed against them will neither intensify the existing pain nor meet with any decided resistance; the reverse, however, is found to be the case if, in addition to the damaged arch, rupture of the spleen has taken place.

The writer has also been interested in the behavior of the rectus muscle in uncomplicated cases of single or multiple fracture of the ribs of the costal cartilages from which it springs. A number of observations during the past year have shown that, if present, the rigidity is confined to the uppermost part of the muscle. An associated fracture of the femur in the second case, directed the writer's attention to the possibility of abdominal rigidity in this condition, but observation of several cases of isolated fractured femur have shown that, ordinarily, abdominal rigidity is absent, or if present, is limited to the lower abdomen.

That the presence of rigidity after trauma is not always an indication of some serious intraabdominal lesion is well illustrated in the following case.

CASE I.—Male; thirty years of age; admitted to the Presbyterian Hospital, April 14, 1907. This evening, while crossing the street, the patient was struck in the sacral region by an automobile and was thrown a distance of several feet, striking the lower abdomen against a lamppost. He was brought to the hospital in an ambulance and was unable to walk or stand upright. He had considerable shock.

Examination, shortly after admission, revealed the physical signs of contusions over the lumbosacral joint and over the lower anterior abdomen with general tenderness, with but little if any rigidity. This latter symptom soon appeared, however, and twelve hours after the accident a personal examination showed diffuse rigidity, especially in the lower part of the abdomen, slightly more marked on the left than on the right side. A distinct swelling, evidently that of a hæmatoma, could be felt in the left groin above Poupert's ligament. There was no rigidity of either costal arch, and pressure on the floating ribs caused no pain. No focal symptoms could be elicited; the patient's pulse was under 100 and his general condition was very satisfactory. Although a rupture of an abdominal viscus was considered unlikely, yet the rapid development and spread of the rigidity together with a general increase in leucocytosis to 23,000 seemed to warrant an exploration. An extensive peritoneal extravasation of blood was found through a midline incision below the umbilicus and, on opening the peritoneum, retroperitoneal hæmatomata were detected in both iliac fossæ and loins, especially on the left side. There was no rupture of any viscus, although an ecchymotic area the size of a twenty-five cent piece was observed in the posterior wall of the bladder just below its fundus. The wound was completely closed without drainage and primary union secured. By the end of the first week the rigidity had entirely disappeared. It is also interesting to note that for eight days the patient had to be catheterized the inability to void urine being either due to some functional derangement of the lumbar enlargement or possibly to the contusion of the bladder wall.

Rupture of the spleen is most satisfactorily treated by splenectomy. Suture of the laceration has been attempted but is uncertain in that the soft consistency of the organ favors the cutting through of the sutures and prevents an approximation of

the divided edges with sufficient tightness to check the hæmorrhage. Moreover, the laceration may be so situated that the insertion of the sutures is either difficult or impossible. Furthermore, the suture of multiple lacerations requires much more time than the ligation of a pedicle, and the condition of the patient is such that the operation should always be concluded in the quickest possible way. Finally, as in the case of Lamarchia, a laceration from which hæmorrhage may continue in sufficient quantity to prove fatal, may be overlooked. The pressure of the spleen by a carefully inserted tampon against the diaphragm and costal wall has been employed, but such a tampon does not always check the hæmorrhage and its subsequent removal may dislodge the clots and lead to a renewal of that alarming symptom. Moreover, this method is totally inapplicable in cases where one or more of the splenic vessels are torn at the hilus, for the reason that the degree of pressure necessary to check the hæmorrhage would unquestionably, even although it were successful, be followed by necrosis of the organ. As the use of the Paquelin or galvanocautery does not yield desirable results, splenectomy is evidently the most satisfactory method of treatment, and the value of that procedure is amply demonstrated by numerous successful cases with a steadily decreasing mortality.

The questions involved in this operation include the situation and extent of the incision, the treatment of the pedicle, the removal of the accumulated blood from the peritoneal cavity and the problem of drainage.

A review of the literature seems to show that the wide variance of incision is to be ascribed to uncertainty in diagnosis and hence to the fact that the incision at first was chiefly exploratory. In cases where the diagnosis is made a vertical incision parallel to the upper outer border of the left rectus above the level of the umbilicus, supplemented by a second incision extending from its upper extremity outward along the costal margin, is preferable in that the former provides sufficient space to rapidly explore the adjacent viscera for possible rupture, while the latter permits adequate exposure of the splenic pedicle and accurate inspection of the source of hæmorrhage. Such an incision is also less likely to be followed by subsequent hernia. All incisions which necessitate the application of the pedicle clamp by touch are to be condemned, for the pedicle, even under normal conditions, may be attached to the fundus of the stomach or colon, and portions of those viscera would then be included within the grasp of the clamp. Through an incision parallel to the costal arch the application of the clamp may readily be preceded by the liberation of any portion of an adherent viscus. Should its deep position or adhesion to the diaphragm or parietes render the exposure of the spleen unusually difficult, additional space may be provided by the reaction of one or more of the overlying costal cartilages.

After the removal of the spleen its pedicle, if not too broad, may be transixed and tied with catgut. In both cases here reported, the pedicle was so broad that it was feared an attempt at ligation might easily result in partial failure, and that a removal of the hæmorrhage would seriously prolong the operation and necessitate the straining of

recovery. In both cases, therefore, two clamps were left in situ, and the wound closed with the exception of a small opening in the lower part through which the handles of the clamps protruded. Prior to the closure of the wound, the accumulated blood remaining in the peritoneal cavity was rapidly washed away by a warm saline solution, the slightly elevated portion of the lower extremity permitting the rapid escape of the clotted material from the wound. The clamps thus applied acted not only as hæmostats but also as drains and were removed at the end of two and three days respectively. The leaving of these instruments in situ did not prove uncomfortable and their removal was painless.

The leaving of the pedicle clamps in situ after splenectomy has been practiced with good results in several instances. So far as the writer can ascertain it was first done with success by Pauchet in 1902. It was also suggested in 1904 by Auvray as a substitute for the customary chain ligature, and in another case reported by Fontoyont in 1905 the splenic pedicle together with a portion of the tail of the pancreas were similarly treated. The use of the clamp in this way has long been practiced in vaginal hysterectomy, and similar treatment of the splenic pedicle seems justifiable, for the artery, near its termination, is practically without collateral branches, and the resulting thrombus should be as secure as that which forms after the application of the usual ligature. The fact that the clamp or clamps may become accidentally unlocked, especially during an attack of postoperative vomiting and lead to a fatal renewal of the hæmorrhage is the only valid objection to their use, but this accident can scarcely happen if the clamps are carefully selected.

That some form of drainage should be employed seems rational if for no other reason than to provide for the possible contingency of damage to the adjacent pancreas. The tail of that organ is in close proximity to the spleen and may simultaneously be injured by the force of the trauma. Under such circumstances a drain for several days or longer would prove desirable especially if a pancreatic fistula seemed inevitable.

Such a complication was observed in the cases of Fontoyont and Bardenheuer and Böger. In the former, a woman of twenty-eight, splenectomy was done two hours after the accident. The adjacent tail of the pancreas was also torn. The clamps on the splenic pedicle were left in situ and were removed on the third day. A tampon was also introduced, a pancreatic fistula forming, which eventually closed spontaneously. In the latter case a tear in the tail of the pancreas was sutured after the spleen was removed for rupture. The patient recovered.

A successful case of splenectomy for rupture is also reported by Morison, in which there was damage to the tail of the pancreas. This case was drained through a stab puncture in the left loin, the abdominal wound being closed completely. Primary union was secured, but there is no mention of a subsequent pancreatic fistula through the counter-opening.

The only possible objection to splenectomy for rupture of the spleen consists in the fact that, in the absence of accessory spleens which by their hy-

per trophy could easily and satisfactorily continue the splenic functions, it necessitates the sacrifice of an organ which unquestionably is important to the body economy. That its preservation is not essential, however, to a condition of perfect health, is of course proved by the numerous cases of complete recovery after its removal. That, on the other hand, some temporary constitutional disturbance may follow splenectomy is clearly shown by the cases in which a long persistent anæmia with general emaciation has been observed, as well as occasional instances of delay in the repair of associated lesions, particularly in the long bones. Thus, in Nötzel's case, there was no evidence of callus formation in a fracture of the shaft of the humerus three months after the accident, and an operation done at that time for nonunion proved a total failure. Six months later union was secured by a second operation of an osteoplastic character. In the first case reported by the writer a simple fracture of the shaft of the femur united with no special delay, although with rather more shortening than usual.

The following instances may be cited in illustration of the disturbances of the body economy that sometimes follow splenectomy.

Ballance reports a case of a female of forty-five who made good progress during the first week after a splenectomy. Then the pulse became 120 to 130, the temperature 100° to 101° F. There was threatened anorexia, pain in the limbs, especially along the tibia and little urine. The patient showed a tendency to sleep all day. She fainted on changing her position, in bed. The patient was fed on grilled spleen and on extract of spleen, with ultimate recovery. The same observer also reports a second case in a man of thirty-six. Two weeks after the operation this patient became cachectic with loss of flesh and sunken face. There was weakness and thirst, and the patient continued to lose ground for four weeks. He was given cod liver oil and marrow on toast, but finally improved and ultimately recovered on the use of arsenic. At the end of four months, slight enlargement of the lymphatic glands could be detected.

Von Beck reports a case of slow recovery from an acute anæmia following splenectomy without any appreciable enlargement of the lymphatic glands or thyroid.

Heaton reports a case in a boy in which anæmia persisted for six months after operation.

Lewerenz reports a case of a man, twenty-seven years of age, in whom some psychic disturbance with hallucinations persisted for two months after the operation.

That Nature endeavors to provide a substitute for the loss of the splenic reparative power, if it may be so called, is shown in a considerable number of cases, by a moderate hypertrophy of the lymphatic glands, or of the thyroid, or of the marrow of the bones, the last mentioned indicated by a general soreness along the shafts of the long bones. Such an enlargement, which must be regarded as compensatory, probably follows all cases of splenectomy, although it may not be sufficiently pronounced to be demonstrated by palpation. The questions naturally arise, whether complete restoration of the body economy depends upon the satisfactory ad-

justment of such compensation, and whether such a state of compensation can be disturbed or overthrown by the advent of any sudden infection or other grave illness. Unfortunately, the evidence relating to the latter question is necessarily very scant.

It has been shown experimentally that the removal of the spleen in animals seems to increase their power of resistance to various infections, but Hörz rightly states that, from that fact, no trustworthy analogy can be applied to the human race. Racovico reports a case of typhoid fever which ran a mild course, in an epidemic of unusual severity, in a splenectomized female of nineteen, and a few scattered cases of prompt uneventful recovery after operation for a subsequent ventral hernia, and in one case, that of Röser, for acute ileus due to a band formation five years after splenectomy, are also mentioned. On the other hand, the patient operated upon by Röser after a persistent anæmia, developed a pneumonia of the lower left lobe six months after the splenectomy. At the end of four weeks the patient convalesced slowly, and although prior to the pneumonia the blood count had been normal, yet after it had run its course there was a considerable increase of the lymphocytes, especially of the larger varieties, which though slowly decreasing, yet persisted for many months after recovery had taken place. Nötzel's sixth case of splenectomy for a bullet wound of the thorax and abdomen is interesting in that, in the absence of a peritonitis, an empyema developed and, although drained by the excising of a rib, yet persisted to discharge, under general pyæmic symptoms, masses of lung tissue, until it was thought that the major portion of the lower left lobe had come away. The recovery of the patient under such circumstances would indicate unusual reparative power, while at the same time the extensive sloughing of the lung would not probably have taken place had the damage been limited to the thoracic cavity.

The necessarily small amount of clinical evidence dealing with this subject certainly justifies the following interesting report of the sequel in the second case. The clinical histories of the two cases are first given:

CASE I.—J. B., twenty-eight years of age, male, admitted to the Presbyterian Hospital, May 28, 1906. There is an indistinct history of malaria. While falling a distance of five stories down an elevator shaft that morning, patient struck the left side against a bar. When brought to the hospital shortly afterward in the ambulance, the patient complained of thirst, shortness of breath, and of pain in the left side and lower part of the chest.

There was marked rigidity of the left flank and of the lower left costal arch. In the left flank there was dulness merging with the normal area of splenic dulness above. Elsewhere the percussion note was normal. Pressure over the splenic area elicited marked tenderness. There was also a fracture of the left femur and an extensive scalp wound. The pulse was slightly over 100 and of increasing frequency; temperature, 101° F.

Splenectomy was performed five hours after the accident under nitrous oxide gas and ether anæsthesia. A vertical incision was made along the upper outer border of the left rectus above the level of the umbilicus extending from its outer extremity downward and outward along and parallel to the costal margin, a distance of four inches. A considerable amount of semiclotting blood was found in the peritoneal cavity and rapidly wiped away, disclosing the spleen with a deep rupture, two and one half inches long, in its phrenic surface. The spleen was double its normal size, and at its pedicle was closely adherent to the fundus of the stomach. It was also moderately adherent to the diaphragm. The rent was still bleeding freely, but immediately ceased when the pedicle was compressed. After temporary control of the bleeding, the spleen was separated from the diaphragm above and from the fundus of the stomach below, and its pedicle clamped with two large strong forceps. The remaining clotted blood was then removed with saline irrigation, and the wound closed, leaving an aperture at its lower extremity for the handles of the clamp. The operation required fifteen minutes, and toward the end the patient's pulse became feeble and rapid, responding, however, to an infusion of 1,000 c.c. of saline solution.

During the first twenty-four hours, there was considerable discharge from the wound, and the patient's general condition was such as to require a moderate amount of stimulation. The pulse, never higher than 140, decreased to 88 on the third day. The clamps were removed without pain on the second and third days, respectively, and without any sign of a renewal of the hæmorrhage. Three weeks after there was a rise of temperature to 103° F., and 30 ounces of clear fluid was withdrawn from the left chest. Thereafter the convalescence was uninterrupted and complete. At no time was there any indication of enlarged glands or of an enlarged thyroid or any pain along the shafts of the long bones. The fracture of the femur united slowly, but satisfactorily, and the patient to-day is attending regularly to his work as a guard on the elevated railroad.

Laboratory Reports.—The spleen was normal outside of the rupture, which penetrated into the hilus. For a few days after the operation, the urine showed a faint trace of albumin and casts. The fluid from the chest was alkaline of a specific gravity of 1.015, and contained a large amount of albumen. It contained no growth of any kind.

The following blood counts were made (numbers counted in each, 200):

	On admission, June 1.	4, 5.	8.	11.	13.	15.	20.	30.
Polymorphonuclear, per cent.	92.5	81.6	79.0	88.0	64.5	66.0	75.0	55.0
Transitory, per cent.	3.5	3.6	3.5	5.0	7.0	12.0	7.5	5.5
Large mononuclear, per cent.	0.0	0.0	1.0	3.0	0.5	1.5	0.0	1.0
Lymphocytes, per cent.	4.0	12.0	17.5	1.0	20.5	15.5	16.5	24.0
Eosinophiles, per cent.	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0
Eosinophiles, per cent.	0.0	1.0	2.0	0.0	0.0	1.0	1.5	5.5
Blood plates,	Much							
Red cells,	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.
General hematocrit,	51,000	53,000	53,000	30,000	20,000		17,000	15,300

Examination revealed a fracture of the ninth rib in the midaxillary line with cutaneous emphysema over the left side of the chest. The abdomen was full, but not distended, moving more on the right side in respi-

One year afterward. White blood cells, 17,000; red cells, 5,800,000; polymorphonuclear, 52.5 per cent.; transitory, 4.5 per cent.; large mononuclear, 13.5 per cent.; lymphocytes, 28.5 per cent.; eosinophiles, 0.5 per

cent.; eosinophiles, 0.5 per cent. There was considerable pallor of the red cell with moderate polychromatosis. There was 95 per cent. hæmoglobine.

CASE II.—L. S., thirty-four years of age. Eight years ago patient was curetted for retained secundinæ; four years ago she was operated upon for ruptured ectopic gestation sac, in a condition of almost complete exsanguination. Since then she has been in excellent health.

On May 14, 1906, at ten o'clock, patient fell a dis-

	On admission.	2d day.	4th.	6th.	8th.	10th.	12th.	14th.
Polymorphonuclears, per cent.	94.5	80.0	77.0	75.0	75.0	75.0	75.0	67.0
General leucocytes	236,000	68,000	28,000	36,900	33,100	32,900	22,600	17,700
Lymphocytes, per cent.	5.5	5.0	8.0	14.0	17.5	17.5	17.5	17.5
Red cells	3,260,000	2,260,000	2,260,000	2,260,000	2,260,000	2,260,000	2,260,000	2,260,000
Polymorphonuclears, per cent.	15th.	18th.	20th.	22d.	24th.	26th.	28th.	30th.
General leucocytes	67.0	66.0	67.0	52.0	53.0	53.0	53.0	41st.
Lymphocytes, per cent.	23,400	14,200	13,700	10,000	12,000	10,000	12,000	13,200
Hæmoglobine, 80 per cent.	24.0	25.0	19.0	22.0	25.0	40.0	18.0	19.0

tance of nine feet, striking the region of the lower ribs against the edge of an aschcan. She was unable to rise, and there was severe pain in the left side intensified by movement and by deep respiration. To lie on her left side was impossible, and lying on her back was also painful. There has been no vomiting. The pain seemed to diminish for a time and then returned with increasing severity, and the patient began to feel weak and thirsty. She was brought to the hospital in an ambulance.

Five hours after the accident the pulse was regular, 132, and of low tension. The respiration was shallow and increased in frequency. There was a fracture of the eighth and ninth ribs near the axillary line. Examination of the abdomen showed a diminished respiratory movement on the left side. Rigidity, present throughout the entire left side, was most marked in the ileocolic space and over the left lower costal arch. Moderate pressure over the splenic area was very painful. In the left flank there was dullness merging with the area of normal splenic dullness above. Elsewhere the percussion note was unchanged. The patient was acutely anæmic and presented the usual appearance of a patient suffering from internal hæmorrhage.

Splenectomy was performed six hours after the accident under nitrous oxide gas and ether. A vertical incision was made along the upper outer border of the left rectus above the level of the umbilicus extending from its upper extremity downward and outward along the costal margin a distance of four inches. A considerable amount of clotted and fluid blood was found in the peritoneal cavity and rapidly evacuated, disclosing the spleen with a deep rupture two and one quarter inches long on its internal surface in front of the hilus and on its outer surface, denuded of its peritoneal coat, an irregularly circular orifice three quarters of an inch in diameter communicating with the larger rent internally. The spleen was double the normal size, and was still bleeding. The pedicle was clamped with two strong forceps, and the spleen removed. The remaining clotted blood was then quickly washed away with saline irrigation, and after the insertion of a cigarette drain to the pedicle the wound was closed, leaving an aperture at its lower extremity for the handles of the clamps. The duration of the operation was twenty-one minutes, and at its end, the pulse being 140 and weak, an infusion of 1,200 c.c. of saline solution was given.

During the following night the pulse was at times almost imperceptible and there were several attacks of vomiting, but the patient responded well to stimulation, and at the end of twenty-four hours was in very satisfactory condition. The clamps were removed at the end of forty-eight and seventy-two hours, respectively. The healing of the wound was satisfactory, although there was a gradual rise of temperature to 103° F. on

the fourth day and a continuation of a temperature averaging 102° F. until the fourteenth day, when it fell to normal. On the nineteenth day there was a sudden rise of temperature to 102° F., with the physical signs of fluid in the left chest. At the end of ten days the temperature was again normal and the signs of fluid had entirely disappeared. The patient was discharged in excellent condition at the end of the forty-fifth day.

The following abstracts of successive blood counts are added:

	2d day.	4th.	6th.	8th.	10th.	12th.	14th.
Polymorphonuclears, per cent.	80.0	77.0	75.0	75.0	75.0	75.0	67.0
General leucocytes	68,000	28,000	36,900	33,100	32,900	22,600	17,700
Lymphocytes, per cent.	5.0	8.0	14.0	17.5	17.5	17.5	17.5
Red cells	2,260,000	2,260,000	2,260,000	2,260,000	2,260,000	2,260,000	2,260,000
Polymorphonuclears, per cent.	15th.	18th.	20th.	22d.	24th.	26th.	28th.
General leucocytes	67.0	66.0	67.0	52.0	53.0	53.0	53.0
Lymphocytes, per cent.	23,400	14,200	13,700	10,000	12,000	10,000	12,000
Hæmoglobine, 80 per cent.	24.0	25.0	19.0	22.0	25.0	40.0	18.0

Since her discharge from the hospital, patient has had several attacks of "indigestion" with pain of moderate or slight or moderate severity in the gall-bladder region. About forty-eight hours before the second admission, and ten and a half months after splenectomy, she was seized with sharp severe pain in the same region, which radiated to the back, although not to the shoulder, and was intensified by movement from one side to the other in bed and by respiration. There was constant nausea, but only one attack of vomiting on the afternoon of the day of admission, the vomitus consisting of the gastric contents. The bowels had moved each day. The prostration was marked, and at the time of admission the pulse was 110, the temperature 102° F., and respiration 44. The patient looked acutely sick, and the pain which had continued from the onset was then very intense and prohibitive of any movement in bed.

On examination the patient was in the dorsal position, with the thighs flexed on the abdomen. The right side of the abdomen was held rigid and motionless, and was exquisitely painful to the touch. There was intense rigidity of the upper part of the right rectus and to a lesser extent of its lower portion as well. There was well marked resistance of the upper part of the right costal arch and pressure over the arch above the situation of the gallbladder caused pain. The extreme tenderness prevented satisfactory percussion. Under a general anæsthetic the gallbladder could be distinctly felt projecting below the border of the liver to a point opposite the level of the umbilicus and forming an oval smooth and deeply elastic tumor.

The operation was performed under nitrous oxide gas and ether. Through a vertical incision parallel to the upper outer border of the right rectus muscle, the peritoneal cavity was opened and the gallbladder exposed with the transverse colon and omentum moderately adherent. There was a small amount of clear serous fluid in the peritoneal cavity. The gallbladder was double the normal size and its wall stretched and elastic. It was rapidly and easily separated from the liver above, and after ligation of the edge of the gastrophrenic omentum, and cystic duct with chromic gut was cut away without its cavity being opened. The wound was closed in layers with chromic gut, a cigarette drain being inserted to the stump of the ligated duct. The patient was on the table less than forty-five minutes.

On opening the gallbladder its cavity contained a considerable amount of turbid serous fluid, its walls were found to be thickened, oedematous, and near the orifice leading into the cystic duct were two large calculi.

Postoperative Course. First day after operation: Recovery from the anæsthetic took place without event. There was no nausea or vomiting and very little rest-

	Admission.	1st day. (35,000) (36,200)	Coma. 2d. 35,000	Coma. 3d. 19,800	4th. 19,800	5th. 21,000	6th. 26,000	7th. 27,000	8th. 27,400
Leucocytes									
Polymorphonuclears, per cent.		90.0	89.6		78.8	73.9	70.0	72.5	72.5
Transitory, per cent.		6.8	6.4		6.0	6.5	7.5	6.0	6.0
Large mononuclears, per cent.		2.4	2.8		4.4	10.4	2.5	10.0	12.5
Lymphocytes, per cent.		0.4	1.2		8.8	8.5	9.5	9.0	11.0
Eosinophiles, per cent.		0.0	0.0		0.0	0.0	0.0	0.0	0.0
Blood plates.		0.0	0.0		2.0	2.0	0.0	1.0	0.5
Pallor		Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.
Polychromatosis		Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
Poikilocytosis		Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
Basophiles, Gr.									
Normoblasts		0	0		0	0	0	1	0
Megakaryoblasts		0	0		0	0	0	0	0
Strund. forms		0	0		2	0	0	2	0
Mycocytes		1	1		0	0	0	0	1
Leucocytes	9th.	10th.	13th.	16th.	18th.	20th.	22d.	24th.	26th.
Polymorphonuclears, per cent.	72.5	73.0	75.5	73.0	67.5	63.0	61.0	60.0	50.0
Transitory, per cent.	9.0	8.5	6.5	6.0	7.0	6.0	5.0	6.5	4.0
Large mononuclears, per cent.	1.0	12.5	8.5	13.0	16.0	17.5	12.5	14.0	14.5
Lymphocytes, per cent.	7.0	6.5	9.0	8.5	9.0	11.0	19.0	19.0	24.0
Eosinophiles, per cent.	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0
Blood plates.	0.5	0.5	0.0	0.5	0.0	2.0	1.8	0.5	2.5
Pallor	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.	Inc.
Polychromatosis	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
Poikilocytosis	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
Basophiles, Gr.									
Normoblasts	0	0	0	0	1	0	0	0	0

lessness. During the day the patient was quiet, complaining at times of pain in the wound from which there was no biliary discharge. The quantity of urine passed was twenty-four ounces. There was a trace of albumin, but no casts.

Second day: Patient's condition was satisfactory throughout the day. She vomited once six ounces of greenish fluid, and was at times restless and complained of pain. The wound was dressed and the drain loosened a trifle. Toward evening she appeared drowsy and the pulse was a little more rapid. The total amount of urine passed was thirty-nine ounces.

Third day: The drowsy condition deepened rapidly into coma from which she could not be roused. The patient lay flat on her face, unconscious, and did not even groan. The eyelids were closed. The pupils were equal, markedly dilated, reacted to light. Respirations were labored and rapid, and had both an inspiratory and expiratory effort. The prostration increased and seemed very marked. The temperature rose steadily throughout the day and by evening had reached 103° F. The pulse also was very rapid, varying between 130 and 148, but was of fair quality and of moderate excursion. The general leucocytosis was 55,000, with a polymorphonuclear of 90 per cent. Examination of the lungs showed a number of râles over the left base and a good many over the right base, without noticeable change in the respiratory murmur. Abdominal distention gradually appeared, and during the day a profuse biliary fistula discharging a large amount of yellow brown material was formed. There was no rigidity of the abdominal muscles or any sign of fluid in the peritoneal cavity. The urine was 1.027; acid; trace of albumin; no sugar. Microscopically, there were urates and many hyaline casts. Urea amounted to 3.3 per cent. There was no diacetic acid. There was a very faint reaction for acetone. Throughout the day patient received active stimulation of strychnine, digitalis, and whiskey in clyses and saline enemata. For the distention, stupes and hypodermics of physostigmine salicylate were employed. At noon, hypodermic injections of adrenalin and thyroid extract were begun, the adrenalin in doses of two minims every hour for four doses, and afterward included in a clysis containing three drachms of whiskey and 1.000 c.c. of saline solution with 15 minims of adrenalin once in four hours. Early in the afternoon feeding of spleen tissue was also begun in the form of 5 grain suppositories every six hours and of enemata of spleen broth containing 5 ounces, twice a day.

Fourth day: The condition of the patient grew steadily worse and toward midnight was most alarming. At

that time, the pulse could scarcely be felt and was counted at 150, respiration was 36 and shallow, the temperature was 104° F. The patient's condition seemed most extreme, and she appeared moribund. In an effort to check what appeared to be a form of toxine absorption, lavage was given followed by catharsis with colon irrigations. At half past two in the morning patient appeared for the first time to be holding her own, and soon after began to show a continued but manifest improvement in that the pulse became slower and stronger, and the saline enemata brought away each time quantities of foul fecal material with a considerable amount of flatus. The temperature also gradually fell to 102° F. The coma continued without change and the pupils were still dilated. The condition of the abdomen showed no sign of peritonitis.

Fifth day: Toward noon the coma decreased and the patient seemed to be slightly conscious of her environment. Following a clysis patient had a chill, with a rise of temperature to 105° F., but by night the temperature had again fallen to 102° F. Late in the afternoon patient began to moan and could be aroused by effort. Although always in a very stupid condition, yet on several occasions she asked for water. Her entire condition showed great improvement, and during the day she was given 48 ounces of fluid nourishment. During the morning the right pupil was slightly larger than the left, but later on both were equal and contracted. This afternoon the pulse was as low as 90.

Sixth day: Patient talked at intervals during the day, and said that she remembered nothing of what had transpired since the operation. The mind was quite clear, and she took increasing quantities of fluid nourishment. Patient looked much stronger, the temperature was as low as 100° F. and the pulse in the 80's. The abdominal condition was unchanged. There are still many such subcrepitant râles over the left base as well as over the right base, although less abundant. On this day, although the biliary fistula was discharging freely, the conjunctivæ and skin became slightly icteric and the urine showed the presence of bile. Several cultures of the blood failed to disclose any organism.

Subsequent course: The patient continued to gain ground steadily. The jaundice, at first somewhat deepened, had by the end of a week entirely disappeared. The temperature remained, however, irregularly and persistently high, varying between 99° F. in the morning and 102° F. at night. During this time, the pulse varied between 94 and 115, being usually slightly over 100. On the twenty-sixth day, signs of a small amount of fluid were detected by Dr. James over the right base.

and about one drachm of slightly purulent fluid was withdrawn by the needle. On the following day the temperature rose to 103° F. and the pulse to 140, and immediate thorotomy was performed under cocaine, evacuating a very small amount of pus. After the operation the patient was restless and somewhat neurasthenic, but never at any time showed any distinct manifestation of hysteria. The discharge from the opened pleural cavity was always small, and after the removal of the tube rapidly healed to a small sinus, with excellent expansion of the lung. For more than two weeks the patient had an irregularly high temperature, but since that time the temperature gradually fell to normal, where it remained for more than a week. The patient is now up and dressed, feeling strong and gaining steadily in weight. She is still taking spleen broth, and three suppositories are taken daily.

Laboratory Notes.—1. The culture taken from the fluid in the abdominal cavity at the time of the first operation showed no culture. 2. The gallbladder presented somewhat thickened walls, and had a deeply congested mucous membrane. The mucosa was somewhat eroded and on microscopical examination showed chronic suppurative inflammation. 3. The results of the blood culture and the culture from the gallbladder were negative. 4. The culture from the fluid in the right chest showed rather thick bacilli which gave all the reactions of the bacillus coli communis.

In the differential counts, tabulated on page 55, 250 cells were taken in the first four and 200 cells in the later counts.

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 48 WEST THIRTY-SIXTH STREET.

ON CERTAIN ACOUSTIC LIMITATIONS OF THE STETHOSCOPE AND THEIR CLINICAL IMPORTANCE.*

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That there is at the present time, in this country, an increasing disposition to substitute the stethoscope for the naked ear in examination of both the heart and the lungs, and that in very many of the medical schools students are taught to use the stethoscope almost or quite to the exclusion of the ear alone, have seemed to me matters of sufficient importance to justify a careful study of the efficiency of the stethoscope, as compared to that of the unaided ear, in auscultation of the chest.

It should be explained at the outset that the statements made here refer entirely to the binaural

stethoscope in general use in this country and not to the monaural or rod stethoscope commonly employed upon the continent of Europe, with which I have had no experience.¹

For a number of years it has been evident to me, as doubtless it has to many others, that certain sounds arising in the thorax are heard better with the naked ear than through the medium of the stethoscope. I have occasionally encountered cases in which the murmur of the aortic insufficiency was wholly inaudible through the stethoscope although it could be heard distinctly when the ear was applied directly to the chest, and I have found that several of my colleagues have had the same experience. It has been evident also, in a general way, that the quality of certain types of respiratory sounds could be much better recognized by the ear than by the stethoscope.

During the past nine months the attempt has been made to study this question somewhat systematically, with a view to classifying, if possible, the sounds so heard, and to finding some theoretical explanation for this peculiarity.

The investigation has been carried on in my services at the New York and the Hudson Street Hospitals, where I have had at my disposal, among various other forms of pulmonary disease, some eighty cases of pneumonia, and also a large number of heart affections of various sorts. In the examination of these cases the stethoscope and the naked ear have been used constantly in comparison, and in order to have the conclusions as free as possible from personal bias I have always had my findings checked by at least two other men, usually members of the house staff.

The great majority of sounds arising in the heart are unquestionably heard somewhat more distinctly through the stethoscope than with the ear alone. There is, however, a small but interesting class of sounds for which this general rule does not hold good. In certain cases of aortic insufficiency the faint, high pitched, whizzing, diastolic murmur may be clearly heard with the naked ear, when it is quite inaudible through the stethoscope. The following eight examples of this have been met with during the past nine months, and constitute about one fifth of all the cases of aortic insufficiency examined.

CASE I.—H. A. C., male, aged fifty-one years. N. Y. Hospital, October, 1906, No. 14452. Patient admitted for tertiary syphilis of liver and bones. Physical examination showed a pulse regular, of good size and force, and with a quick rise and fall. There was also distinct capillary pulsation on the forehead and lips. The first sound at apex was somewhat impure and the sound faint and ill defined; the second pulmonic sound was moderately accentuated, while over the aortic area sounds were fairly normal. With the stethoscope no murmurs were audible anywhere. With the naked ear, however, a faint, long, high pitched, diastolic murmur was heard over the sternum opposite third rib and in the third left space. The patient remained in the hospital for four weeks, during the whole of which time the same peculiarity existed.

CASE II.—O. N., male, aged fifty-three years. N. Y. Hospital, October, 1906, No. 14386. Patient admitted suffering from cough, dyspnea, and edema of the legs.

¹ The Bowles stethoscope has been used to some extent in this study, and while its magnification of many sounds is very great it has in general shown much the same limitations as the ordinary form.

The first examination showed a much dilated heart, with weak but regular action, faint heart sounds, and no murmurs. There were also signs of tabes dorsalis. For the first few days the case was looked upon as one of cardiac dilatation without valvular lesion. As the heart grew stronger, however, the pulse acquired a somewhat collapsing character, and the possibility of an aortic leak was for the first time suspected. The stethoscope still revealed no murmur anywhere, but with the ear a faint diastolic murmur was plainly audible in the third space just to the left of the sternum. This discovery was made by one of the internes and was readily verified by other members of the house staff and by me. Four days later the murmur was audible to the ear both over the aortic area and to the left of the sternum, but still could not be heard through the stethoscope. During the remaining ten days of the patient's sojourn in the hospital the murmur was always audible to the ear both over the aortic area and in the third left space and only once during that time could it be recognized through the stethoscope.

Four weeks later the patient returned to the hospital in the service of Dr. G. L. Peabody. For the first few days the diastolic murmur could be heard only with the naked ear, but as the heart action grew stronger the murmur became louder and could be heard through the stethoscope, although it was always more distinct to the ear alone.

CASE III.—O. C., male, aged forty-five years. New York Hospital, No. 14457. Patient was in the hospital in the service of Dr. S. W. Lambert in October, 1906, suffering with pulmonary tuberculosis and chronic empyema. On admission auscultation of heart with stethoscope revealed no abnormalities other than a faint systolic murmur at apex and some accentuation of second pulmonic sound. Several days later examination with the ear disclosed a faint, high pitched, diastolic murmur over the sternum and in the third left space plainly audible to the ear, but not heard with the stethoscope. On one or two occasions later a suggestion of the murmur could be recognized with the stethoscope, but most of the time it could be heard only with the ear.

CASE IV.—R. G., female, aged thirty-seven years. New York Hospital, No. 13910. Admitted May 10, 1906. Patient suffered from acute articular rheumatism nineteen years ago, with heart symptoms from time to time ever since, and for past three months from dyspnea, precordial pain, and anascara. On admission there were present the auscultatory signs of mitral insufficiency and stenosis. A few days later (May 18th) in addition to these murmurs there could be heard in the third left space, with the ear, a faint diastolic murmur which was not audible with the stethoscope. Later still, as the heart action grew stronger, this murmur could be heard also with the stethoscope, the pulse developed a somewhat collapsing character, and capillary pulse could be seen. At the time of the patient's discharge (June 5th) the diastolic murmur could again be heard only with the naked ear.

CASE V.—M. P., forty-five years old, iron worker. Out Patient Department, New York Hospital (Dr. Cussler). Patient had had syphilis twenty-five years ago. For past four months he had suffered from cough, palpitation, nocturnal dyspnea, and dull precordial pain. At first examination (January 16, 1907) there was found a pulse of fair size, irregular in force and rhythm, and occasionally intermitting; thickened arterial walls, a heaving cardiac impulse, and an apex beat displaced to beyond the nipple line. Auscultation with the stethoscope showed heart sounds of equal intensity at apex, accentuation of second aortic sound, and no murmur.

January 21st. "Heart steadier and less tumultuous. To-day with naked ear a faint, high pitched, diastolic

murmur is heard over aortic area, not audible with stethoscope. Faint capillary pulse."

January 25th. "To-day the diastolic murmur is louder to the ear and a suggestion of the murmur can be heard with the stethoscope."

January 28th. Examination by the writer showed a very faint diastolic murmur just audible to the ear in the third space to left of sternum and not heard at all through the stethoscope. Pulse was of only slightly collapsing quality.

CASE VI.—P. P., male, aged sixty-five years. Admitted to Hudson Street Hospital, October 16, 1906. Patient had suffered from increasing dyspnea for the past year, swelling of legs for past month. He showed orthopnea, cyanosis, visible pulsation of carotids. Apex beat was 13 cm. to left of midsternal line. With stethoscope was heard a very faint diastolic murmur localized strictly to the second right space. With unaided ear this murmur could be heard distinctly not only in the second right space but down the left side of the sternum to the fourth space and outward almost to apex. Pulse was of collapsing type and of moderate volume. Patient gradually improved during his eight days' stay in hospital, but the auscultatory signs remained unchanged.

CASE VII.—P. K., male, aged twenty-five years. Patient was admitted to the Hudson Street Hospital, October 16, 1906, complaining of shortness of breath and swelling of legs. He had had articular rheumatism six years before. The heart showed some increase in size both to right and left, the apex beat being in the fifth space 11 cm. to left of midsternal line. At apex was felt a sudden, sharp systolic shock; the first sound here was loud and short and was preceded by a short, rumbling, presystolic murmur. Elsewhere over heart the sounds were clear and no murmurs could be heard (the stethoscope only being used). Several days later the heart was examined for the first time with the naked ear, and there was then heard in addition to the presystolic murmur at the apex a faint, whizzing, diastolic murmur over the aortic area which was not audible through the stethoscope. Patient improved gradually, and during the last few days of his stay in the hospital the aortic diastolic murmur could be heard faintly with the stethoscope as well as with the ear.

CASE VIII.—J. N., male, aged thirty years. Admitted to the Hudson Street Hospital on February 9, 1907, with subacute articular rheumatism. He had had three previous attacks. Auscultation of the heart showed a reduplication of the first sound at apex and a faint, high pitched early diastolic murmur heard in the third left space and audible to both ear and stethoscope. The pulse was regular, rapid, of fair size and of collapsing character.

On the next day the apparent doubling of the first sound at the apex was seen to be due to the presence of a short, rumbling presystolic murmur which had become more distinct. The aortic diastolic murmur, on the other hand, was fainter. From February 12th on this latter murmur could no longer be heard with the stethoscope, although it continued to be faintly audible to the ear during the remaining week of the patient's stay in the hospital.

The features common to the murmurs in these cases have seemed to be (a) very high pitch, (b) faintness, and (c) the whizzing or blowing quality characteristic of most of the murmurs of aortic insufficiency.

No other heart murmur or sound, so far as I have been able to discover, shows this failure of propagation through the stethoscope. It seemed probable that some of the murmurs of mitral or tricuspid insufficiency, having somewhat the same blowing

quality, might show the same auscultatory peculiarities, but I have thus far failed to find any such.

While, therefore, the class of heart sounds which are better heard with the naked ear is interesting, it is after all small and of no great clinical importance. In the lungs, however, the matter is very different. Here we find a large and very important group of sounds which are transmitted much more clearly to the ear direct than through the medium of the stethoscope. This comprises a considerable proportion of all the bronchial and amphoric breath sounds. It is the faint and high pitched sounds which show the peculiarity most distinctly. Such a sound which through the stethoscope is barely recognizable or is not heard at all may be heard clearly and sharply with the ear. In many cases this difference is nothing short of startling.

With the louder bronchial sounds, and especially with those of medium and low pitch, this difference in audibility is much less distinct or may be lacking altogether. When the breathing is high and faint, however, as it so often is at the beginning of pneumonic consolidation or in pleurisy with effusion, the greater sensitiveness of the ear is too obvious to be gainsaid. A full score of instances might be cited in which bronchial breathing, which was perfectly distinct to the ear, could not be heard at all by any of several examiners listening with both the ordinary and the Bowles stethoscope.

These statements apply, I believe, with equal force to many instances of amphoric breathing. Among the limited number of cases of this type of breathing which I have been able to test I have thus far failed to find any in which the sound was not more clearly and sharply heard with the naked ear. To cite a single example:

CASE IX.—A man of forty years entered the Hudson Street Hospital with high fever, pain, and the signs of fluid at the right base extending up to one inch below the lower angle of the scapula. Auscultation with the stethoscope showed only an absence of all breath sounds and the presence of a few fine râles. With the ear faint but perfectly distinct amphoric breathing could be heard by every one who listened. The case proved to be one of a large subdiaphragmatic abscess.

From what has been said it is evident, I think, that the sounds heard better with the ear alone have certain characteristics in common, whether they arise in the heart or in the lungs. These features are, first, high pitch; second, very slight intensity; and, third, a blowing or whizzing quality. The question then arises whether any theoretical reason may be found for the peculiarity of transmission of sounds possessing these features.

Since most sounds in the heart and many of those in the lungs (such as the normal vesicular murmur and many râles) are undoubtedly heard more loudly through the stethoscope than with the naked ear, the fact that with some sounds this rule is reversed must be explained by assuming either that the stethoscope transmits certain types of sounds less well than others or that, conversely, the ear when in contact with the chest wall, possesses so to speak, a selective action for sounds of a certain kind. I have found no evidence to justify the assumption that this latter explanation is the correct one. On the other hand, there are a number of theoretical

facts which serve to explain why the stethoscope does not propagate all sounds with equal readiness. In the consideration of these facts I have had the advice of Professor Hallock, of the department of physics in Columbia University, and to his great assistance and courtesy I make my grateful acknowledgments.

It is a well recognized fact in acoustics that sounds of high pitch are conducted along closed tubes much less perfectly than are those of lower pitch. This was first shown by Regnault's classical experiments, and is to be explained upon the theory that in high pitched tones the mass of the air waves is so much less than in tones of deeper pitch, that the momentum is much more readily checked by the friction of the walls. Moreover, if the tubes have elastic walls this damping or deadening effect is much increased. This was demonstrated in some of Professor Hallock's experiments in recording graphically the wave lengths of various sounds by means of König's manometric flame. In the system of tubes by which the sounds were conducted to the metal capsule there was a piece of rubber tubing some six or eight inches long. It was found that the vibrations of the highest pitched tones were altogether checked by this elastic tube, and that only when this was replaced by a rigid metal tube could the vibrations be registered by the movements of the flame. The reasons therefore why the stethoscope should propagate sounds of high pitch less well than those of lower pitch seem clearly established.

That high pitched sounds which are *faint* show this peculiarity of transmission more distinctly than those which are loud is to be explained, first, by the fact that in the case of faint sounds the loss of momentum in the tube by damping is often sufficient to reduce the sound beyond the point of audibility, and, second, by the fact that loud tones even when of high pitch are heard so readily both with the stethoscope and the ear that a difference in their relative intensity is less easily recognized.

Why the sounds under consideration should seem always to belong to the class of those possessing a blowing or whizzing quality I do not know. It may be simply that sounds arising in the chest which possess the two attributes of high pitch and slight intensity, are usually those which happen to have that quality.

It is to be remembered that when the ear is laid upon the chest the sound vibrations are conveyed to the fluid of the labyrinth, not only through the air of the external auditory canal, but also through the bony structures of the skull. When a flexible stethoscope is used this bone conduction is of course lacking. In the case of the lower pitched sounds the intensification in the stethoscope is usually more than sufficient to offset the advantage of this double means of conduction, but with the faint, high pitched sounds this is not so. Sounds produced in the chest are only rarely single, pure, musical tones. Usually they are composites of many tones—i. e., are noises. It may happen now that the wave length of some of the tones of such a composite sound bears some definite relation to the length of the tube of the stethoscope, and when this occurs this part of the sound may be so intensified by resonance as to predominate and perhaps to mask some of the other elements

of the sound. At any rate, the relative values of the different components of the sound are disturbed and a certain distortion is produced. (A familiar example of distortion of the same kind is seen in the change in the human voice when heard through the phonograph). This may perhaps explain a fact which is not infrequently to be observed in listening to bronchial breathing. To the naked ear the sound will have a clear, tubular quality with only a suggestion of a vesicular murmur behind it, while with the stethoscope the vesicular sound is harsh and loud, and may so mask the tubular sound that the latter can be heard only with difficulty.

It seems very probable that the explanations just given for the variations in the conductivity of sounds through the stethoscope may not cover the whole ground, for the matter is far from simple; but they are sufficient to show that the observations made are quite in accord with certain well known facts in acoustics.

The clinical importance of these acoustic peculiarities is obvious from what has been said. In the case of the lungs at least, the sounds least well propagated through the stethoscope are those which, from the standpoint of diagnosis, are among the most important to be heard, sounds upon the presence of which the diagnosis of pneumonia or pneumothorax may for the moment depend. It has been no uncommon experience, for example, during this study to see cases of pneumonia in which bronchial breathing could be detected with the ear at least a day earlier than with the stethoscope. On the other hand, the pulmonary sounds which are intensified in the stethoscope, such, for example, as the vesicular respiratory murmur, the voice sounds, and many râles, are for the most part those which are perfectly well heard by the naked ear and which need no such magnification.

In the case of the heart the practical importance of these facts is much less, but even here they are not without some clinical significance. Among the eight cases cited above there were several in which, for the time being, the recognition of an aortic insufficiency would have been quite impossible if auscultation had been made only with the stethoscope.

I do not mean to imply that all those who use only the stethoscope are constantly missing sounds which could readily be heard with the naked ear. Among highly trained and experienced clinicians such occurrences I have no doubt are infrequent and unimportant. They have learned by long practice to detect faint and obscure sounds and to give them their proper interpretation. It is among the much larger class of students and young practitioners, those whose experience is relatively limited, that the matter is of serious importance. For them the proper interpretation of auscultatory pulmonary signs is at best difficult, and to teach students pulmonary auscultation by means of the stethoscope alone is, I feel convinced, to render the subject unnecessarily difficult and, in the end, to send them out less well equipped than if they are taught to rely chiefly upon the unaided ear.

It is not the object of this paper either to condemn out of hand the use of the stethoscope or to discuss at length its various merits and disadvantages. My purpose is only to call attention to the fact that the instrument has well defined limitations, to attempt

to classify and explain these limitations, and to offer a plea for the restoration of the instrument to what, in my judgment, is its proper place, that of an adjuvant to, rather than a substitute for, the naked ear.

53 EAST FORTY-NINTH STREET.

PNEUMOTHORAX.*

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In bringing to the attention of the reader this article on pneumothorax it is not to be regarded as an attempt to point out anything new about the condition, but is rather presented with the desire that the cases reported may serve as a reminder that this pulmonary accident is more frequent than is usually considered, and also to point out that the affection is due in not a few cases to other causes than those usually ascribed, namely, rupture of a tuberculous cavity or focus in the lung.

History.—Before presenting the case histories it may add to the interest to review the historical facts regarding the condition. In the earliest history of medicine we find an indefinite knowledge of the presence of air and fluid within the chest cavity, but the first authentic writing on the subject is the description of the "succussion splash" by Hippocrates about 500 B. C. In this description he states that the "splash" is due to the presence of fluid within the chest, but evidently he did not recognize the presence of air at this time.

The presence of air in the cavity is so frequently associated with the presence of fluid, either serum, seropus, or pus, that these conditions are more readily described in combination than separately. Itard in 1803 gave the name pneumothorax to the presence of air within the pleural cavity, which he found in five cases at autopsy, his conclusions being that the air was due to its exhalation from the fluid which the cavity contained. Itard is also responsible for the names of the closely allied conditions, hydropneumothorax and pyopneumothorax, the names being self explanatory. It was left for Laennec to recognize the condition of pneumothorax during life and to publish his observations, which he did in his work upon 'mediate auscultation' in 1819. Not only did he recognize the condition, but he explained the mechanism of the physical signs observed by himself and others, pointed out the presence of air and fluid, and explained how the air entered the pleural cavity. So thorough was Laennec's work that little or nothing has been added to his original description of the condition in the eighty odd years since its publication; nor has the classification of pneumothorax formed by Itard in 1803 been radically changed since that day.

Causes of the Condition.—Those writers who have been particularly interested in the statistical study of pneumothorax have based their results upon very large numbers of cases, and as these represent the condition under varying states of climate, altitude, and general hygienic surroundings; and particularly as the proportions represent the accident in different races as well as in different countries, we are safe in taking their conclusions, namely, that on per cent. of the cases are due to pulmonary

* Read before the Philadelphia County Society, June, 1907.

tuberculosis, while of the remaining 10 per cent. the greater number is almost equally divided between those due to traumatism and those due to emphysema. A smaller number of cases are due to gangrene of the lung, to infarct, to abscess, to hydatid, to bronchiectasis, to malignant disease, and to emphysema, while a number of cases are reported as coming on during some great muscular effort, such as running, boxing, rowing, etc.

Incidence of the Condition.—Thirty years ago pneumothorax was considered a medical curiosity, and its discovery during life was considered a matter for self-congratulation by the clinician. It is only since the more general adoption by the profession of systematic physical examinations of patients, which examinations were rendered necessary to correlate the signs noted during life with the findings at the autopsy, that its recognition has become easy and frequent.

As a result of gathering together the statistics of several thousand cases of pulmonary tuberculosis with autopsy findings it has been found that 5 per cent. of all cases dying of tuberculosis develop pneumothorax. Many reports from special hospitals for tuberculosis give a much higher percentage than this, as instanced by the report of Dr. W. B. Stanton for the first two years of the existence of the Phipps Institute of Philadelphia. In this report 9 per cent. of all cases dying of this disease developed pneumothorax. Weil in 355 autopsies found 10 per cent. Emerson reports the proportion occurring in the Johns Hopkins Hospital as 3 per cent. The Brompton Hospital at London reports 1,700 cases of phthisis with 3 per cent. of cases having pneumothorax. In the Philadelphia Hospital during the year 1906 there were twenty-one cases, or 6 per cent. of all cases dying of tuberculosis.

This average of 6 per cent. represents the accident in only the tuberculous cases, while it is by no means unusual to see and hear of cases due to other causes, and this makes it seem reasonable to believe that many of the cases due to traumatism or those which occur as the result of faulty technique during the aspiration of fluid from the chest or those which occur during operations upon the chest wall, are not reported and thus the true frequency of pneumothorax is not known.

CASE I.—The first case to be reported occurred in a patient in Dr. Stengel's wards in the Philadelphia Hospital.

The patient was a negro laborer, aged about thirty years. His health had always been good, so much so that he could not remember having consulted a physician. For a few months before the present illness he had noticed a slight morning cough which he ascribed to "catarrh." On the day the pneumothorax developed the patient was at his work of unloading a car load of bricks. While stooping at his work he began to cough and brought up a small quantity of blood. One of his fellow workmen seeing the blood suggested that the patient had consumption, which suggestion so amused the patient that he gave a hearty laugh, and at that moment was seized with a severe pain in his left side. He was faint and unable to stand, so sat down beside his cart. After a time he made an attempt to resume his work, but was compelled by dyspnea, pain and dizziness to be taken home. When seen about an hour later the patient was still suffering great pain as well as being short of breath. The patient ven-

tured the opinion at this time that he had "busted his lung," and when asked why he said this he said that he had seen "another nigger get caught in the same way while lifting a heavy box." On examination the patient's self-diagnosis proved correct.

The chest showed great difference in the size of the two halves. The left was much distended, the interspaces were far less marked than were those on the right side, the left chest was immobile, while the breathing was rapid on the right, while on percussion a loud pitched sound could be heard over the entire left chest and far beyond the normal limits of resonance. The heart was displaced to the right, and the apex beat could be felt an inch beyond the mid-sternum. The percussion note over the region normally occupied by the apex of the heart was quite as resonant as the rest of the left side. On auscultation over the affected lung no breath sounds could be heard, while over the right lung the breath sounds were much exaggerated. The coin test was positive to a marked degree. There was no sign of fluid in the chest at this time.

The patient's pain was relieved by a hypodermic injection of morphine. There was no decided sign of shock, nor was the patient short of breath except upon exertion, and there seemed no good reason for interfering with the air in the pleura.

Twenty-four hours after the accident the patient no longer suffered pain, but was still short of breath on the slightest exertion. Examination of the right lung showed no tuberculous lesion. The respirations were thirty-six to the minute, and at the base of the right lung there were slight impairment of resonance and a few moist râles, due probably to congestion of the part.

Forty-eight hours after the development of the pneumothorax there was evidence of a slight accumulation of the fluid in the left pleural cavity, but at that time there was no succussion splash, though in the course of the next twelve hours sufficient fluid had gathered to produce this sign.

Three days after the onset of condition about a litre of fluid was withdrawn, but no effort was made to remove the air. From this time the condition of the patient seemed to improve, the tendency toward dyspnea became less and, judging from the pitch of the percussion note, the intrapleural pressure was lowered.

Three days after the withdrawal of the fluid it re-accumulated in the pleura, but as the amount was small it was allowed to remain. The patient remained comfortable but was dyspneic on exertion. At this time feeble breath sounds could be heard in the affected lung, and about this time the patient began to cough freely and to expectorate large quantities of yellow sputum which showed the presence of tubercle bacilli in quantities.

The patient died about five weeks after the development of the pneumothorax. No autopsy was allowed.

CASE II.—The patient was a man of about forty years and gave a history of previously having been in perfect health. This patient was seen on the street in a condition of alcoholic frenzy, shouting and screaming, when he suddenly fell to the ground in apparent agony. On being taken to the hospital, he was very short of breath and complained, despite his drunken condition, of the intense pain in his right side. It was believed at this time that the patient had fractured a rib, but upon examination there was so much difference in the sides that suspicion was aroused and the diagnosis of pneumothorax was made and confirmed by the coin test. No lesion of the opposite lung was found, and the air was gradually absorbed. The affected lung gradually regained its function and the

patient left the hospital at the end of five weeks apparently well.

CASE III.—This patient was a sailor aged about thirty years, chosen because of his supposed perfect physical condition, as one of a crew to represent his ship in a boat race. At the end of a two mile race and as his boat crossed the finish line this man was seen to collapse and when examined was found to have a left sided pneumothorax. An effusion developed a week later which was tapped and the patient recovered entirely at the end of six weeks. He is still in the navy and has shown no sign of tuberculous disease.

CASE IV.—This patient was a man of fifty years. He was sent to the hospital to be treated for a chronic interstitial nephritis. He was found to have fluid in both pleural cavities, and an aspiration was decided upon. The needle was inserted and the fluid being withdrawn when a sudden movement of the patient disconnected the rubber tubing from the needle and at the same time the patient inspired a large quantity of air. The air was sucked through the needle into the pleural cavity, and the patient became unconscious and died almost immediately. At autopsy both air and blood stained fluid were found. The lung was collapsed. The kidneys showed marked interstitial change and the heart advanced myocarditis.

CASE V.—This patient was a woman, aged twenty-five years, suffering from a pleurisy with effusion. An aspiration being performed, through neglect the stop cock of the apparatus was turned so that on the insertion of the needle, the air entered the pleural cavity already under pressure because of the fluid. The needle was at once withdrawn and the accident proved not serious. The patient collapsed but revived, and the fluid and air were both partly withdrawn the day of the accident. The patient suffered discomfort for several days, but became easier as the air was absorbed, and at the end of three weeks the lung was performing its function adequately.

The last four cases of this series serve to illustrate the occurrence of pneumothorax in those cases free, as far as can be determined by physical examination, from tuberculous disease. The condition usually arises from the rupture of a cavity through the visceral layer of the pleura. In many instances such an accident is prevented by the thickening of the pleura over the caseous spot or in the neighborhood of a superficial cavity, and were it not for this protection given by the thickened pleura the accident would be much more common than it now is. But this fibroid thickening is not invariably a protection, for should it be torn from the lung by an undue respiratory effort a breach may be made in the lung tissue and the air may rush into the cavity.

The chances of finding the perforation seem to depend on the length of time the patient lives, as the longer he lives the greater chance of the perforation becoming closed. Often the only way of finding the perforation is to search for it before removing the lung from the body, when serum is present in quantity, or in its absence filling the pleural cavity with water and gently driving air into the lung from the trachea, when the bubbles will reveal the perforation. In the majority of cases this perforation is small and single and usually circular, about one sixth of an inch in diameter, but it may be multiple, and may be much larger, several having been reported as large as a silver dollar. The usual position for the perforation is the lower part of upper lobe in the axillary line, and this is the spot to which the patient usually refers his pain.

From the time of the early studies on this condi-

tion it has been noted that there has been no necessary relation between the amount or extent of tuberculous disease in the lung and the occurrence of pneumothorax. It is noted that the liability to this accident is most marked in those rapidly advancing cases, and perhaps this may be explained by the absence of adhesions. In a large number of reported cases there was very little disease of the lung and tuberculosis had not been suspected in the patient, until the occurrence of the pneumothorax. This will account perhaps for the fairly large number of cases reported as coming on as the direct result of sudden strain, a hard cough, or perhaps a severe attack of vomiting, and the patient recovering from the pneumothorax and never showing tuberculous lesions during life. Several of these cases were watched by Weil and afterward came to autopsy, and the old lesion was found completely healed.

The pleuropulmonary orifice usually has a valvular mechanism, the condition being classified into open, closed, and valvular, which names need no explanation.

Effusion occurs in most cases which last any considerable time. There have been reported eleven per cent. of cases free from fluid. Of the cases with fluid there seems about an equal chance of finding serum, seropus, or pus. The serous effusions often remain serous for some time, and if they become purulent it is due to subsequent infection. In many cases the effusions do become purulent, and this is invariably the case when the side has been opened either intentionally or by spontaneously discharging its contents.

The Mechanism of Pneumothorax.—This depends upon the negative pressure formed in the pleural cavity by the elastic tension of the lung. This elasticity serves to hold back the entrance of the air as it enters the chest, and as the lungs are placed in an air tight chamber the intrapleural pressure is equal to the atmospheric pressure minus the elastic tension of the lung. The moment air enters the pleural cavity this difference of pressure is equalized and the lung collapses as a result of its own elasticity, and as the pressure is equal there is no tendency to expand again.

Symptoms of the Condition.—Sudden pain in the affected side and increasing difficulty in breathing are the usual symptoms. The pain is severe and "tearing" in character, so much so that patients often state that they felt something "give way inside." The pain is of comparatively short duration, lasting from a few moments to several hours and infrequently several days, but the pain is so intimately blended with the discomfort of the dyspnea that it is difficult to determine which cause is responsible for the patient's discomfort. These symptoms are often made more severe by a cough which, coming in paroxysms, adds to the distress of the patient.

Exceptionally the severity of these symptoms produces immediate unconsciousness, and in a few cases has produced sudden death. This sudden onset is the ordinary history, and usually the symptoms are all severe. I once observed the onset of a pneumothorax which was both sudden and severe. The patient entered the hospital for a surgical condition, giving a history of perfect health except for a hernia for which he wished to be operated upon.

On the routine examination of the lungs a few moist râles were heard at the left apex. For this reason the patient was kept in bed for a more thorough examination. When the pneumothorax developed the patient was sitting up in bed listening with interest to the replies of the man in the next bed who was being examined. At some particularly stupid reply this new patient gave a hearty laugh, and as the laugh was suddenly broken off I looked up to see the new patient with the most agonized expression on his face. Except for the "anginal facies" I have never seen an expression so indicative of suffering. The patient's face was first deathly pale, his lips and eyes moving about in a terrified grimace of pain, then suddenly his face became cyanosed, and he began to gasp for breath. His distress was so great that I left the ward to get a trocar scarcely expecting to see the man alive on my return. To my surprise the man was no longer cyanosed and seemed comparatively comfortable. A few moments later, after a paroxysm of coughing, the cyanosis and dyspnea returned, and it was necessary to aspirate the air, which was done with great relief to the subject. He lived nearly two months, and was frequently aspirated, each time with relief; later he developed signs of intrapleural fluid and was tapped several times. On the third tapping, and four weeks from the onset, the fluid became purulent, and the patient died three weeks later of exhaustion. At autopsy, a tuberculous lesion was found in left apex, but the perforation was not found, the conclusion being that the opening was small and valvular, eventually closing tightly. This would account for the marked relief which tapping afforded, for it is only in valvular pneumothorax that such relief is possible, as in open pneumothorax tapping is ineffectual, the air rushing in as quickly as it is removed.

Another reason for believing the case to be one of valvular pneumothorax is that aspiration would relieve the patient's distress until a cough, laugh, and, on one occasion, the muscular effort of bending over to remove something from the floor, provoked the original symptoms.

Although the usual history is one of sudden onset this is not always true of pneumothorax. The onset may be so gradual and symptomless that neither patient nor physician realizes the condition until the physical examination reveals air within the pleural sac.

Physical Examination.—The physical examination in cases of pneumothorax shows: (1) Distention and immobility of the affected side with exaggerated movements of the opposite side; (2) displacement of organs, particularly the heart, diaphragm, liver, and spleen; (3) resonance, loud, low pitched (perhaps tympanitic), extending far beyond the normal limits of the normal lung; (4) absence of voice and breath sounds over affected side; (5) bell sound of coin test and succussion splash if fluid is present. Rarely the water whistle sound is heard, and very often the metallic tinkling.

There is obvious distention of the affected side, which may be conspicuous even in those rare instances of localized pneumothorax. The affected side is motionless, and the intercostal "spaces abnormally widened, there being an elastic air cushion feeling" to the intercostal spaces.

The displacement of the organs is easily determined by inspection and percussion. The displacement is due to the elastic retraction of the sound lung as well as to the increased intrapleural pressure when fluid forms. By this high pressure the diaphragm is forced downward and carries the organs into the abdomen. The heart is usually much displaced, this being partly due to its firm attachment at the base and loose attachment anteriorly, so that it can easily swing in the path of least resistance. The liver is much depressed, but is also rotated, so that its lower border may reach almost to the iliac fossæ, while the upper portion is found encroaching upon the normal site of the cardiac apex. In left sided pneumothorax the heart is much displaced, and the descent of the diaphragm pushes the stomach, spleen, and sometimes the left lobe of the liver below the costal arch.

The auscultatory signs are varied, the most characteristic being a great diminution or absolute cessation of respiratory and vocal sounds over the lower and lateral portions of the chest. As the collapsed lung is approached, a distinct bronchial respiration is heard; equally typical is the practically universal amphoric quality of transmitted sounds responsible for the sign of "bell tympany." This sign is elicited by having an assistant percuss the posterior surface of the affected side, using the milled portion of a silver coin as the plexor and the flat surface of another coin as the pleximeter.

Complications.—With the exception of acute pleural inflammation of the affected lung so frequent as to be considered as part of the primary disease there are no particularly noteworthy complications. Inflammation of the unaffected pleura is also frequent, as is congestion of the sound lung, owing to the sudden change in the circulation. Subcutaneous emphysema rarely accompanies this condition, being rather frequent in traumatic cases.

Differential Diagnosis.—Pneumothorax must be distinguished from unilateral emphysema, dilated stomach, tuberculous cavity, subphrenic pyopneumothorax, and diaphragmatic hernia. Compensatory emphysema of one lung is sometimes mistaken for pneumothorax, but there is usually more or less vesicular breathing over such lungs, the finding of which would be against the diagnosis of pneumothorax.

Those cases where an increased area of stomach tympany raises the question of pneumothorax are usually instances of great left sided contraction of the lung or pleura, with the result that the diaphragm has been drawn upward, so that the area of tympany may be high in the axilla. There may be a bell sound and succussion splash in these cases, but no displacement of the organs to the right side; on the contrary, the viscera will be drawn to the left. The lower part of the chest is flattened, but the upper portion shows no signs of tuberculous lesions. A very large tuberculous cavity may be mistaken for the condition of pneumothorax, but here the chest is contracted instead of distended, while the organs are drawn toward the affected side, if, indeed, there is any change in their position. Subphrenic pyopneumothorax, or the accumulation of pus and gas beneath the diaphragm, is usually the result of a perforated gastric or duodenal ulcer. The pressure of gas in this condition

sometimes forces the diaphragm as far as the second interspace, and a mistaken diagnosis of pneumothorax could easily be made. Fortunately this condition is infrequent.

The production of deliberate pneumothorax as a treatment for tuberculosis has been several times advocated, and Murphy, of Chicago, published the results in a series of cases, in which he produced the pneumothorax, later removing the air and replacing it by nitrogen gas. As is true of every new treatment, statistics derived from a small number of cases seem favorable, but the operation is still in the experimental stage. Spengler of Davos has recently reported a modification of this treatment in which, out of ten cases of pneumothorax operated in, he not only cured the pneumothorax, but the tuberculosis at the same time in six patients, giving 30 per cent. of cures, a much better proportion than has been effected by any other method. It is only fair to state that in his next series of twenty-three cases he obtained no good result whatever. His treatment consisted in, first, the expectant plan, until he had reason to believe that the pressure of fluid and air had brought about closure of the orifice. Then he gradually removes the fluid and air, in this way preventing the reopening of the fistula into the lung.

Prognosis.—Of the tuberculous cases, the mortality during the first few days is very high, as illustrated by the report of Weils' thirty-nine cases: ten patients died the first day, eighteen by end of first week, twenty-one by end of second week, 60 per cent. of cases dying within a month. Of ten cases reported by Dr. Stanton of the Phipps Institute, six patients died within two weeks, one within three weeks, one within two months, one within three months, one within five months. Quite naturally the prognosis in these cases depends largely upon the condition of the opposite lung. If this is able to functionate properly the danger to life is much less. Traumatic pneumothorax gives a much better prognosis as to life as well as to complete recovery than it is possible to predict in the other forms.

The prognosis of pneumothorax occurring in a supposedly healthy person is distinctly good.

A number of cases of recurrent pneumothorax have been reported. One attack usually follows shortly after the initial accident.

The prognosis in cases of double pneumothorax is bad, and the accident is usually fatal at once, although a few cases have been reported where life has been sustained for months under these circumstances.

Treatment. The treatment of this condition has been far from satisfactory, and much difference of opinion has existed regarding it. Particularly is this true as to operative measures, but certain procedures are indorsed by all.

At the onset there are two indications to be met, one being to relieve the pain and the other to stimulate a failing heart in those cases of shock which follow the accident. The relief of pain is the first and most important consideration, and is best brought about by a hypodermic injection of morphine. Not only does this relieve the pain, but it serves to quiet the patient's respiratory efforts and thus prevent the conversion of a valvular opening into a free one. Inhalations of oxygen are some-

times useful in relieving the dyspnoea, but we must not forget the warning of Lorraine Smith, who has called the profession's attention to the danger of the relaxing effects of oxygen upon the capillaries, thus causing oedema of the lungs.

As to operative treatment, Emerson in his excellent review of this subject concludes that air in the pleural cavity may be disregarded, but he states that if fluid is present it should be aspirated, though with due caution as to the production of sufficient negative pressure to open the initial breach into the lung.

It has been shown that in the first few days, which is the period of greatest danger, every pneumothorax is either of the valvular or open variety. In the latter no possible good can come from removing the air, as it reenters as fast as removed. In the former, conditions are favorable, for the air is under pressure and aspiration, or even puncture, may give decided relief. This relief will persist unless either a deep inspiration or a cough will cause the valve like opening again to admit air.

The teaching of a few years ago as to operative measures for the relief of this condition was expressed in the words: "Leave the patient alone, as the patient will die anyway, and by operating you will but hurry the end." The attitude of the profession has much changed, and it is now generally held that if serum accumulates within the chest after a reasonable delay for systemic resorption to occur (West states the best time to wait as six weeks), the fluid is to be aspirated.

If pus forms the sooner one or more ribs are resected in order to give free drainage, the better will be the chances of recovery. There have been so many successful operations upon supposedly hopeless cases which have proved conclusively that the lung will reexpand even after having been compressed for a long period of time, that the best policy seems to be to have surgical advice at once in regard to the advisability of an operation. As to the after treatment of these rib resection cases, it is not considered good treatment to irrigate with any antiseptic fluid, because of the danger of suffocation by flooding of the bronchi.

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THE CRAVING FOR SWEETS IN DIABETIC PATIENTS.

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As is well known, the cardinal symptom of diabetes mellitus is glycosuria, that is, the excretion of sugar in the urine. Glycosuria results from the presence of an excess of glucose in the blood of diabetic patients, a condition termed hyperglycæmia, and undoubtedly due to a disturbance of the metabolism in the retrograde metamorphosis of carbohydrates. Besides the pathological glycosuria of diabetes, there are a number of conditions of nondiabetic glycosuria, among them the physiological glycosuria, which occurs quite constantly even in healthy persons, but only in a slight degree, rarely exceeding 0.05 per cent. of sugar. Furthermore, there is a so called alimentary glycosuria which follows the ingestion of large quantities of sugar or sugar forming material (starch and dextrin), and

this may be of diabetic nature. The affected individual may sooner or later become diabetic, though he need not be so at the time, nor even develop the disease.

Glycosuria may manifest its deleterious consequences in two ways: First, through the loss of sugar, which circumstance, however, is not of much significance in the milder cases; and, secondly, through the hyperglycæmia always associated with it. So long as the diabetic excretes sugar, and so long as the amount of sugar exceeds the normal, so long will there be hyperglycæmia. Therefore, it can be positively maintained that the hyperglycæmia is responsible for the low resisting power of diabetics against infections (Naunyn, *Die Deutsche Klinik*, III).

If now we briefly discuss the question as to the origin of the hyperglycæmia, as to the cause of this serious disturbance of the metabolism, and, further, as to the difference between a diabetic and nondiabetic glycosuria, we must say at the start that a complete unanimity on this subject does not exist.

According to Naunyn (*ibid.*), in diabetic individuals the organs concerned in the metabolism of sugar have suffered an impairment of their activity; they either do not take up the sugar carried to them by the blood, or return it to the blood because unable to utilize it. Hence there is an accumulation of sugar in the blood, the before named hyperglycæmia, which when it exceeds 0.2 to 0.3 per cent., leads to glycosuria. The normal absorption of sugar from the blood by the organs concerned in its metabolism is therefore obstructed, and for this reason sugar is eliminated by the kidneys. Most of the other authors also attribute the cause of the sugar accumulation in the blood to an impaired oxidation, a faulty assimilation of sugar, and not to a primary increased production, and (G. Graul, Ueber den Diabetes mellitus, *Würzburger Abhandlungen*, VII. J. von Mering, *Lehrbuch der inneren Medizin*, Jena, 1903. Penzoldt and Stintzing, *Handbuch der speziellen Therapie*, II) consider diabetes mellitus, in brief, as a chronic disease, which consists in that the organism is no longer capable of utilizing sugar to the same extent as in the normal state.

In this article the organic forms of diabetes, that is, cases in which the disease appears to be directly due to an affection of some organ, as the pancreas or the nervous system, will not be discussed, because of only secondary interest.

The main source from which the organism derives its sugar is starch, which is ingested in the form of bread, farinaceous foods, potatoes, and vegetables. A small proportion of the sugar reaches the organism directly in the form of grape, milk, cane, or fruit sugar. Theoretical consideration of these facts alone must lead us to the basic principles of the dietetic treatment of diabetes, which was empirically established more than one hundred years ago by the English physician Rollo. The medicinal treatment, as will be mentioned right here, is of subordinate significance.

Of importance for the entire treatment of diabetes are the following fundamental maxims: "Diabetic glycosuria if of long duration tends to increase, inasmuch as the tolerance of the patient diminishes," and "if the diabetic is sugar free in the aglycosuric state of diabetes his tolerance tends to

increase." In other words, the main aim of treatment must be to keep the patient in an aglycosuric condition. This object is accomplished by the withdrawal of sugar and, as far as possible, of sugar forming foods, the starches, and also if necessary the restriction of albumens. Whether the amylaceous foods are to be excluded entirely or partially, permanently or temporarily, from the diet of the diabetic, whether in severe cases the ingestion of albumens should also be reduced, is of no interest here. So much is true, that the use of sugar should be prohibited to all diabetics under all circumstances, and caution in sugar consumption or complete abstinence therefrom should be recommended in families in which the disease is hereditary.

Although it can be easily understood why there are some weighty objections to the complete withdrawal of starches from the diet, particularly on account of the danger of inducing nutritive disturbances, it would seem that a strict interdiction of sugar could be carried out with ease and without any resistance on the part of the patient. This, however, is not so. It is true, indeed, that the loss of calories resulting from the exclusion of sugar from the diet can be easily replaced. It is, however, but comparatively recent that the nutritive value of sugar has been recognized, and it can scarcely be assumed that the public esteems it for its nourishing power. It is, therefore, to be considered not merely a food, but rather a condiment, and upon this is based the immense use of sugar.

It is interesting to note that the consumption of sugar per capita in English speaking countries is considerably in excess of that in other parts of the world, being about 78 pounds each year. In the United States, according to the report of the Department of Commerce for the year 1906, the importation and domestic production of sugar have greatly surpassed those of any previous year. Altogether in the first nine months of 1906, 3,692,000,000 pounds were imported, and 1,000,304,000 pounds were manufactured. The importation of sugar, estimated on the basis of tons, far exceeds that of any other article. The consumption of sugar is considerably in excess of the increase of population, for in the year 1822, of which the first statistical data are at hand, the demand per capita was only nine pounds, while in 1900 it was sixty-five pounds, and in 1906, seventy-six pounds per capita.

These data demonstrate the importance of sugar as a condiment and sweetener, and also serve to explain how very difficult it is for many diabetics to refrain from its use. The use of grape sugar, maltose, and cane sugar is out of question for the above reasons. Milk sugar appears to be less harmful, but large quantities, especially when given for prolonged periods, undoubtedly have a deleterious action by augmenting the excretion of sugar, according to the experience of von Mering. Of all carbohydrates, as shown by Bouchardat, levulose and inulin are most likely to be assimilated. Experiments made with levulose have indeed proved that fruit sugar is more readily oxidized than the other varieties, but they have likewise shown that when given in large quantities it may also unfavorably influence the excretion of sugar. Glycerin was recommended in 1872 by Schultzen as a substitute for sugar. The investigations made in the clinics of

J. Meyer, of Berlin; von Ziemssen, of Erlangen; Kussmaul, of Freiburg; and of Kulz have, however, demonstrated that glycerin has a deleterious effect, increasing glycosuria, and is only slightly inferior in this regard to the carbohydrates. Von Mering (*ibid.*) has been able to repeatedly convince himself that glycerin decidedly increases the percentage of sugar in the urine or causes its appearance.

The substances mentioned in the preceding, therefore, cannot serve as an appropriate substitute for sugar. The only substance to be considered in this connection is benzoyl-sulfonic-imide, which has been admitted to the *United States Pharmacopœia* under the name of benzosulfonidum, but previously had been known under various names, more particularly saccharin. This substance has been considerably used as a sweetener for foods and drinks in those diabetic, gouty, and obese patients who have a marked craving for sugar. Its effects upon the organism have been thoroughly investigated both physiologically and clinically. Of course, the point which interests us particularly is whether we are dealing with an innocuous substance or one capable of doing harm to our diabetic patients, and in view of the perverted metabolism in such subjects and their proneness to functional derangement, this question is of great importance.

Before discussing it more fully, it must be borne in mind that we are chiefly concerned here with the action of saccharin in those small quantities in which it is used as a condiment (ordinarily 1 to 5 grains), for as its sweetening power is about five hundred times that of sugar, larger doses do not enter into the question. Much confusion would be avoided by taking this into consideration.

In view of the extensive use made of saccharin as a sweetener, not only in diabetic cases, but in patients suffering from other conditions in which sugar is interdicted, such as gout and obesity, I have thought it of interest to review the literature, in order to determine whether or not its continued administration is attended with injurious effects.

A large series of experiments were made by Aducco and Mosso (*Gazetta di chimiche di Torino*, 1886, Nos. 14 and 15) on frogs, dogs, guinea pigs, and later on human beings, with reference to its behavior in the organism, including a number of personal tests, with the following results: 1. In dogs saccharin is excreted in the urine without undergoing any change. 2. When given in large quantities for several successive days it exerts no influence upon the metabolism. 3. It is eliminated exclusively in the urine, and does not appear in the milk or saliva. 4. Introduced into the stomach or subcutaneously it is easily absorbed, and can be found in the urine in less than one half hour. The general conclusion reached is that saccharin is completely innocuous to human beings as well as animals. This statement is the more significant, since Mosso and Aducco administered as much as 75 grains to a man without perceptible effect (*United States Dispensary*, nineteenth edition, 1907).

Salkowsky (*Virchow's Archiv*, CV, p. 46, 1886), who made a series of very careful experiments with saccharin in the chemical laboratories of the Pathological Institute of Berlin, reached the conclusion that even large quantities up to 50 grammes *pro die*,

taken for several days, are tolerated without any injurious consequences.

Dreschfield (*British Medical Journal*, 1886, p. 499) practically reached the same conclusion. Even when given in large quantities he found that it produced no appreciable disturbance of the appetite.

Dr. Pavy, in reply to a correspondent in the *British Medical Journal*, 1895, p. 1539, who, disturbed by the agitation against saccharin, asked for information as to its harmlessness, stated that nothing was known of any injurious effect being produced by its use in the quantity employed for sweetening purposes. It is interesting to note that this correspondent had taken saccharin for six years in his tea and coffee without any apparent disturbances.

Professor von Leyden experimented with it both on healthy subjects and patients suffering from diabetes and other diseases without observing any disturbances whatever, even in a case in which it was administered for over six months. Observations extending over a number of months after the tests failed to reveal any subsequent injurious sequelæ.

Professor A. Keller (*Centralblatt für innere Medizin*, 1898) has found saccharin an innocuous and preferable substitute for sugar in infant feeding, his results being based upon numerous observations and investigations in the University Pædiatric Clinic of Breslau.

In Penzoldt-Stintzing's *Handbuch der speziellen Therapie*, II, von Mering states that such quantities of saccharin as a person takes in his food and drink can be regarded as completely harmless.

Heijermans (*Archiv für Verdauungs-Krankheiten* XII, part 3) had an opportunity of determining whether the prolonged use of quite large amounts of saccharin gives rise to deleterious consequences. In an asylum for old men and women where considerable saccharin was consumed twenty-five persons took 1.0 to 2.0 grammes daily for a number of years without the least disturbance, while 3 per cent. experienced some unpleasant effects, although it was not at all sure whether they were attributable to the saccharin.

G. Graul (*ibid.*), in his work on diabetes mellitus, just published, recommends saccharin as a substitute for sugar, and states that he has never observed injurious effects from its use.

W. Ebstein, in *Handbuch der praktischen Medizin*, of which he and J. Schwalbe are the authors, expresses the opinion that saccharin can be safely allowed to the patient if he thinks he cannot live in comfort without it.

K. Bornstein (*Zeitschrift für klinische Medizin*, 1900, No. 40, and *Zentralblatt für innere Medizin*, 1901), as the result of a series of experiments, concluded that saccharin retarded digestion and absorption, and exerted an unfavorable influence upon metabolism. Although its injurious action remained within moderate limits, he thought it necessary to utter a warning against its unrestricted use as a sweetener, particularly in diabetes.

D. A. Mathews and McGuigan, in an article on the influence of saccharin on the digestive enzymes (*Journal of the American Medical Association*, September 10, 1905), assert that it exerts an inhibitory action upon the enzymes in the blood and also in the tissues in general, and regard it as a protoplas-

mic poison, interfering with and decreasing the general body metabolism. A careful study of their experiments, however, is far from convincing. In determining whether saccharin impaired the oxidative power of the blood upon sugars in dogs the use of any anesthetic which might produce glycuria was avoided, chloretone being employed instead. The authors seem to be unaware of the investigations of E. Impens, cited in the *United States Dispensatory*, nineteenth edition, according to which chloretone restricts the combustion of oxygen more than 50 per cent. Experiments on the influence of saccharin on the action of digestive enzymes were chiefly made in the test tube. Bearing in mind how unreliable this method must always be in reaching positive conclusions as to the action of any substance within the organism, since so many factors are concerned in the digestive process that they can never be reproduced in artificial experiments in the test tube, these statements cannot be accepted without the confirmatory evidence of experiments on the living subject.

The observations of Bornstein and Mathews and McGuigan are completely disproved by a series of very thorough experiments made by Dr. R. O. Neumann, at the incentive of Professor K. B. Lehmann, in the Institute of Hygiene of the University of Würzburg. This investigator made a special study of the influence of saccharin upon the metabolism. Unlike Bornstein, his experiments extended over a prolonged period (thirty days), and every care was taken in the selection of a uniform and appropriate diet and the exclusion of external agencies which might influence the result. The entire daily quantity of both urine and feces was carefully examined. The amount of saccharin taken daily was increased gradually from 0.1 gramme to 3.5 grammes during a period of twenty days. These experiments showed that the tissue metabolism was not influenced in the least, and that there was no disturbance of the nitrogenous equilibrium. There was also entire absence of subjective disorders.

Besides the above mentioned authorities Jaworski and Rosenzweig (*Vortrag im Krakauer ärztlichen Verein*, October 4, 1889), Kornauth (*Die landwirthschaftliche Versuchsstation*, XXXVIII, 1900), and Petscheck and Zerner (*Centralblatt für die gesammte Therapie*, 1889, part 6) have also shown that when employed in quantities necessary for sweetening purposes saccharin is practically devoid of any injurious action.

In the face of this strong evidence as to the innocuousness of saccharin in small amounts as a condiment, it would be difficult to explain the strenuous efforts made in Europe to prohibit its use, were it not for one reason, and that a purely economical one. When saccharin became a formidable competitor of sugar, threatening the decline and even the ruin of the cane and beet sugar industries, especially the latter, various European governments which were interested in promoting these because of the immense revenues derived from them, were anxious to stifle this competition. Therefore, every attempt was made to restrict the use of saccharin. Obviously such restriction could have been most easily accomplished if it could have been proved that saccharin was injurious to health. Boards of health in several European countries, as for exam-

ple in Germany, Austro-Hungary, Holland, and Russia, were therefore requested to investigate this subject, with the result that the authorities became convinced that no action could be taken against saccharin on this ground. For this reason arbitrary revenue laws were invoked to restrict its sale. For instance, the conclusions of the Vienna Board of Health are referred to as follows in the *British Medical Journal*, April, 1890, p. 991: "The Supreme Sanitary Council of Vienna has recently published a report on saccharin, in which it is affirmed that no ill effect is produced on the human organism, and that it can be used as freely as ordinary groceries. The report states that no single instance has been adduced in which saccharin could be proved to have done harm to any healthy person, and even in the sick its use does not appear to be attended with any injurious consequences."

The prohibition of saccharin in the industries seems the more illogical since its medicinal use in diabetes, etc., was not interdicted in spite of the well known low vitality of such patients and their proneness to functional disturbances of various organs. The very fact that its use was permitted in medicine serves to emphasize the harmlessness of saccharin, and shows that its restriction was prompted by no other motive than a purely commercial one.

This subject only interests us here in so much as it furnishes an explanation of the persistent attempts to suppress this substance. It reminds one of the persecution to which sugar was subjected at the time of its introduction into Europe as soon as it threatened to become a competitor of honey owing to its cheapness. Some went so far as to designate it as a poison and ascribe to it all kinds of injurious properties. It was accused of causing harmful fermentation during digestion, and thus of often producing gastric disturbances. Thus, for instance, Garenzieres in *Anglia flagellum*, 1647, page 92, says: "Sugar is not a food but a poison, and one could not do better than to send it back to India, through which alone the pulmonary consumption which has been induced by its immoderate use could be suppressed." In 1700 the sale of sugar was restricted to apothecaries, and hence it was treated like a drug.

Unlike sugar, saccharin, of course, has no nutritive value, and it is a great mistake to compare it with sugar in this respect. While it has been stated that saccharin prevents fermentation and therefore might be utilized as an internal antiseptic, the quantities required for this action are so large that food or beverages sweetened with it would prove repugnant on account of the accompanying excessive sweetness. Hence saccharin must be regarded only as a condiment or flavoring agent, but not as a food. It is likewise not a drug or a medicinal remedy, as, of course, it has never cured a case of diabetes, or of any of the other diseases in which it is so extensively employed, but has only satisfied the craving for sweets. To me the subject has some analogy to the never ceasing battle about alcohol, whether it is a medicine, food, or poison. It seemed at one time that the prohibitionists might carry the day, but a more reasonable sentiment is gaining ground, as witness a pronunciamiento in the *Lancet* of March 30, 1907, representing the consensus of

views of high British authorities, in which it is considered a rapid and trustworthy restorative in disease and a beneficial article of diet when moderately used.

Desiring to acquaint myself with the general attitude of American practitioners in regard to the use of saccharin as a substitute for sugar in diabetes, I have undertaken a statistical investigation with reference to this point by mailing to physicians in leading cities of the East (New York, Boston, Baltimore, and Philadelphia) a circular letter containing the following questions:

1. How long have you used saccharin in your practice?

2. Have you observed any deleterious action from the use of saccharin upon the digestive functions?

3. Have you noticed any other injurious by-effects?

4. Do you consider saccharin a harmful addition to foods and beverages?

The replies so overwhelmingly show that saccharin is not injurious to health and can be safely employed for sweetening foods and drinks in the small quantities required for this purpose, that it is useless to give any detailed statistics here.

As to the digestive disturbances observed by a few of my correspondents, it is very difficult to determine whether these were due to saccharin, owing to the very small number of cases in which they occurred. To my mind it seems rather that the excessive sweetness provoked repugnance and nausea, and that this could have been avoided by adding just enough to reproduce the sugary taste—at least, this has been my own experience. I have found that it is very necessary before prescribing saccharin to inform myself thoroughly as to the amount of sweets that the patient has been in the habit of taking, and if he has been immoderately addicted to them, to restrict its use as far as possible, for in my opinion extreme gratification of any taste will sooner or later lead to aversion with consequent digestive disturbances. I am very glad to note that so eminent an authority as Dr. James Tyson, of Philadelphia, agrees with me on this point. In his reply to my letter he remarks: "The nauseating effect complained of by some is, I think, often caused by using too much saccharin. It happens to those who want foods very sweet. To those satisfied by a moderate sweetening effect and who use a small quantity it does not occur."

As to the other by-effects observed by a few of my correspondents, they are of such varied character, ranging all the way from salivation to tinnitus aurium and from anemia to anal tenesmus, that they must have been accidental phenomena, in no wise connected with the administration of saccharin, and not even previously noted by its strongest opponents. It shows, however, the strong tendency we all have to reason *post hoc, ergo propter hoc*.

Among the thousands of replies I would mention the following distinguished practitioners, whose statements as to the harmlessness of saccharin when added to foods and drinks are to be considered as authoritative. Dr. H. P. Loomis writes: "I have used saccharin for over twenty years, and have

never seen any deleterious effects from its use. I do not consider it a harmful addition to food or beverages." Dr. Samuel W. Lambert states: "I never use large amounts of saccharin, rarely over 3 grains a day, but compel my patient to omit sweetening altogether when possible." Dr. Louis Fischer remarks: "The use of saccharin in pediatric practice has its limitations, but I do not recall any disturbance of metabolism due to the administration of the same." Two other pediatricians, Dr. Walter Lester Carr and John Lovett Morse, have found saccharin harmless in the various indications in which it is employed in children. Dr. J. E. Janvrin writes: "In one case I prescribed 3 grain doses three times daily for several months without any injurious effects." Dr. L. Duncan Bulkley states that he does not consider saccharin a harmful addition to foods and beverages in moderation, and mentions that he has taken it himself for many months at a time. Dr. Andrew H. Smith has also had personal experience with saccharin extending over three years without noticing any unpleasant effects, and has employed it in his practice for the past ten years. The following have been able to study the effects of saccharin for long periods: Dr. J. M. Anders, over twenty years; Dr. George H. Washburn, twenty years; Dr. Charles E. Nammack, seventeen years; and Dr. H. F. Vickery, Dr. E. L. Partridge, Dr. John W. Brannan, Dr. Morris Manges, and Dr. Max Einhorn, fifteen years, without observing any injurious effects. Hence it will be conceded that their statements as to the harmlessness of saccharin are based upon long experience. Others who have expressed themselves favorably are Dr. A. G. Gerster, Dr. George R. Lockwood, Dr. A. D. Rockwell, Dr. L. Bolton Bangs, and Dr. Abram Brothers.

A very interesting series of replies is from physicians who have had a special opportunity to acquaint themselves with the action of saccharin by taking it themselves for a considerable period or using it in members of their own families, thus permitting of accurate and constant observation. With the exception of one correspondent, who was doubtful, and three who failed to express an opinion, the twenty-two others stated that saccharin is a harmless addition to foods and beverages.

As stated before, I would not have devoted so much space here to the subject of saccharin were it not at the present time the only substance upon which we can rely as a sweetener in our diabetic cases. In view of its extensive use I have set myself the task of determining whether it has any objectionable features and whether the mere gratification of the patient's taste is not obtained at the expense of more or less injury to the organism, since being simply a condiment it cannot be considered indispensable in the treatment. From my own experience and that of the vast majority of my correspondents, to whom I herewith extend my thanks for the information furnished, I believe myself justified in asserting that saccharin is an innocuous substance, which can be employed with perfect safety in diabetes and which will promote the patient's comfort without exerting any detrimental effect upon the disease.

INCOMPLETE FORMS OF EXOPHTHALMIC GOITRE IN RELATION TO GASTRO- INTESTINAL DISEASE.*

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Exophthalmic goitre is a term exceedingly apt as descriptive of two striking visible effects of a disorder in its complete evolution; but this aptness has led to a fixation of professional thought upon the conditions thus emphasized and to an overlooking of the pathological process of whose work exophthalmus and goitre are but two effects, and relatively unimportant ones.

It should not sound paradoxical to assert that this disease frequently exists without exophthalmus and distinct goitre. We have forgotten the teachings of early investigators and have neglected the statements to the same effect of more recent writers upon this point. The explicit and repeated statements of Marie, whose studies were published in 1883 with the approval of Charcot (at whose instance they were undertaken) have their reaffirmation in the late publication of Möbius. It would be well to drop from use this name which, however excellent in description of a part, is misleading in its direction of thought on the whole.

In many cases the cardinal symptoms give less annoyance and produce less interference with the individual than do certain of these so called secondary processes. Many of these "secondaries" are intimately associated with digestive phenomena, and it is not surprising that the gastrointestinal tract presents a great number of disturbances among the individuals who are affected with this disease. Many individuals suffer principally from the gastrointestinal disturbances without exophthalmus, goitre or marked tachycardia. The disturbances of peristalsis are recognized in the diarrhoea and vomiting, also constipation, atonic and spastic. Glandular disturbances are recognized in the mucus, watery stools, while less frequently thirst, bulimia, extreme activity of the salivary glands, and in close association with the disturbed pigment of the skin is the occasionally severe icterus with its lesser degrees. Moreover, resulting from disturbance of nutrition we have loss of weight, often times associated with a slight elevation of temperature, leading in many cases to a suggestion of tuberculosis. As another example of the profound influence exerted on metabolism we have glycosuria, often leading to a diagnosis of diabetes mellitus, a diagnosis which should be scrutinized with special care for this condition.

With this large group of frequent symptoms often times in extreme degree, it is not surprising that the patient himself or his physician should refer the disorder to the gastrointestinal tract and should there seek directly for it, or the physician should send his patient for special examination in these lines.

Living as I do in a belt of territory in which it is believed there is a great amount of this disorder the importance of this association has been repeatedly impressed upon me, and I have been giving for years considerable attention to this condition. I have routinely examined all patients in the hospital

and private practice for the presence or absence of even the slight degrees of the physical signs associated with exophthalmic goitre.

All cases are regularly examined for the presence of tachycardia, and examined as well as questioned concerning paroxysmal developments. All cases are tested as to the ocular symptoms, Graefe, Möbius, Stellwag, as well as for protrusion. Knee jerks are of course tested and the presence or absence of Marie's tremor, visible or barely palpable, is determined. The thyroid is palpated and attention given to any slight thickening. The history of glandular phenomena is investigated, special weight being given to conditions of bowel discharge, and the sweating, of general or localized type, is always determined. Test meals are always examined.

Years ago I found a marked change in the percentage of large mononuclear white cells in the blood and took up the routine examination of all cases in this respect. I may say the only reference I have found upon this point is Neusser and Cabot having noted a relative lymphocytosis. Ewing on *The Blood*, page 336, calls attention to many cases of a form of anæmia closely resembling chlorosis; although anæmia does not appear to be essentially connected with Basedow's disease. Capitan has noted a thyroid chlorosis as significant, and Hayem reports twenty-nine goitres in thirty-five chlorotic patients. None of these findings have been asserted to be other than occasional in the course of the disorder.

In the last six hundred cases recorded in my office notes three hundred and twenty-nine, or 54.8 per cent. have shown some one or more of the ocular signs (usually von Graefe's); tremor of the type described by Marie; with tachycardia present and referable to no other cause, or with history of decided palpitation, paroxysmal and disturbing, and the great majority shows either a visible fullness of the thyroid gland or at least a decidedly greater than normal fullness on palpation. In a few cases only was the thyroid not palpable with ease, when the tremor and ocular signs were present.

The digestive disturbances were of manifold variety, but in many cases furnished a large part of the patients' complaint. All degrees of disturbed secretion from achlorhydria to high hyperchlorhydria secretion of typical gastrosuccorhæal type were present. Moreover, these patients on repeated tests showed very variable composition of stomach contents as to chemical and ferment activities. In no field of medical work do I think this hyperthyroidization or malthyreoidization more important than in gastroenterological study. The possible relation of cause and effect between digestive disorders and thyroid disturbance is of much interest, but the facts at present do not warrant a definite conclusion.

Persons who are subject to this affection have a decidedly labile nervous system in that stimuli of all kinds produce more than the usual reaction. All reflexes may be increased, or show for a given stimulus an effect greater than that obtained in persons not thus affected. It is to be clearly seen in the glandular processes and in the mental activities. The effects of emotional and physical stimuli are relatively exaggerated among these patients.

This greater effect of stimuli is to be seen in

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easily produced fatigue; or conversely, in the presence of moderate fatigue, the effect of some considerable mental stimulus is to produce such an excitement of the other nerve centres that their hyperactivity overcomes the sense of fatigue and leads to excessive exertion; the result of which is more or less complete temporary prostration when the occasion of the overexertion has passed. Many cases thus constituted are unstable or subject to moods, to periods of depression and uncertainty, often classed as neurasthenic and hysterical.

Accepting the theory of a morbid or excessive secretion of the thyroid circulating as a poison in the blood we may look upon all these patients as presenting phenomena whose character in each case depends upon the special likelihood of the poison in that case affecting certain nerve centres because of inherited, or because of acquired susceptibility.

Into all of these manifestations enters largely the consideration of vasomotor control. In fact this, I believe, is the most important functional effect of the poison. The heart depends largely upon the peripheral resistance for the conditions of work, responding directly to these variations with marked functional manifestations as well as to the effect of the gland products upon its nerve centres.

The paroxysmal character of the palpitation and tachycardia have been recognized from the first description of the disease. As paroxysmal are also described most of the manifestations of other types as the sweating, the diarrhoea, the mental phenomena of depression, and the vomiting, shortness of breath, and dry cough, etc. Many cases presenting the history of paroxysmal disturbance of these types come under observation, and careful search for the various physical signs mentioned before will show them present in a very large proportion. Where the tremor is present, palpitation or paroxysmal tachycardia is usually definitely stated, sweaty palms or axillæ easily noted, a slight degree at least of the ocular signs, especially of von Graefe's and Stellwag's, will be found and in a considerable number the mental instability will be readily acknowledged.

The differential blood count shows in a very large proportion, in fact in nearly all of the cases, a proportion of large mononuclear cells from 10 to 40 or 50 per cent., sometimes at the expense of the polymorphonuclears, sometimes at the expense of the small lymphocytes, so much that these latter may be practically absent; or it may be at their joint expense.

Among the physical signs which I have noted frequently is a peculiar distribution of hair. In a great number of these cases the eye brows are very scanty, either throughout their whole extent or especially in the outer half of the brow, lashes scanty, oftentimes the axillæ are more than usually free from hair as also over the legs the usual growth is absent.

Moreover the hair of the head in many of these patients seems to be divided into two zones; and the lower and narrower zone running around the lower edge of the growth of the hair of the temporal and occipital regions is apt to show a gray zone, sometimes a fringe of white, before a change of color is noticeable in the superior zone, or in younger patients, this zone of hair is scanty. In a

few patients I have seen this peculiarity of pigment reversed. On the whole, I am satisfied that this is an interesting feature of the pigment disturbance due to the disturbed activity of the thyroid gland, as is seen in the well recognized pigmentation of the skin. This one feature has often suggested to me the probable existence of Basedow's disease in the lesser forms, and I have come to feel a reasonable certainty that cases showing this peculiarity of pigment of the hair will also show the large mononuclear blood count, as well as some of the recognized signs. Tentatively I would associate this phenomenon with the vasomotor disturbances already alluded to.

In association with this I wish to call particular attention to the importance of the vasomotor disturbances with relation to the surrounding atmospheric conditions. The peripheral resistance and the automatic regulation of the body circulation is largely concerned with the process of evaporation from the skin. Evaporation is active when the relative humidity of the atmosphere is low. The stimulus upon the vasomotor control arising from the free evaporation is much lessened when the relative humidity is high. For several years I have been following with both barometer and hygrometer the influence of atmospheric change in this respect upon these patients, and I wish to direct attention to the very great likelihood of all of the paroxysmal phenomena in a given case being precipitated by the existence of a high relative humidity. Palpitation, tremor, diarrhoea, vomiting, mental disturbance, as loss of courage, want of decision, depression of spirits, hysterical weeping, all these in numerous patients have occurred regularly with the existence of a high humidity and only at these times. So much has this been the case that I have repeatedly instructed patients as to these conditions, and having a record kept by them of their bad days and of the times of the occurrence of these phenomena I have been able to pick out certain days from the weather bureau records on which these disturbances were likely to have occurred and found the dates agreed.

Further, in this disease, one may predict to the patient or if one prefers to their immediate friends that these paroxysmal disturbances will be probably presented whenever the relative humidity remains 90 to 95 per cent. for some hours, or under atmospheric conditions in which the humidity is rising to these figures. It needs but a few observations on this point to convince most patients that there is the marked influence of the atmospheric conditions upon them, and that many supposed dietary errors which they have hitherto thought might have precipitated a given paroxysm, were really without relation to it.

This is not only interesting in observation but it is important in treatment, for this easy response of the vasomotor apparatus to external conditions must be combatted by measures directed toward restoring the normal tone.

Among all the measures most uniformly helpful I would call attention to the influence of hydrotherapy, in the use of the cold bath. Few of these patients can stand the cold full bath or half bath or shower, the sponge bath must be our first procedure, and very often the vasomotor susceptibility is so great that a temperature lower than 60° to 65°

F. will produce secondary prostration and fatigue due to overstimulus of the water. For this reason these patients usually dread the cold baths and take only the hot ones which do not have the invigorating effect upon the vasomotors but rather the reverse. Electricity and massage have somewhat the same toning effect as cold water.

Closely associated with this is the favorable effect of change of climate. These patients usually do badly in the humid climate of Florida, while being much improved in the high altitudes and dry atmosphere of the west. The favorable effect of changes made with this point in view have been most striking and would time permit a most interesting series of cases could be recited.

Paroxysmal bowel disturbances of Basedow's disease are to be successfully combatted in many of these cases by the cold compresses and a far greater effect can be obtained from them than from the action of any drug. The simple measure of an application of an ice bag is most useful in relieving the palpitation of the heart.

A great number of drugs have been recommended and I have tried nearly all I have found suggested, especially arsenic, iodine, both in the iodides, and by cataphoresis; bromine in the various bromides having been especially used in the cases in which palpitations or sleeplessness were prominent. I have found benefit from the use of arsenic but believe it to be harmful in the cases in which the small lymphocytes are in much less than normal proportions. The iodides have not been particularly successful in my cases except in the use of iron iodide in the patients whose blood counts show a large mononuclear count particularly at the expense of the small lymphocytes. A few weeks administration of two or three grains of iron iodide after meals is usually followed by a nearer approach to normal proportions. Sodium bromide in full doses is very useful to control palpitation and nervous excitement generally when they are not controlled by the physical measures and serum preparations. Quinine bromide in two or three grain doses sometimes with a small dose of adrenalin is occasionally followed by considerable relief from the tremor and mental disturbances and sweating of the patients.

But all these preparations are of secondary value when contrasted with physical measures of environment, climate, hydrotherapy, electricity, and massage. Serum preparations have found use on the hypothesis that the disorder is due to an abnormal quality or quantity of thyreoid secretion which the sera are calculated to antagonize. Thyreoidectin, which is ostensibly a dried serum preparation from the blood of sheep which have been thyreoidectomized, and is furnished in capsules of five grains each, has been most largely used while in the cases which could afford it, or after a failure of the thyreoidectin, I have used the antithyreoidin of Möbius, a serum preparation from the blood of thyreoidectomized goats. This latter is given in doses of two to five c.c. three times a day. From each of these preparations I have had results which are most encouraging. They have been used in hundreds of cases and the effect upon the tremor, glandular processes, and mental states, as well as upon the vasomotor apparatus objectively considered has been most encouraging.

As this paper can be but suggestive I can here give only my clinical impressions and am satisfied that these substances have added greatly to the comfort and physical wellbeing of a great number of cases, and that this has been accomplished with all precautions against the use of suggestion and with the control conditions of first trial without them, then their adoption, discontinuance, and resumption.

A painstaking trial of these procedures has convinced me of their value, my conviction being based on objective betterment of patients and their statements of subjective gain. This is true in a group of cases largely made up of gastrointestinal material, and it has been my repeated observation that failure to accomplish satisfactory results when withholding these measures in patients presenting the physical signs described and complaining of disturbed digestion was overcome when these measures were adopted in some cases, and that a positive advantage for a large proportion of cases was gained on the institution of these measures.

This furnishes the ground for presenting this subject to this association.

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GASTRIC CANCER, PRODUCING A GASTROCUTANEOUS FISTULA.

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The rarity of a gastrocuteaneous fistula due to gastric cancer, may justify the report of the following case:

CASE.—The patient, W. G., was a native of England, fifty-three years old, a gardener by occupation. With the exception of an attack of acute articular rheumatism twenty years ago, he had never been ill until summer before last. At this time he began to have a dull ache in the epigastrium, especially after eating. He had no other dyspeptic symptoms, but grew steadily weaker and thinner. About Christmas of that year a tumor could, he says, be palpated in the epigastrium, and on June 25, an exploratory laparotomy was performed on him by a country doctor. Nothing further was done and the wound healed by first intention. After the operation he grew rapidly weaker, and about the end of July a growth appeared externally in the region of the umbilicus.

When I first saw him on November 14th, he was greatly emaciated, markedly cachectic, white haired, and looked like a man of eighty. His temperature varied irregularly from normal to 101° F. He took only liquid food, but this in sufficient quantity and with relish. His arteries showed marked sclerosis and his urine the characteristics of granular kidneys. In the epigastrium, along the median line, there was to be seen a laparotomy scar ending at the navel in a raw, granulating mass about the size of a small fist, hard, and not very tender. The entire epigastrium was filled by an intraabdominal tumor, hard, nodular, not movable, apparently attached to the parietes. The patient was so weak that the stomach tube was not introduced, and no stomach contents were obtained for analysis. After having fed and stimulated him for a week, as an operation seemed out of the question, a course of alcohol injections was begun, ten drops of 95 per cent. alcohol being injected into the mass at the umbilicus. After the first injection the centre of the mass became necrotic, forming a funnel shaped de-

pression. On removing the dressing after the second injection, the gauze was found soaked with milk and, on examination, a fistula, through which a probe could be passed into the stomach, was found. All food and water subsequently swallowed by the patient promptly flowed out of the opening at the umbilicus, milk being passed unclotted. Twenty-four hours after the establishment of the fistula the patient died.

Autopsy.—Male cadaver, medium size, much emaciated, no edema. In the epigastrium a vertical scar extended from near the tip of the xyphoid appendix to the umbilicus. The latter was occupied by a red, fungous mass about the size of a hen's egg, with a crateriform depression, at the bottom of which was the opening of a fistula. On removing the sternum, the lungs retracted well and appeared to be normal; there were few old adhesions. The heart was rather small, the muscle pale, no valvular lesion. On opening the abdomen the peritoneum was seen to be smooth and shiny. The stomach was about normal in size. Its entire anterior aspect was occupied by a hard nodular mass joined by means of a thick cylindrical bridge to the umbilical tumor. On opening the stomach this hard, scirrhous mass was seen to project into its lumen. About the centre of the infiltrated anterior wall of the stomach there was an opening large enough to admit the little finger. This opening soon narrowed into a somewhat tortuous fistula, through which a probe could just be passed. The probe emerged externally at the crater-like opening above described. On opening the fistulous tract it was seen to be lined with smooth, hard, cancerous tissue; there was nothing like an abscess anywhere. The cancerous mass was not adherent to other viscera; there were no metastases and apparently no glandular induration. Microscopically the tumor showed the characteristics of an adenocarcinoma. The spleen was rather large, partly reddish gray, partly reddish on the cut surface. Both kidneys were small, the capsule adherent, the surface granular. They were firm when cut, the cortex narrow and pale. The liver was rather small and flabby, free from metastases.

The production of such a gastrocutaneous fistula, through which, if the opening is large enough, food is passed soon after being swallowed, is one of the rarest complications of gastric cancer. Other causes of this accident are much less rare. Thus a perforating gastric ulcer, if well walled off, may give rise to an abscess cavity which eventually opens externally. Tuberculous peritonitis too, if localized, may perforate both into the stomach and through the abdominal parietes. Gastric cancer has often been known to perforate into the abdominal cavity, or less frequently to produce an abscess in the tumor mass which perforates externally. Only isolated cases, however, have been reported in which these two conditions were combined, so as to result in a true gastrostomy opening. Brinton found this condition once in 507 cases, but noted during the same time six cases of gastrocutaneous fistula due to other causes. That these figures rather exaggerate the frequency of this accident in gastric cancer is shown by the fact that Struempell in his great clinical experience never saw this complication, nor did Cruveilhier or Rokitsansky in their enormous pathological material ever meet with it.

Murchison in 1858 carefully searched the records of over three centuries and was able to find reports of only twenty-five gastrocutaneous fistulas, of which twelve were due to gastric ulcer, six to trauma, one to necrosis of the ribs, and six to gastric cancer. Since that time, eighteen more cases due

to gastric cancer have been reported, making twenty-four in all. In sixteen of these food passed through the fistula, while in eight the opening was too small to permit this. In two of the latter, however, stomach gases were observed to escape. The cancerous fistula occurred more than twice as often in women as in men; in nearly half the cases the opening was situated in the epigastrium, being located in the left hypochondrium six times and at the navel six times. The fistula was produced spontaneously in sixteen cases and by the incision of a bulging abscess in the other eight.

These fistulas may be brought about in either of two ways. An abscess may form, lying usually between the stomach, liver, and colon on one side, and the abdominal wall on the other. It may be entirely encapsulated by false membrane. Usually the abscess is produced by a gastric perforation, but this is not always the case; the abscess, after having attained a large size, may open into the stomach secondarily. Sooner or later, if the patient survives and if the abscess does not discharge into the colon or into the pleura, it gives rise to a bulging, usually in the epigastrium, and either ruptures spontaneously or is opened like any other abscess by surgical means. Less frequently there is apparently no abscess formation at all. The gastric tumor becomes adherent to the abdominal wall, grows through it and appears usually at the navel, as a fungous mass. The central portion of the tumor becomes necrotic; this necrotic process extends both to the gastric and to the parietal ends of the mass, and a fistula lined by cancerous tissue results.

The existence of a true fistula is always assured if stomach contents pass through the opening, but the reverse is not necessarily true. A complete gastric fistula may discharge only pus, either on account of the narrowness of the lumen, as in the case of Monod, or on account of its tortuous course, as in those of Murchison, Leflaive, and Achard. The dimensions of the external orifice also vary, the latter sometimes hardly admitting a probe, sometimes being over an inch in diameter. Death is usually rapid, but the interval between the establishment of the fistula and dissolution may vary from twenty-four hours (my case) to thirteen months (Murchison).

Of the twenty-four cases of gastrocutaneous fistula due to cancer to be found in the literature, food issued from the fistulous opening in eighteen, namely, those reported by Petit (1716), Haller (1750), Souver-Dulae (1707), Dulong (1775), Stokes and Hamilton (1832), Cameron (1851), Balluf (1854), Murchison (1858), Rodet (1864), Lambie (1874), Auger (1875), Sen (1884), Bottez (1890), Winterberg (two cases, 1898), Vilcoq and Lancry (1896). In eight other cases no food appeared externally, owing to narrowness or tortuousness of the fistulous tract, and the diagnosis was made certain only by the autopsy. These were reported by Murchison (1857), Fercol (1859), Coote (1860), Monod (1877), Leflaive (1885), Achard (1894), Teissier (1875), and Kuester (1876).

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DIAGNOSIS BY THE NOSE

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Smell is the subtlest sense of all, and in appropriate instances is of greater delicacy than spectroscopy. Berthelot concludes that the limit of sensibility of the organ of smell is about one billionth milligramme, and he states that iodoform appears to give off this amount of odor substance in an hour, or one milligramme in 100 years. Musk loses weight even more slowly. The "arsenic fungus," *Penicillium brevicaulis*, is said to yield the odor of garlic in contact with even 0.001 milligramme of arsenic.

Carnivorous animals are specially sensitive to animal odors; herbivorous, to the scents of plants. Man's sense of smell is more extended but less intense than that of many lower creatures. Aside from diseased conditions, this perceptive power varies in different persons in a manner analogous to the perception of colors and sounds. With advancing age the acuteness of the olfactory power is usually dulled. Pleasant and offensive, as applied to odors, is a relative term; what is agreeable to one individual may be disgusting to another. A subjective sense of odor is frequently encountered in nervous persons, and may result from cerebral lesions. Fatigue from overstimulation by one odor causes temporary loss of perception for this odor. Anosmia, unilateral or bilateral, when not the result of nasal obstruction, depends on a lesion in the nerve endings (atrophic rhinitis, ulcers, syphilis), olfactory nerve, or tract, or of the cortex (tumors) in the region of the uncinate gyrus. Hyperosmia occurs in very nervous persons, particularly those with a hysterical taint. Parosmia (foul odors chiefly), either constant or periodic, is noted in the insane and is sometimes one of the earliest hallucinations.

The mechanism of olfactory stimulation has been explained in divers ways. It has generally been held to be due to fine solid particles or gaseous exhalations dissolved in the mucus in the upper chamber of the nose; hence we sniff to perceive a scent more acutely. When the Schneiderian mucous membrane is dry, the sense of smell is lessened or lost, yet odoriferous substances in the liquid form are incapable of giving rise to odorous sensations (Kirkes). Aitken believes that the sense of smell is excited by gases given out from substances, and not by solid particles. Sewage does not communicate notes to the atmosphere. The flavor of foods depends largely upon their odor, and when the nose is much obstructed apples and onions differ but little as to taste. Acrid substances, like ammonia, mustard and horseradish, act on the common sensibility of the nose and eyes.

For the consideration of odors in their chemical relations the classification of Zwaardemaker is convenient to follow.

Ethereal odors (Rimmel's fruity series) belong mostly to esters. The bouquet of alcoholic liquors is due to these compound ethers, chiefly cænanthic ether in wines. Artificial fruit flavors are principal-

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Winterberg, J. Zwei Fälle von Magencarcinom mit Perforation durch die vordere Bauchwand. *Wiener klinische Wochenschrift*, 1890, p. 189.

ly the acetate, butyrate, and salicylate of methyl, ethyl and amyl in glycerin and water. Chloroform, iodoform, and bromoform have a sweet, ethereal scent. Amyl nitrite has the strong, peculiar odor of amyl compounds in general. It is amyl alcohol (fusel oil) which gives the odor in the breath after drinking. Methyl salicylate is the principal constituent of oil of wintergreen. The smell of senega is due to methyl valerianate and salicylate. Ethyl ether has a characteristic pungent odor.

Aromatic odors pertain to terpenes, camphors, and the spicy, herbaceous, rosaceous and almond series, having as chemical types cineol, eugenol, anethol, geraniol and benzaldehyde. Piperonal (heliotropin) is obtained from oil of camphor and oil of sassafras. Coumarin (tonka, sweet clover, new mown hay, fengreek) has been prepared by heating sodiosalicylic aldehyde with acetic anhydride. Stearoptens (camphor, menthol, thymol, eucalyptol), which are oxidation products of essential oils, are generally fragrant. The peach blossom or bitter almond odor of hydrocyanic acid is evolved from potassium cyanide on moistening the latter. Phenols (phenol, salol, creasote, guaiacol, naphthols) have a distinctive aromatic redolence. Acetone is minty; acetals, aromatic. Many perfumes are really a combination of several odors, as in oil of rose (two alcohols), or lavender, ylang-ylang, etc.

Balsamic odors include for the most part aldehydes and Rimmel's jasmine, violet and balsamic series, with the chemical types terpineol, ionone and vanillin. Ione and ionone (violets) are isolated from a ketone in orris root and resemble oil of turpentine ($C_{10}OH_{16}$) in composition. Vanillin is made synthetically from eugenol. Many volatile oils become terebinthinate on standing. Balsam of Peru owes its fragrance to benzylic cinnamate and benzoate. Balsam of tolu contains also some vanillin and a little volatile oil. Chloral has a faint but sharp odor.

Ambrosial odors include ambergris and musk. The latter is now made artificially from butyl toluene. Sexual odors are generally musky. The pollen of grass has a scent similar to that of semen. Propylamine is present in mayflower and many other rosaceæ.

Valerianaceous odors (Linnaeus's *odores hircini*, the capryl group) are largely composed of sexual odors of fatty acid combinations.

Alliaceus odors (onions, garlic, mustard, horseradish, asafœtida, ichthyol), with the cacodyl group, depend on the presence of sulphur, arsenic, antimony, phosphorus, selenium, or tellurium compounds. Cacodyl and carbylamines are extremely offensive. Isosulphocyanates give the pungency to mustard and horseradish. Carbon disulphide is the most fetid of sulphur compounds.

Empyreumatic odors (nidors) are developed on burning animal (usually offensive) or vegetable (usually pleasant) substances.

Narcotic odors (Linnaeus's *odores tetri*) are heavy and depressing. They are noted in opium (narcotine), belladonna, lobelia, hemlock (conine), tobacco (nicotine), aniline, benzol, and the more volatile products of petroleum.

Bacteria produce ammonia, hydrogen sulphide and other pungent and offensive (putrefactive)

odors, usually in combination. The tetanus bacilli give rise to a disagreeable empyreumatic smell. The odor of sour milk is not due to lactic acid, which is odorless, but to fungous fermentation. The smell of freshly upturned earth is likewise attributed to a fungus. Yeast has a distinctive odor, present in malt liquors. Ptomaines may be odorless, sweet, aromatic or cadaveric. Decaying foods may be very toxic and not perceptibly tainted, or very putrid and quite innocuous. The methyl monamines in decomposing fish have a most repulsive odor. The sewer gas stench of hydrogen sulphide can be recognized when constituting one part in 10,000 of air. When the carbon dioxide of respiratory origin exceeds six parts in 10,000 of air, organic vitiation is perceptible by the sense of smell. The "close" fœtor is due to epithelia, fatty debris, and volatile fatty acids, and is readily taken up by liquids in the room. Foul odors (brought out on warming) in drinking water usually accompany sewer gas, algæ, and putrefying organic matter. The fœtor of sulphuretted hydrogen is sometimes occasioned by reduction of sulphates through the agency of *Bacillus sulphhydrogenus* or by penetration of tree roots.

A pungent or even suffocating scent is noted with ozone (1 part in 100,000 perceptible), ammonia, formaldehyde, sulphur dioxide, nitric acid, and the halogens and hydroacids. Among organic acids formic, acetic, propionic, butyric, valeric, capric, caproic, caprylic, and myristic have a sharp odor, and some of them are characteristically human. Indeed the latest view (Lusk) is that proteid molecules appear to consist of groups of banded amino-fatty acids. Inorganic salts have no odor except on breaking up with heat or acids, but merely moistening some organic acid salts (benzoic, valeric) brings out the characteristic scent. Salicylic acid is sternutatory in action. The natural acid is aromatic; the synthetic, odorless.

Odors are often due to impurities, as in acetylene (like geranium when pure, garlicky if impure), wood alcohol (tarry matters), sulphur (sulphur dioxide), fats and fixed oils (should be odorless, except lanolin and cacao butter), carbohydrates, glucosides, amaroids, coloring principles, and proteins. Illuminating gas owes its scent mainly to ethylene (sweet) and the sulphur compounds. All odors are reflexly and psychotherapeutically stimulant.

The Skin.

Freshly excreted perspiration is normally slightly alkaline, but soon becomes acid, owing to the presence of fatty acids (formic, acetic, caproic, propionic). Ancient authors mention the goatly smell from the axillæ after sexual connection. The sour smell of sweat is most marked in diseases with free sweating, as acute articular rheumatism and rickets. Isovaleric acid gives the offensive odor to sweating feet. The skin may yield an ammoniacal effluvium in uræmia. Distinctive scents have been ascribed to infectious fevers, e. g., the "plucked goose" odor of measles, a "musty, semicadaverous" smell in some cases of typhoid (Nathan Smith); and the peculiar fetid stench (sometimes perceptible at several yards' distance) from ruptured pustules in the later stage of smallpox. Many putrid intoxications with deep-seated fœti scents give rise to a similar

suppurative odor. Both the skin and the breath may have a disagreeable scent in chronic diarrhoeal conditions. Bouchard has called attention to the offensive smell which the skin takes under the influence of certain disorders of nutrition, and he has noted the perspiration to be musty, like mouldy bread, in some cases of gastrectasia. Fatty acids are eliminated in excess in hypochondriacs and in inmates of asylums, prisons, and barracks. I have observed a similar effluvium from cleanly kept but marasmic infants. The horrible stench of moist gangrene is always the result of invasion by putrefactive bacteria.

The Breath.

Fætor ex ore usually depends on the presence in the mouth of an excessive number of putrefactive germs and gas forming bacteria, and accompanies unclean or decayed teeth, scurvy, gingivitis, mercurial salivation, tonsillitis, diphtheria, and dyspepsia. A bad smell and taste is often due to butyric acid, from gastric fermentation. Tobacco favors bacterial growth. The odor is very stale and foul, even slightly cadaveric, in patients who are extremely ill, particularly victims of cancer. It is sweet and sickening, from decomposing pus, in advanced tuberculosis. A fetid odor may also be present, from volatile fatty acids, in constipated and hypochondriac subjects. A fruity aroma, like fresh apples, is perceived in acetonemic conditions (advanced diabetes, starvation, gangrene of appendix, tuberculous peritonitis, pernicious anemia, leucemia, malignant growths, septic processes, gastric cancer, gastrectasia, chronic ulcerative gastritis and some cases of typhoid fever). Braidwood lays stress upon the diagnostic importance of a sweetish haylike odor of the breath in suppurative fever. The odor of the breath is more or less specific in poisoning by alcohol (fusel oil), phenol, hydrocyanic acid, cyanides, nitrobenzol, opium or laudanum, chloroform, iodoform, ether, camphor, ammonia, acetic acid, creasote, paraldehyde, amylen hydrate, and essential oils (turpentine, savin, pennyroyal, cedar). A repulsive tobacco-like odor may be noted with lobeline, coniine, and nicotine. A garlicky stench suggests poisoning by phosphorus or tellurium salts. Strongly acid fumes aid in distinguishing poisoning by bromine, chlorine, hydrochloric or nitric acid, and sulphur dioxide.

The factor of chronic suppuration in the middle ear is due to decomposition of pus by anaerobic bacteria (H. Gräde) as well as to necrosis. In cholesteatoma the excessive desquamation of epidermis forms chunks of foul smelling, gritty, cheesy particles. A musty odor is usually present with atrophic rhinitis. Ozena in small children frequently depends on the presence of a foreign body, and is accompanied by a yellow discharge from one nostril. Syphilitic ulceration and that of glands also lead to a profuse sanguinopurulent discharge forming putrid casts. The discharge from scorbutic ulcers is intolerably fetid. In suppurative diseases of the nasal accessory cavities a mild fætor from hydrogen sulphide is always present, unless the normal orifice is completely occluded.

Sputum.

Expectoration is usually odorless, often stale or mawkish, the odor being more pronounced after

standing in a warm room. The sputum is offensive when mixed with food particles and oral secretions of patients with unclean mouths. It is acid and slightly sweetish (like buttermilk) in bronchiectasis (sometimes putrid and rancid), perforating empyema (often like old cheese), actinomycosis, and in tuberculous and other ulcerative processes. In putrid bronchitis and abscess, and sometimes in chronic pneumonia, the fætor is sharp and penetrating. The horrible stench of pulmonary gangrene is rarely wanting. The offensive plugs from the lacunæ of the tonsils are made up of fat, fatty acids, bacteria, caseous debris, and epithelial cells. There is said to be an odor like stewed prunes in the expectoration due to rupture of hydatid cysts into the lung.

Vomit and Gastric Contents.

Normal gastric juice has a very slightly acid odor. Eructations from fermentation are more acid than when due to hydrochloric acid. Hydrogen sulphide is noted at times in acute gastritis, gastrectasia and gastric cancer, and after eating eggs, onions, cabbage, and other sulphur containing foods. An ammoniacal odor may be perceived in motor deficiency, enterostenosis, gastroenteric fistula, and in uræmia. Certain poisons give rise to special scents, as in the breath. Fæulent or stercoraceous vomit is noted in the late stage of intestinal obstruction (especially ileus); rarely it depends on enterostenosis, a fistulous connection between stomach and intestine, faecal impaction, or on gastrointestinal neurasthenia (reversed peristalsis). The washings from a dilated stomach are frequently sour smelling (acetic, butyric, valeric acids), and sometimes fetid. Acetone, alcohol, and aldehyde may be present in fermentive conditions. A putrid odor is to be remarked in pyloric stenosis from any cause, with or without ulceration. The cadaveric stench of the siphoned gastric contents is of great diagnostic value in gastric cancer, and may be perceived, according to Lenz, in the absence of vomiting and a palpable tumor; the vomit has an offensive acid smell. The odor of vomit is also quite repulsive from abscess or neoplasm of the upper digestive or respiratory tract.

Fæces.

The odor of the stools of breast fed infants is normally faintly sour and aromatic, from fatty acids, being slightly foul in constipation, particularly if inanition obtains. The proteid scent is more marked in cows' milk stools. The evacuations are sour smelling in the green, acid diarrhoea of infants, from fermentation of carbohydrates. The putrid odor of albuminous decomposition pervades the air of the room in the more severe leaden gray pultaceous form of diarrhoea. In fatty indigestion the stools have the smell of sour cream or rancid butter. They are like old cheese in putrefaction with failure of fat digestion, as in the celiac affection of young children. In profuse mucous discharges, often accompanied by pus, there is a peculiar odor like wet hay (Selter). In cholera infantum the stools have been described as musty and mousy.

The fæulent odor of the fæces of adults depends chiefly on indol and skatol; to a less degree, hydrogen sulphide, phosphine, and acetic acid. Butyric and valeric acids are abundantly present in hypo-

chlorhydria and gastric dilation. The odor is liable to become stronger whenever the feces have been retained longer than normally. Many foods (eggs, raisins) and drugs (sulphur, asafetida) impart distinctive stenches to the stool. A meat diet enhances fecor. After eating fish the feces may be extremely foul, from naphthylamine. In this connection I recall the case of a young man of sedentary habits, who ate six eggs each day and felt compelled to wear a diaper dipped in a deodorant to quench the stench of the hydrogen sulphide discharged from the anus.

Acholic (fatty) stools are generally fetid, and indicate hepatic, pancreatic, duodenal, or mesenteric disease. The small intestine itself is ordinarily devoid of putrefactive odor (Long). Putrid stools are caused by the alkaline decomposition of albuminous matter, and are favored by vitiation of the secretions, as in low fevers. Anyone who has ever experienced the horribly fetid stench of tarry blood in the stools can scarcely fail to detect another specimen of this kind. When pus is combined with blood the fecor is more rancid, particularly if there is deep ulceration. Stinking gas accompanies the frequent stools of catarrhal dysentery. Boston has noted a sweetish scent of the stools in a case of amœbic dysentery, and he states that the odor is extremely foul in acute or protracted alcoholism. Fœcor is quite marked in tuberculous ulceration of the bowel. Shreds of mucous membrane from gangrene (sloughing following obstruction), dysentery, cancer, or syphilis of the bowel, are putrid, cadaverous, and extremely offensive. The spermy odor of the stools in Asiatic cholera (and sometimes dysentery) is attributed to cadaverine. The stools may be ammoniacal when there is a vesical fistula opening into the bowel. Ptomaine poisoning often gives rise to very foul and watery alvine evacuations. On incubating the feces and collecting the gas in ferment apparatus, if the gas evolved smells strongly acid (butyric), there has been carbohydrate indigestion; if putrid, excess of proteins in the food.

Urine.

The normal odor of fresh urine is slightly aromatic and is due to minute quantities of phenol, volatile ethers, and taurylic, damolic and damoluric acids. It has been compared to new hay (Boston) and to bouillon or oysters (Simon). The more concentrated the urine, the stronger it smells. On standing for some days in a warm place the contained urea hydrolyzes into ammonium carbonate, and the urine becomes ammoniacal and putrescent (ammonium sulphid). Such a scent in the newly passed urine usually indicates decomposition within the bladder, as in chronic cystitis or paralytic retention, but the urine segregated from a "surgical kidney" may be ammoniacal.

Many drugs (phenol, copaiba, santal, cubebs, eucalyptus, tellurium salts, ammonia, cacodyl, asafetida, tolu, valerian) impart a more or less characteristic odor to the urine. Turpentine, terebene, or terpin hydrate may impart the aroma of violets, and this fragrance has been noted even from inhaling turpentine, as in varnishers. Eating asparagus gives rise to the presence of malodorous methyl mercaptan in the urine. Cabbage, cauliflower, garlic,

parsnips, spices, and saffron also affect the urinary odor.

Blood and pus retained for some time, especially in an alkaline urine, give rise to a heavy, putrid smell, which is quite marked in pyelitis and pyelonephritis. Bacteriuria often occasions a repulsive effluvium, like that from stale fish. Nearly every old urine emits an odor of hydrogen sulphide when warmed with a mineral acid. A fecal fetor, with hydrogen sulphide, is suggestive of rectovesical fistula (congenital, traumatic, necrotic), but certain bacteria infecting the bladder lead to generation of this gas, which may likewise be resorbed from the intestines or from a depot of pus adjoining the bladder. The fragrance, like sweet brier, of cystinuria becomes the stench of sewer gas (cystine contains 26 per cent. of sulphur) when the urine decomposes. The sweet and fruity odor (sometimes compared to chloroform or new mown hay) of acetonuria (sepsis, starvation, advanced diabetes) becomes alcoholic on fermentation of contained sugar, if this is present.

Genital Discharges.

The sweetish glue-like odor of semen (prostatic fluid) is due to the presence of spermine, and is only produced (Robin) at the moment of ejaculation. The normal scent of menstrual blood varies considerably in different individuals, being usually more noticeable with a scanty and difficult flow. After labor the lochia rubra of the first three days has the smell of raw meat or fresh blood. A putrid, dirty brownish discharge is often the first danger signal of sapremia from retention of placenta, membranes, or bloodclots. The napkin just removed should be examined at every visit until the lochial flow has nearly ceased (Hirst). I remember a case of self induced abortion, seen by me first about a week after the onset of infection. The woman was nearly exsanguinated, and her blood was so disorganized that the abnormally dark fluid was oozing from all her mucous membranes. On entering the room where the patient lay, the stench was almost overpowering. She died a few hours later. The sickening, disgusting odor of the dishwater discharge of uterine cancer is a valuable sign, but too often a late one. The vaginal secretion is fecal or urinous in rectovaginal and vesicovaginal fistulas.

Aspirated Fluids.

The peculiar specific odor of blood (halitus sanguinis) varies with different animals, and depends on the presence of volatile fatty acids. The odor of urine is almost absent in obstructive retention with formation of cysts. The pus from empyema of the gallbladder is often offensive. Putrid, sulphureted, brownish, or greenish brown pleural and peritoneal exudates originate in the entrance of pus from adjacent gangrenous areas (appendicitis), from malignant tumors, and in perforating ulcer of the stomach or intestine. When a serous exudate is aspirated from an upper intercostal space and a putrid exudate from a lower, subphrenic abscess should be suspected (Lenhartz). The latter fluid in this event is usually alkaline (acid if from perforating gastric ulcer), and contains a great many colon bacilli.

THE COMPARATIVE INNOCUOUSNESS OF FOREIGN BODIES IN THREE INSTANCES.

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That foreign bodies may enter and lodge in sensitive organs of the human anatomy, not only without grave danger but without even causing serious suffering to the subject of the accident, is a fact often demonstrated, though the marvellous passage of pins and needles, for instance, from a right foot to a left hand and like stories familiarized in newspaper literature, may be taken *cum grano salis*. In this paper it is my purpose briefly to state the particulars in three such accidents met with in my own recent practice, as I believe they may have not only illustrative interest, but some value in pointing a moral in surgical practice.

CASE I.—Early in October, 1905 (the exact day not ascertainable), J. McG., aged eight years, was struck in the eye with a dried reed. The conjunctiva of the eye was deeply injected with blood for a few days following the accident, after which all discoloration disappeared, and the boy experienced no trouble, except that it was difficult for him to keep his eye closed for the first five or ten minutes after he retired each night. This condition continued until January 12, 1906, when the boy's father brought him to me for tonsillectomy. The father then told me, quite incidentally, of the difficulty the son had in keeping his eye closed for any length of time. It did not hurt, the lad said, adding: "I just can't keep my eye shut." In turning back the lids, to find possible granulations, I observed a brown substance at the outer canthus of the right eye, standing vertically and apparently following the curve of the eye. It seemed hard when touched with a probe. After eliciting the information about the accident, I removed, with some little difficulty, the piece of wood illustrated by Fig. 1. Its presence in the socket of the orbit had occasioned virtually no trouble in the three months it had remained there, and there was not the slightest reaction. The splinter was seven eighths of an inch long, a trifle over an eighth of an inch wide and about an eighth of an inch thick. Although pliable, it was quite tough and could be bent almost double without breaking.

CASE II.—The second case was of more interest, as I saw it from the beginning. N. N., aged seventeen years, an epileptic, in a seizure on January 8th last, plunged headlong through a plate glass window, incising the left side of her neck just below the angle of the jaw and severing the external jugular vein and external carotid artery. The girl was almost exsanguinated when I reached her. Little was done to the wound, except to pack it, to control the bleeding. Two days later I probed the wound, which was only an inch long, and felt a grating sensation at the end of the probe. A sudden gush of blood made further investigation impossible and I decided to let matters rest.

In about three weeks after absorption of an immense clot that formed at the site of the wound, a hard lump appeared just under the skin at the lower angle of the wound, and (the most notable feature) each time the young woman swallowed, the protuberance became much more marked. Deciding that there was still a fragment of glass in the neck, on February 10th I opened the old wound under cocaine anesthesia, and removed the piece of glass represented by Fig. 2. As no blood followed the withdrawal of the glass, I ran a probe into the cavity and found the end of the fragment had rested against the cornu of the hyoid.

In spite of the fact that enlarged glands in this local-

ity usually occasion much pain, the presence of the glass was not known to the patient until she was told of it. One thing noticeable in this case was the marked diminution of the number of convulsions following the removal of the glass. The patient sometimes had from one to five seizures a day, but after the glass was removed no convulsions occurred for a week, and then only one the following week. The young woman was, however, under medical treatment during this time.

CASE III.—In the third case a young woman, F. R., aged twenty-two years, came for treatment of an enlarged tonsil, in June, 1906. She had been to several physicians and had used the various sprays and local applications prescribed, but did not get better. I found a moderately enlarged right tonsil, a slightly enlarged left one. I advised a tonsillectomy on the right side, to which the patient consented. In applying a solution of cocaine on a cotton tipped probe I noticed that the cotton seemed to catch on some obstruction back of the tonsil. Upon pressing upon the tonsil from behind I was surprised to see a pin project from the anterior surface of the tonsil, and the patient complained of

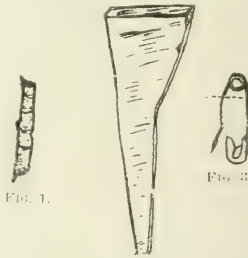


FIG. 1.

FIG. 3.

FIG. 2.

Foreign bodies commented on by author.

pain. The pin was grasped with a hemostatic forceps, and an effort was made to pull it through the tonsil, but it would not come. The ready witted patient, being unable to speak because of the hemostat on the pin, which I was loath to release for fear of losing, wrote on a paper: "That's a safety pin I swallowed six months ago." Knowing that it was impossible to draw the pin through the tonsil in toto, I cut the pin at the point indicated by the dotted line in Fig. 3, and without much trouble fished out the rest of the pin from behind the tonsil. Just how this pin could lodge in back of the tonsil and still project through, I am unable to understand, for the tonsil was almost a half inch thick; but it did so lodge, and gave the patient the unpleasant sensation of chronic tonsillitis and "a metallic or coppery taste," which promptly disappeared after the removal of the pin.

As to how the safety pin got behind the tonsil there is a diversity of opinion. The young woman is sure she swallowed it while hanging a lace curtain about seven months before she came to me. Just after she bolted the pin she felt "indistinct, vague pains running up her right side from her breast to her throat, and a sore spot just over her collar bone, which gradually got up to the angle of the jaw, where it stopped."

Here is the description of a personally conducted tour of a pin which entered the stomach, and in six or seven months arrived in the throat, ranking many stories of like character that have secured attention in the newspapers. It is my impression that the pin lodged back of the tonsils as soon as it entered the throat, and stayed there, causing the tonsillitis which gave the imaginative young woman so much concern.

While there can be no hard and fast rule under

which foreign bodies shall or shall not be removed, we can make the comparatively safe deduction from the cases herein outlined that, while instant interference is at times obviously required, an expectant and watchful attitude is the more logical one in the great majority of accidents of this character. So long as Nature makes no aggressive demand, the safe course is to wait and watch.

LANSDOWNE AND BALTIMORE AVENUES.

Therapeutical Notes.

A New Alkaloid in the Root of Fresh Valerian.

—J. Chevalier, in a communication to the Académie des sciences (*La Tribune médicale*, February 2, 1907), stated that, using a new chemical method, he had found that fresh valerian root contains, in addition to an essential oil, an alkaloid and a resinous substance. All these principles are active from the physiological standpoint, and possess individually pharmacodynamic actions, which are combined in the effects of the administration of the fresh juice of valerian root. The alkaloid was found to exercise an energetic action upon the pons and medulla oblongata.

Potassium Iodide in Rodent Ulcer.—Bonnett presented a case before the Société des sciences médicales de Lyon (*Lyon médical*, May 19, 1907) in which he had obtained a rapid cicatrization following the administration of potassium iodide. The patient, a man, fifty-three years of age (never infected with syphilis), had a lesion, of two years' duration, over the right mastoid process. It was ulcerated and smooth, and as large as a twenty-five cent piece. Histological sections showed it to be a tubular epithelioma, presenting the typical structure of rodent ulcer. Without undertaking any local treatment, he was ordered experimentally to take fifteen grains of potassium iodide, three times a day. At the end of one week the ulcer had nearly healed; and the cicatrization was complete at the end of the second week. The result was regarded as exceptional. Cases have been reported where marked amelioration has similarly followed the administration of mercurials.

Blood Examination for the Early Detection of Lead Poisoning.—Frey (*Deutsche medizinische Wochenschrift*, February 7, 1907), finding that the presence of lead in the urine is not constant, suggests an examination of the blood in order to detect the red cells with basophile granules, described by Grawitz in 1899. These, it is true, are not pathognomonic of lead poisoning, since they are seen also in cancer, in pernicious anæmia, and in certain septicæmias. But in a mechanic free from these diseases, and handling the lead, the presence of these basophile granules becomes of great importance. The observations of Frey show that by examination of the blood we may find the first evidence of saturnine intoxication. The technique is simple. It is only necessary, after drying and fixing with absolute alcohol, to color the blood preparation with Loeffler's blue stain, in order to show, in a certain number of red corpuscles, the granules colored blue.

Treatment of Hæmatemesis.—G. Lemoine (*Le Nord médical*, May 15, 1907), in discussing the symptomatic treatment of hæmorrhage from the stomach, stated that he relieves pain by giving the following:

R Cocainæ hydrochloridi, } 0.10 grammes;
Morphinæ hydrochloridi, }
Aque laurocerasi, 10.0 grammes.
M. Give five drops in a little water.

In place of this one third of a grain of cocaine may be triturated with four grains of white sugar and taken occasionally; or the same quantity given dissolved in lime water, a tablespoonful, to be given every two hours. Chloroform or bromoform are also much used for this purpose. He rejects the hypodermic administration of morphine, because of the danger of forming the habit. The nourishment should consist only of milk, given at long intervals; it may be combined with Vichy water. To relieve vomiting, small pieces of ice may be swallowed, and an ice bag applied to the epigastric region. Feeding may be confined to liquids, and these given through a sound; but this should not be introduced further than the cardiac orifice for fear of provoking hæmatemesis. If the stomach becomes intolerant and rejects everything, the patient should be nourished entirely by the rectum. If vomiting still persists, surgical intervention should be practiced. The stomach may be immobilized by opium, which may be combined with tannin and antipyrine:

R Pulv. acidi tannici, 0.60 gramme;
Pulv. opii, 0.20 gramme;
Sacchari, 6.0 grammes.

S. To be divided in ten papers. Give one every two hours.

R Antipyrine, 1.0 gramme;
Sodii bicarbonatis, 0.50 gramme.

M. S. For one dose. Take one to three such powders in the course of a few hours.

Injections of ergotine and adrenalin are of great value. The former may be combined with glycerin and water (10 per cent. strength) and given in doses of from one to ten cubic centimetres in twenty-four hours. The adrenalin solution (1 to 1,000) may be injected in doses of $\frac{1}{2}$ to 1 c.c. (mg. viii-xv). In a case with repeated hæmorrhages, Lemoine succeeded by giving Carnot's formula:

R Gelatine, 2.0 grammes;
Salicylic acid, 0.25 gramme;
Distilled water, 100.0 grammes.

This acts upon the surface of the gastric ulcer in the same manner as it does upon the wounds on the surface of the skin, or mucosa, by producing the coagulation of the blood and the closure of the open vessels. In grave cases of hæmorrhage, it should be given in tablespoonful doses every hour; and in other cases, it is only necessary to give two or three tablespoonfuls during the day, as long as there is any threat of hæmorrhage. The after treatment is very important. Not until four days have elapsed since the last bleeding should the patient be allowed to take milk, commencing with a pint the first day and gradually increasing it. Counterirritation by a Burgundy pitch plaster placed over the epigastrium is sometimes very effective. A cold wet compress applied to the epigastrium and changed each hour is probably the best means of obtaining external revulsion, it acts rapidly, and the patient is not discomforted.

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THE HIGH FORCEPS OPERATION.

Every experienced practitioner knows that this is a serious procedure, and we quite agree with Riemann (*Monatsschrift für Geburtshilfe und Gynäkologie*, xv, 4; *Berliner klinische Wochenschrift*, June 3rd) that it should not be undertaken save under the most stringent indications. Riemann gives the general results of a hundred cases occurring in the Breslau Midwives' Institute. He explains that by the high operation he means the application of the forceps before the greatest circumference of the head has engaged in the brim. In his hundred cases he does not include any instance of the employment of the axis traction forceps. The application was chiefly in the transverse diameter of the pelvic brim, one blade to the child's occiput and the other to its face. The fetal mortality amounted to thirty-one per cent., though it is inferred that in twenty-two per cent. the death of the fetus had taken place before the operation was resorted to. The best results occurred when the fetus was in good condition and its head well shaped. In such cases a living child may be extracted when the conjugate measures only from 8 to 8¾ centimetres. These results are also good in multiparæ with the conjugate ranging from 9 to 10½ centimetres. In ten per cent. of the cases there were injuries to the child. Three of the mothers died of eclampsia, though that of course had nothing to do with the operation. Maternal injuries occurred in seven per cent. of the cases, and in sixteen per cent. the duration of the puerperium was prolonged.

ON SUPRARENAL LESIONS AND NEPHRITIS.

While the study of hyperplastic modifications of the suprarenal glands has been made the object of a great number of researches in modern years, and has been able to fix with considerable definiteness the pathological anatomy of these lesions, their physiological interpretations have been left as yet very uncertain.

The relation that arterial supertension bears to suprarenal disease has attracted attention from many sides, and the experimental work of Vaquez, of Aubertin, of Widal, and others with adrenalin has emphasized the importance of this secretion in all disorders accompanied by high arterial tension, and the further findings by Aubertin and Ambard (*Semaine médicale*, 1904, p. 63) of constant alterations in the suprarenals in cases of supertensive nephritis has focused attention on the question of the possible causal relationship of suprarenal disturbance and nephritis.

Beaujard (*Semaine médicale*, May 15, 1907) presents the view that it is not premature to conclude that a cortical hyperplasia of the suprarenal gland forms a constituent part of the anatomical picture of interstitial nephritis in company with the cardiac hypertrophy. How this is to be interpreted in a physiological light calls for explanation. Vaquez and Aubertin have already raised the problem, and it may be stated in three ways: 1. Suprarenal hyperplasia may be considered as the cause of vascular supertension, but this may be entirely independent of the nephritis. Widal and Boidin have reported observations of suprarenal hyperplasia with atheroma and supertension, but no nephritis. These are as yet unique findings. 2. The hyperplasia may be considered the cause of supertension, but it may be regarded as due to the nephritis, rather than the nephritis due to it. Josué, some years back, advocated this view. 3. The hyperplasia is due to a chronic autointoxication provoked by the nephritis; it is not the cause of the supertension, but coexists, since both are due to the antecedent nephritis.

In a recent *Thèse de Paris*, 1907, H. Darré has demonstrated experimentally that subacute or chronic renal insufficiency produced by scarification, nephrectomy, or other means always provokes a certain degree of increased function of the suprarenal gland. This, with the researches of others, leads one to incline toward the hypothesis of the results of chronic intoxication as the causative factor in the hyperplasia of the adrenals.

From another side, however, it seems that a most careful distinction of suprarenal structures must be made and a sharp line of demarcation must be drawn between the cortical and the medullary portions of this gland. Like many other structures,

notably the pituitary, the suprarenal consists of two very distinct structures, anatomically, embryologically, and physiologically. M. Wiesel (*Wiener medizinische Wochenschrift*, March 30, 1907) has found in patients suffering from nephritis with cardiac hypertrophy and supertension that the chromaffin cells of the suprarenals were much augmented and further that other chromaffin cell bearing organs in other parts of the body were found to have undergone similar alterations.

In conclusion, so far as the facts thus far at hand permit conclusions, it is evident that in the course of chronic nephritis there results a hyperplastic reaction on the part of the suprarenal glands. This hyperplasia seems to be total, involving not only the cortex, but also the medullary chromaffin cells. The hyperplasia of the cortical substance seems to find an explanation in the view that regards it as possessing an antitoxic function, as is shown by its reaction to chronic intoxications and to the presence of lecithin in its cells. The medullary portion, however, secretes a substance necessary to the organism, the chromaffin substance, identical with adrenalin, which is the vasoconstrictive material indispensable to vascular tone. Its hyperplasia is not so readily explained, although the supertension of renal disease would seem to find an explanation in the increase in medullary substance.

Inasmuch as the cortical hyperplasia is conceived of in the light of a reaction to chronic intoxication, it would seem justifiable to regard the medullary increase as due to a necessity on the part of the organism for increased vascular tension. The suprarenal changes then would best be interpreted as compensatory reactions rather than as exciting agents.

THE TREATMENT OF MALTA FEVER WITH A VACCINE PREPARED FROM MICRO- COCCUS MELITENSIS.

The treatment of infections by bacterial vaccines is a therapeutical procedure which has come to stay, and which gives excellent results if the patients upon whom the method is used are carefully selected. The method is of greatest benefit in those chronic infections in which the patient does not inoculate himself with vaccines manufactured in his own tissues, on account of the development of a limiting membrane of more or less dense connective tissue. In the acute infections, on the other hand, where there is no effort on the part of Nature to wall off the infecting organisms, the injection of bacterial vaccines is sometimes accompanied by deleterious results.

Malta fever is an acute infection with a very chronic course, if the paradox may be admitted. Furthermore, the phagocytes are reduced in number in the infection under consideration. Bassett-

Smith (*Journal of Tropical Medicine and Hygiene*, May 15, 1907) tried fresh yeast for a month with the hope that it would increase the number of polymorphonuclear leucocytes, but without marked success. He then turned his attention to treatment with a vaccine prepared from cultures of *Micrococcus melitensis*, and used this method to the exclusion of drug treatment. In all cases the dose and the nature of the reaction were calculated by the method of recording the opsonic index.

The vaccine was prepared from a strain of *Micrococcus melitensis* freshly isolated from the spleen during life. Agar cultures of ten days' growth were emulsified in 100 c.c. of distilled water, which was then kept in a water bath at 60° C. (140° F.) for one half hour and finally preserved with 0.5 per cent. phenol. After twenty-four hours 0.5 c.c. of this vaccine was inoculated on an agar tube, in order to be sure that the organisms were killed and that no contamination had taken place. Bassett-Smith reports two series of cases treated with a vaccine prepared in this manner, using doses of from one to five cubic centimetres; the injections were given in the loins. There was no suppuration and only rarely slight local irritation. In the first series twenty-two patients were treated, with marked improvement in fifteen. In the second series twenty-three patients were treated, with marked improvement in sixteen.

As a result of the studies carried out during this therapeutical experiment the author records some interesting collateral facts. After the first injection of the vaccine there was a slight negative phase lasting for twenty-four hours, followed by a positive phase lasting for a week or more, as a rule. The phases following subsequent injections were not so distinctly separated from each other or so marked in quantity. There was no regular relationship between the agglutination and the opsonic curves, although the negative phase in Malta fever is often absent or very short.

The author calls attention to the fact that in dealing with a systemic infectious disease, such as Malta fever, the addition of further quantities of artificially produced toxine to a patient in the acute phases of the disease would act detrimentally. On the other hand, in the more chronic conditions, in which there are but slight relapses, or a mild see-saw temperature without marked hectic symptoms, a slight addition of toxine would add the requisite quantity of stimulation which would place the patient in a more favorable condition for combating the infective organisms present. Bassett-Smith restricts the treatment with vaccine to such cases. Early in the course of the experiment it was thought that the vaccine injections prevented relapses; further experience,

however, proved that this desirable result was not uniformly obtained. After the injections the patients experience relief from pain, they gain in weight, and, as a rule, there is an increase in the general feeling of well being.

PANCREATIC ENZYMES IN THE TREATMENT OF CARCINOMA.

From time to time the medical press has announced that the treatment of carcinoma by means of preparations of the pancreatic glands has been attended with more than the usual success, and almost simultaneously contrary reports have appeared from equally authoritative sources. All the evidence that may be adduced is therefore to be carefully weighed, and in view of the vital interests that are at stake, we are tempted to present an outline of the results of a recent research by Dr. Walter Ball and E. Fairfield Thomas, which appears in the *Sixth Report of the Cancer Research Laboratory of the Middlesex Hospital*, England, just published, June, 1907.

These investigators have given the treatment of cancer by trypsin a thorough trial in the wards of the Middlesex Hospital on two separate occasions, following out the instructions by Dr. Baird, of Edinburgh University, who, it will be recalled, first stimulated research along these lines. The treatment consisted in daily injections of trypsin; oral administration of cachets of holadin (an extract from the pancreas alleged to contain amylolytic and lipolytic enzymes); local applications of pancreatic lotions to the cancerous surface; and the administration of a combination of pancreas and ox gall. The carcinomatous tissues in all of these patients were subjected to careful microscopical examinations before and after treatment.

In the present series reported on eleven patients were injected to the trypsin injection treatment. Two of these were eliminated from consideration by the authors by reason of certain special factors surrounding the cases. Of the remaining nine cases, it was demonstrated that there seemed to be some diminution of pain in one, disappearance of stenosis of the rectum in a second, a stationary condition in a third. There was a calcification of cell nests in the fourth case, and in the fifth case there was a certain amount of vacuolation of the cells which pointed toward disintegration. In none of these cases, however, could it be said that the trypsin had accomplished any changes which are not already known to be familiar concomitants of the disease as it advances in its orderly and destructive way.

Eliminating entirely all reference to the discomfort which is produced by numerous large hypodermic injections, and to the occasional production of

inflammation, it is the author's opinion that the trypsin treatment did not prevent the patients from showing a progressive loss of weight, and in view of this steady, progressive loss of weight and the lack of evidence showing any retrogressive changes in the carcinomatous tissues, they are led to the conclusion that the course of cancer, both as a disease and as a morbid proliferating process, is unaltered by the administration of the pancreatic enzymes in the manner thus far tested.

ON MODIFIED LEGAL RESPONSIBILITY FOR THE SEMI-INSANE.

The division of mankind in general into two classes—the insane who are put away, and the sane who put them away—has certain advantages from the legal standpoint; but it also is open to the objection that it is a popular, and not a scientific, method of classification. For one thing, it entirely leaves out of consideration the very large class of half crazy people who form a group of great importance from a social as well as a medicolegal standpoint.

Attention has been recently directed to this subject by a very suggestive monograph, entitled *Demi-fous and demi-responsables*, by Dr. Grasset, of Montpellier (*Bibliothèque de philosophie contemporaine*). This author reminds us that, although these individuals are not mad, they are proper objects of medical care, since they are clearly abnormal. In this group are found many individuals of superior intellectuality (if, indeed, they do not constitute the majority), who have a high social value. At the same time, owing to their mental defect, they may become a menace to society. In Grasset's estimation, the born criminal of Lombroso is also semi-insane.

In view of this psychic weakness, it is evident that the community in which they live owes to these unfortunates both necessary assistance and appropriate treatment; but at the same time it must take measures to protect itself from their misdeeds. Here comes in the vexed question of partial responsibility. It is evidently unjust to punish the semi-insane individual as if he were in the full possession of sound mental faculties; and it is impossible to constantly restrain him as if he were actually insane. As a partial solution of the problem, Grasset suggests that institutions, or special asylums, should be established by the State, where it could take proper care of, or punish, individuals of partially defective mentality, or the half crazy people, and the courts should proceed to take cognizance of this important and numerous class of offenders and treat them with proper consideration due to their mental deficiency.

Obituary.

RICHARD HENRY DERBY, M. D.,
OF NEW YORK.

Dr. Derby died on Thursday, July 4th, in Litchfield, Conn., where he had been under medical treatment for debility induced apparently by grief at the death of his wife, which occurred in March. He was a native of Boston and a graduate of the Harvard Medical School, of the class of 1867. He entered upon practice in New York in 1870, following from the first the specialty of ophthalmology, in which he achieved a national reputation. For many years he had been one of the surgeons of the New York Eye and Ear Infirmary, and ophthalmic surgeon to various hospitals. He was sixty-three years old. Though Dr. Derby's practice was restricted to ophthalmology, he always showed a keen interest in the general welfare of the profession and in public sanitation, to which on more than one occasion he devoted much time and labor. Personally, he was a very amiable man, thoroughly liked by his professional brethren.

News Items.

Jefferson Hospital authorities intend to have the old hospital building remodeled into a nurses' home.

Philadelphia Hospital for the Indigent.—The Finance Committee of City Councils has recommended an appropriation of \$250,000 for the erection of a hospital for the indigent.

Philadelphia Municipal Hospital Statistics:

	Remaining last report.	Rec- eived.	Dis- charged.	Died.	Remain- ing.
Diphtheria	76	97	92	14	65
Scarlet fever	92	78	56	9	165
Other diseases	27	31	12	17	23

The Clinical Society of the Elizabeth, N. J., General Hospital will hold its next regular meeting at the hospital on Tuesday evening, July 16. A paper entitled *Some Things the General Practitioner Should Ever Keep in Mind*, will be read by Dr. Norton L. Wilson, of Elizabeth.

The Death of Dr. Sir William Henry Broadbent occurred at London, on July 10th, at the age of seventy-two years. Dr. Broadbent was Physician in Ordinary to King Edward and the Prince of Wales, and consulting physician to St. Mary's Hospital, Paddington, and other London hospitals.

Philadelphia Personals.—Dr. E. Scipades, of Buda Pesth, Hungary, visited the hospitals of Philadelphia on the 2nd instant.

Dr. C. Edward Allison, of Elysburg, Pa., is registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

The Medical Society of the Missouri Valley will hold its twentieth annual meeting at Council Bluffs, Iowa, on Thursday and Friday, September 5 and 6, 1907, under the presidency of Dr. O. Beverly Campbell, of St. Joseph. Dr. Charles Wood Fassett, of St. Joseph, is secretary of the society. Dr. Donald Macrae, of Council Bluffs, is chairman of the committee of arrangements.

The Sanitation of National Guard Camps.—Dr. Samuel G. Dixon, Commissioner of Health for the State of Pennsylvania, is to supervise the sanitation of the camp of the third brigade of the Pennsylvania National Guard, which is to be located at Mt. Gretna. It is hoped that the number of cases of preventable disease following the encampment will be less this year than in former years in this brigade.

The New York Polyclinic for Diseases of the Stomach. The site of the old Harlem Hospital, 521 East One Hundred and Twentieth Street, has been utilized for a school of diseases of the stomach, under the direction of Dr. Mark I. Knapp. A portion of the building will be reserved for original research. As soon as practicable courses will be

given by Dr. Knapp in diseases of the gastrointestinal canal.

The American Proctological Society.—At the annual meeting of this society, held at Atlantic City on June 3 and 4, 1907, the election of officers resulted as follows: President, Dr. A. Bennett Cooke, Nashville, Tenn.; vice-president, Dr. Louis J. Krouse, Cincinnati, Ohio; secretary-treasurer, Dr. Louis H. Adler, Jr., Philadelphia, Pa.; executive council, Dr. J. Rawson Pennington, chairman, Chicago, Ill.; Dr. Samuel G. Gant, New York; Dr. A. Bennett Cooke, Dr. Louis H. Adler, Jr.

The Medical Society of Franklin County, Pennsylvania.—The regular quarterly meeting of this society will be held at Waynesboro, as guests of the Waynesboro Academy of Medicine, on July 10th. The programme includes the following titles: *Migraine*, by Dr. V. M. Richards, of Fair Play, Md.; *Some Practical Points in the Diagnosis and Treatment of Diseases of the Skin*, by Dr. M. B. Hartzell, of Philadelphia; a general discussion on some important features in the treatment of summer diarrhoea in children.

The Association of Baltimore and Ohio Railway Surgeons held its annual meeting at Washington, D. C., in the last week of June, 1907. Officers were elected as follows: President, Dr. John E. Russell, of Mt. Vernon, Ohio; vice-president, Dr. F. B. Smith, of Frederick, Md., and Dr. J. O. Howells, of Bridgeport, Ohio; secretary and treasurer, Dr. J. H. Kennedy, of Aberdeen, Md.; assistant secretary, Dr. W. F. Donaldson, of Pittsburgh, Pa. Chicago was selected as the next place of meeting, during the three days preceding the meeting of the American Medical Association.

The State Board of Medical Examiners of New Jersey held an examination at Trenton, on June 18 and 19, 1907. Fifty-one candidates passed a successful examination; eight of this number were women. The percentage of failures was 18.05. The next examination will be held on October 15 and 16, 1907. The annual meeting of the board of medical examiners was held at Newark, on July 5th, when the following officers of the board were elected: Dr. E. L. Godfrey, of Camden, president; Dr. Armin Uebelacker, of Morristown, treasurer; and Dr. J. W. Bennett, of Long Branch, secretary.

Personal.—Dr. Walter F. Parker, professor of ophthalmology in the University of Michigan, has resigned and will devote himself to private practice in Detroit. His successor has not yet been selected. The chair is a full professorship, including ophthalmology only.

Dr. Bayard T. Crane, of the Massachusetts State sanatorium for the treatment of tuberculosis, at Rutland, has been appointed resident superintendent of the Maryland State sanatorium for the treatment of tuberculosis.

Dr. Walter Bense, Assistant Sanitary Superintendent in the New York City Department of Health, has been appointed Commissioner of Street Cleaning.

The Fourth of July in Philadelphia.—The one hundred and thirty-first anniversary of the signing of the Declaration of Independence was celebrated in Philadelphia with the customary exercises in front of Independence Hall and the usual accompaniment of racket and noise. The day was unusually cool for the season of the year, the official thermometer registering a maximum of 82° at 4 p. m. No one was killed in the city, but 590 cases were treated at the various hospitals, and there were 39 fires. While it may have been done, we are not aware of any hospital in which prophylactic injections of tetanus antitoxine were administered to persons wounded by firecrackers and blank cartridges.

The Late Dr. William K. Otis. At the annual meeting of the American Urological Association the following resolutions were adopted upon the death of Dr. Otis:

Whereas, In the death of Dr. William K. Otis, the American Urological Association has lost one of its founders and former officers, and a member whose genial personality made him beloved of all, and whose scientific attainments had placed him in the front ranks of his profession, therefore, be it

Resolved, That this association expresses its profound regret at the loss of so esteemed and valued a member and friend, and be it furthermore

Resolved, That these resolutions be spread upon the minutes of the association, that a copy thereof be transmitted to the family of the deceased, and that a further copy thereof be furnished the medical press for publication.

[Signed] Frederick Bierhoff, Orville Horwitz, DeSantos SENE.

Philadelphia Board of Health Statistics.—During the month of May, in the division of medical inspection 3,761 inspections were made, exclusive of schools; 953 fumigations were ordered; and 13 cases were referred for special diagnosis; 5,240 visits were made to schools; 621 children were excluded; 321 cultures were taken; 118 injections of antioxi were given and 207 persons were vaccinated. In the division of vital statistics, 2,580 deaths, 2,551 births, and 773 marriages were reported. In the division of milk inspection 8,052 inspections of 166,809 quarts of milk were made, of which 940 quarts were condemned. Nineteen specimens were tested chemically and 966 microscopically. In the division of meat and cattle inspection 3,350 sanitary inspections were made, of which 115 were found unsanitary; 3,350 inspections of dressed meats were made with 180 condemnations; 895 postmortem examinations were made, of which 88 were condemned. In the division of disinfection 233 fumigations were done for scarlet fever, 315 for diphtheria, 134 for typhoid fever, 261 for tuberculosis, and 364 for miscellaneous diseases. Thirty-two schools were fumigated. In the bacteriological laboratory 1,128 cultures were examined for the presence of bacillus diphtherie, 314 specimens of blood were examined for the serum diagnosis of typhoid fever, 972 specimens of milk were examined, 142 specimens of sputum were examined, 8 disinfection tests were made, and 2,044,500 units of antioxi were distributed. In the chemical laboratory 127 analyses were made.

The Rockefeller Institute for Medical Research has adopted the following series of titles for its staff: Member, Associate Member, Associate, Assistant, Fellow, and Scholar of the Rockefeller Institute, and has made the following list of appointments: Members of the institute and directors of the laboratories: Simon Flexner, Pathology; S. J. Meltzer, Physiology and Pharmacology; E. I. Opie, Pathology; P. A. Levene, Biological Chemistry. Assistants of the institute: Hideyo Noguchi, Pathology; John Auer, Physiology; Alexis Carrel, Experimental Surgery; J. W. Jobling, Pathology; Nellie E. Goldthwait, Chemistry. Fellows of the institute: C. M. A. Stine, Biological Chemistry; Donald Van Slyke, Biological Chemistry; Martha Wollstein, Pathology; Maud L. Menten, Pathology; Mabel P. Fitzgerald, Bacteriology; Don R. Joseph, Physiology; Benjamin T. Terry, Protozoology; Bertha I. Barker, Scholar of the Institute, and Thomas W. Clarke, Fellow of the Institute, Pathology. Grants to aid special researches have been made to the following: Brown, Robert M., New York; Bunting, C. H., Charlottesville, Va.; Collins, Katherine, New York; Field, Cyrus W., New York; Foster, N. B., New York; Goldthwait, Joel E., Boston; Jackson, Holmes C., Albany; Kendall, Arthur I., New York; Koch, Walde-mar, Chicago; MacCallum, W. G., Baltimore; Manwaring, William L., Bloomington, Ind.; Maury, J. W. D., New York; Nevy, F. C., Ann Arbor; Ophuls, W., San Francisco; Pearce, Richard M., Albany; Ricketts, H. T., Chicago; Schulte, Hermann W., New York; Simon, Charles E., Baltimore; Warthin, Aldred S., Ann Arbor; Wood, Francis C., New York.

The Friends' Asylum for the Insane, Philadelphia.—The nineteenth annual report of the Friends' Asylum for the Insane has just been received. During the year 123 patients were admitted, and this number, added to the 165 in the hospital at the beginning of the year, gives a total of 288 patients treated. One hundred and sixteen patients were discharged, 8 recovered, 10 much improved, 25 improved, 27 unimproved, and 23 died. The superintendent reports the recovery of a case of "wet brain." Reference is made to the difficulty of obtaining male attendants in sufficient numbers, which is greater than has been experienced for a long time. We should like to call particular attention to the following statement: "The aid that is derived from the laboratory, both in its clinical and pathological aspects, is indeed indispensable in a modern hospital. Without it much of the medical work would be left in doubt, whereas it is now made obvious in the way of diagnosis by the facts which it reveals. What is said of the general laboratory applies with nearly equal force to the special psychological laboratory under the energetic guidance of our resident psychologist, Clara H. Lown." This statement should be pondered by all those neurologists who still hold that the laboratory is of no value to them in the

diagnosis of their cases. The resignation of Dr. Seymour D. Ludlum is recorded and the appointment of Dr. Albert C. Buckley in his stead is announced. The report of the resident psychologist is of interest. The following legacies were received during the year: \$19,470 from the estate of Henry Draper, to be known as the Henry Draper Fund; \$2,850 from the estate of George Francis Fox; forty-six shares of the Pennsylvania Salt Manufacturing Company, yielding \$5,090 yearly, from the estate of Sarah B. Upton. The death of Thomas Scattergood, one of the managers, is recorded. The report is illustrated with many pleasing reproductions of photographs.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending July 6, 1907:

	July 6.—		June 29.—	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	38	7	54	6
Smallpox	1	0	1	1
Varicella	13	0	154	4
Measles	916	0	792	34
Scarlet fever	208	28	401	29
Whooping cough	18	8	31	12
Diphtheria	326	39	356	41
Tuberculosis pulmonalis	312	136	317	142
Cerebrospinal meningitis	14	11	9	16
Totals	1,709	263	2,084	281

The Health of Philadelphia.—During the week ending June 22, 1907, the following cases of transmissible diseases were reported to the bureau of health:

	Cases.	Deaths.
Typhoid fever	69	7
Scarlet fever	40	0
Chickenpox	28	0
Diphtheria	81	9
Cerebrospinal meningitis	5	4
Measles	54	2
Whooping cough	31	5
Tuberculosis of the lungs	74	53
Pneumonia	39	26
Erysipelas	12	2
Cancer	17	18
Mumps	0	0
Septicæmia	8	0
Tetanus	1	0

The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 8; diarrhoea and enteritis, under two years of age, 21; puerperal fever, 4. The total deaths numbered 463, in an estimated population of 1,500,595, corresponding to an annual death rate of 16 in a thousand population. The total infant mortality was 101; under one year of age, 83; between one and two years of age, 18. There were 32 still births, 18 males and 14 females. The maximum temperature was 89°, on the 22nd. The total precipitation amounted to 0.28 inch. There was a sharp thunder storm on the 21st, at 12:30 a. m.

Statement of Mortality of Chicago for the Week Ending June 29, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of mid-year populations—2,107,620 for 1907, 2,049,185 for 1906:

	June 29, 1907.	June 22, 1907.	June 30, 1906.
Total deaths, all causes	429	397	476
Annual death rate in 1,000	15.9	15.02	12.11
Sexes—			
Males	264	235	293
Females	213	272	183
Ages—			
Under 1 year of age	72	130	89
Between 1 and 5 years of age	59	56	51
Between 20 and 60 years of age	215	211	195
Over 60 years of age	99	97	95
Important causes of death—			
Apoplexy	8	13	12
Bright's disease	41	50	40
Bronchitis	10	14	9
Consumption	50	76	46
Cancer	33	32	21
Convulsions	3	9	6
Diphtheria	6	15	8
Heart diseases	39	41	30
Influenza	1	1	0
Intestinal diseases	29	32	29
Measles	7	9	5
Nervous diseases	22	34	10
Pneumonia	47	75	52
Scarlet fever	3	2	19
Suicide	8	3	10
Stroke	1	1	0
Typhoid fever	3	6	7
Violence other than suicide	36	17	42
Whooping cough	7	8	1
All other causes	110	125	92

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

July 4, 1907.

1. Retroversion and Its Treatment: An Analysis of Five Hundred Consecutive Cases at the Free Hospital for Women. By W. P. GRAVES.
2. Neuralgia of the Superior Maxillary Nerve. By HOWARD A. LOTHROP.
3. "Organism X," Probably of the Coryne-Bacterium Group: Its Differentiation from B. Diphtheriæ and Allied Organisms. Its Pathogenicity in Man, Especially in Bronchopneumonia and Its Relation to General Paralysis of the Insane. By LOUIS HOAG.
4. Painless Labor. Report of a Case Due to a Destructive Lesion of the Spinal Cord, By E. W. TAYLOR.

1. **Retroversion and Its Treatment.**—Graves has sent out letters to patients operated upon for retroversion of the uterus, inquiring after their health after operation. Two hundred and sixty-three patients answered the circular letter in a satisfactory manner. Of this number 86 per cent. stated that they were either completely cured or much relieved by the operation. Considering the numerous additional operations, many of them serious ones, which complicated the operation for retroversion, this percentage must be regarded a satisfactory one. It is interesting to note that those who were entirely cured or much relieved of the symptom of backache amounted to 85 per cent., in comparison with 86 per cent. of those cured or much relieved by the operation. This would tend to show that in the great majority of these cases, though complicated as many of them were, the retroversion was the chief cause for suffering on the part of the patient. It is also interesting to note in this connection that the anatomical recurrences of retroversion after the operation, which is approximated at 15 per cent., corresponds closely to the proportion of patients who stated that they received slight or no relief from the operation. Seventy per cent. of those having ovarian pain, and 70 per cent. of those suffering from some disturbance of menstruation, were either cured or relieved. Forty-eight per cent. were cured or relieved of constipation. The author thinks that with these figures in view and in consideration of the fact that the great majority of retroversion cases are complicated by other surgical diseases any argument as to the comparative merits of treatment by pessaries or tampons is practically out of the question excepting in a few selected cases.

2. **Neuralgia of the Superior Maxillary Nerve.**—Lothrop describes his method, which has been devised for relief when the dental branches are the seat of pain. First, the teeth should be examined by a competent dentist, and if found to be sound they should not be extracted. A horizontal or somewhat oblique incision about one inch long should be made over the exit of the nerve from the infraorbital foramen and carried down to the bone. The nerve should be exposed at the foramen and with care the vessels may be spared injury, for a time at least, so as to avoid obscuring the field by hæmorrhage. Free the cutaneous branches for a distance and carefully isolate the main trunk. With a small chisel remove the bridge of bone which completes the foramen above and also chisel away a considerable portion of bone below the foramen without injuring the nerve. Elevate the periosteum from the facial surface of the maxilla downward and outward towards its malar process and then continue under it so as to reach the zygomatic surface. Previous to this the antrum has been opened in front. With rongeur forceps a channel should be made in the facial wall of the maxilla extending downward and outward to a point just under the malar process, and

thence as far as possible on the zygomatic surface. By means of suitable retractors and properly curved rongeur forceps this procedure offers no difficulties. This channel should be from three eighths to one half inch wide. Thereby all dental branches are intercepted. The bony support of the alveolus is not materially weakened, the teeth are not injured, nor is any harm done the antrum. Finally the main nerve trunk should be carefully isolated to the sphenomaxillary fissure where it is severed and then as much as possible of the cutaneous distribution teased out. All hæmorrhage will have ceased on completion of the operation, so that the incision should be closed with a subcuticular suture. The usual œdema of the cheek will follow and last about seven days.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

July 6, 1907.

1. State Medicine; Its Foundation, Superstructure and Scope. Oration on State Medicine at the Fifty-seventh Annual Session of the American Medical Association, Boston, 1906. By W. H. SANDERS.
2. Sanitation in the Canal Zone. By W. C. GORGAS.
3. Digestive Disorders in Pulmonary Tuberculosis. By JAMES R. ARNELL.
4. Does the Opacity of Incipient Cataract Ever Regain Transparency. By LEARTUS CONNOR.
5. Loss of Vitreous Humor in the Operation for Extraction of Cataract. By J. MORRISON RAY.
6. Rupture of an Aortic Aneurysm in a Child of Four Years. By ROBERT N. WILSON and ALEXANDER MARCY.
7. Neurofibroma of the Orbit—Kronlein Operation. By WALTER R. PARKER.
8. Suprarenal Hemorrhage: An Unusual Cause of Sudden Death. By J. F. MUNSON.
9. The Indications for Resection of the Middle Turbinal. By W. E. CASSELLBERRY.
10. The Role of the Wood Tick (*Dermacentor occidentalis*) in Rocky Mountain Spotted Fever, and the Susceptibility of Local Animals to this Disease. A Preliminary Report. By H. T. RICKETTS.
11. A Clinical Study of Blood Pressure Variations in Diabetes and their Bearing on the Cardiac Complications. By ARTHUR R. ELLIOTT.
12. Latent Diphtheria. A Public Health Problem. By MYER SOLIS-COHEN.
13. An Epidemic of Acute Pellagra. By GEORGE H. SEARCY.

2. **Sanitation in the Canal Zone.**—Gorgas states that when America took possession of Cuba in 1898, the great sanitary problem was the control of yellow fever. The discovery made in 1901 by the Army Medical Board, composed of Dr. Reed, Dr. Carroll, Dr. Lazear, and Dr. Agramonte, after we had been in Cuba about two years, enabled the sanitary authorities to rid that island of yellow fever. The island remained free for three years. He states that Dr. Coles Finlay had deduced the theory that the *Stegomyia* conveyed yellow fever, and he had in many papers steadily maintained that theory since 1881. The government was then turned over to the Cubans, political discussions arose, governmental administration became more or less lax, and yellow fever reappeared. Last year the United States again assumed control; the same sanitary methods were reapplied, and yellow fever has again disappeared. It is now generally recognized that yellow fever can be controlled by sanitary measures based on the knowledge that the *Stegomyia* mosquito alone conveys this disease. This has been demonstrated a number of times in various parts of the western hemisphere. The work consists first in rendering of all nonimmunes immune by giving them a light attack of yellow fever. In a population such as Havana the native is not liable to yellow fever, and is spoken of as being immune. The stranger is the only one liable to this disease, and is known as a nonimmune. Second, the destruction of all *Stegomyia* mosquitoes.

About the Canal Zone the author says that malaria has been so controlled that the sick rate of the total force in the month of April, 1907, was less than seventeen per thousand; that is, out of every thousand men at work on the canal there were on an average during the month only seventeen sick in hospitals each day. Among 6,000 Americans in the employ of the commission, including some 1,200 American women and children, the families of these employees, was little sickness of any kind, and their general appearance was fully as vigorous and robust as that of the same number of people in the United States. During the year 1906 the death rate from disease among American employees was less than four per thousand. For the last sixteen months pneumonia has been very fatal among the negro laborers, being confined almost entirely to this class of labor. It affects the whites very seldom. The disease seems to be on the decline now.

3. Digestive Disorders in Pulmonary Tuberculosis.—Arnell thinks that the dangers of forced feeding are overemphasized by many. That there are real dangers, however, cannot be denied. The production of indigestion and bilious or autointoxication attacks is a frequent sequel. Pathological obesity occasionally results. Both conditions are fraught with risks for the consumptive. The dangers of indigestion are apparent, as with a single attack the patients may retrograde much in pounds and general nutrition and a quiescent lesion may as a result be stirred into activity. The dangers of obesity are not so violent, as with many it is thought to be the end and aim of treatment. The motto of the physician should be to persevere in hyperalimentation till the nutrition has reached an eminently satisfactory point—at the same time guarding against the production of indigestion and pathological obesity, with its attendant fatty heart and diminished functional capacity.

4. Does the Opacity of Incipient Cataract Ever Regain Transparency?—Connor has collected the history of one hundred and forty-one cases of incipient cataract. In twenty-three cases ten observers report of having seen striæ of incipient cataract disappear from one or both lenses, taking with them the diffuse opacity. Twenty-six observers report about eighty-four cases in which they have seen the diffuse opacity of the lens in incipient cataract regain transparency, no mention being made of striæ. Fourteen observers report thirty-three cases of incipient cataract regaining partial transparency. Thus, including his own cases, fifty-one observers report about one hundred and forty-seven cases, in which the opacity of incipient cataract has regained transparency in whole or in part. After eliminating all indefiniteness from some of the reports enough remains to show that "opaque striæ with or without adjacent lens opacity have been seen to fade into clear lens substance." All ophthalmologists grant that the phenomenon is rare; all agree that it is most frequent at the earliest stage of development. The demonstrated fact of regained transparency of the lens suggests the obligation of making a closer study of the conditions under which cataract develops.

6. Rupture of an Aortic Aneurysm in a Child of Four Years.—Willson and Marcy, of Philadelphia, report such a case, the main interest in which centres in the aetiology and in the question whether the aneurysm may or may not have been a congenital condition, synchronous in formation with the congenital valvular lesions. It seems by no means impossible that the loud systolic bruit and the rasping thrill evident over the whole chest wall shortly after birth were due to the aneurysm rather than to the extremely high grade aortic stenosis which so almost completely obstructed the outflow from the ventricle as to raise a doubt

whether such a murmur could have been due to the stenosis. It appears probable to the authors that the incipient aneurysm was of intrauterine origin; that the ulcerative process which reached an advanced state in the aortic wall progressed after birth until it finally eroded its way through the adventitia into the pericardial cavity, and that some trifling additional strain on a barrier already of gossamer thickness was sufficient to cause the rupture and the fatal outcome. There seems, moreover, to exist no room for doubt that the aneurysm was of syphilitic origin. If there were no other proof the high degree of sclerosis of the aorta, the typical patches of atheroma evident on the interior of the vessel, the thickening of the radials in a child of four, the general glandular enlargement, all this in the absence of mercurial or any other medication that could have contributed to the sclerotic tendency, together with the important evidence of a congenital heart lesion, the authors believe to be sufficient to warrant the diagnosis of latent hereditary syphilis, with consequent degeneration of the arterial walls and aneurysm. The father's spurious epilepsy and his suggestive venereal history render the conclusion practically certain.

12. Latent Diphtheria.—Myer Solis-Cohen concludes that: 1. The prevalence of diphtheria is due to the lack of control over latent cases of diphtheria and over the so called "carrier" cases. 2. Diphtheria may occur in a latent form without pseudomembrane and with only slight symptoms. 3. Latent cases of diphtheria should be isolated until two successive negative cultures have been obtained. 4. All cases of sore throat should be reported to the health authorities and should be examined bacteriologically. 5. Infected "contacts" should be excluded from school or work, and should not be permitted to frequent public places until two successive cultures have proved negative. 6. All who have been in contact with a diphtheria patient, whether at home, at school, or at work, should be examined bacteriologically. 7. Disinfection of fomites and terminal disinfection of rooms and their contents is insufficient and reliance thereon treacherous. Animate carriers of infection are more dangerous than the inanimate.

13. An Epidemic of Acute Pellagra.—Searcy reports an epidemic of acute pellagra in the Mount Vernon Insane Hospital in Alabama. Of the eighty-eight patients, only eight were males, the average age was thirty-four. Of the skin lesions 85 per cent. showed it on the back of the hands and wrists, while 35 per cent. had it on the dorsal surface of the feet, and the same proportion on the back of the neck; 20 per cent. had it on the face, i. e., about the cheeks; only 8 per cent. had the skin lesions on all of those locations, and 72 per cent. had no skin lesions at all; just the salivation, gastrointestinal disturbance, and nervous symptoms. No nurses had the disease. They handled the patients, slept in the halls near them, and the chief difference in their way of living was in the diet. They ate little corn bread, mostly flour bread, biscuits, etc., and had a little more variety of diet. The prognosis in acute cases, as in the Mount Vernon epidemic, is always unfavorable, death ensuing in most cases in from two to three weeks; others run longer. Recovery in any case is very slow, the patient remaining for months feeble and more or less depressed. As for the treatment, there are no specific remedies. The essential management consists in placing the patient in good hygienic surroundings and trying to improve the general health by good nourishing food and such tonics as may seem indicated. Arsenic, iron, and pepsin preparations were the remedies on which most support was placed, and which sometimes seemed to influence the disease favorably.

MEDICAL RECORD.

July 6, 1907.

1. Operations for Urinary Calculi. By GEORGE E. POST.
2. The Future of Medical Journalism. By JAMES EVELYN PILCHER.
3. Syphilitic Tumors of the Breast. By JOSEPH B. BISSELL.
4. The Prevention of Venereal Disease. By A. H. BAKER.
5. Chronic Perforating Ulcer of the Bladder. By HENRY K. LEAKE.
6. Report of a Postoperative Case of Fibroid Sarcoma Under the Enzyme Treatment. By WILLIAM T. DORAN.

3. **Syphilitic Tumors of the Breast.**—Bissell describes the history of five cases of syphilitic tumors of the breast. From his experiences and those of others he draws the following conclusions: 1. That gummata of the breast are not as rare as the authorities would lead us to infer. 2. That as a rule these late syphilitic lesions of the breast can be quite easily distinguished by careful diagnosis. 3. That to a certainty some breasts can be saved from operative procedures, which heretofore have been needlessly sacrificed. 4. That in case of doubt an effort should first be made by means of a quick method of treatment to exclude absolutely the possibility of the tumor being syphilitic.

4. **The Prevention of Venereal Disease.**—Baker observes that young men should be taught that a continent life is not detrimental to health, and to avoid the unclean woman as they would pestilence or plague. Warn them against the danger of an illicit intercourse after they have become engaged to marry. How many of us have had cases of venereal disease to treat in men, contracted after the date of their marriage was set and there was insufficient time under any circumstances for them to recover? Also explain to them that the fathers and mothers of marriageable daughters will be taught that when a previously healthy girl develops a cystitis or pelvic inflammation immediately or shortly after marriage there is usually but one reason for it and that reason is the presence of venereal disease in the young husband. Advocate early marriages. If there is one thing more than another medical men should set their faces against it is the demand of society that a man shall be able to furnish every luxury and comfort in a home before he marries. It simply means he will finally come to the marriage covenant unfitted either in years or health or both to give to society that which could be justly expected of him. Arouse and instill in the minds of young women the exalted position of a mother over that of the social, childless butterfly.

6. **Report of a Postoperative Case of Fibroid Sarcoma Under the Enzyme Treatment.**—Doran reports a case of enzyme treatment. The recovery from immediate effects of the operation was uneventful, but within the second week following the inguinal glands on the right side became involved. Later on there was involvement of the glands on the left side. Upon bimanual examination continued enlargement of the obturator glands was found. There was marked induration of all the involved glands, but no evidence of inflammatory conditions. Enzyme treatment was suggested; nothing was promised at the time from its use, save a possible nutritional gain. It was instituted on January 7, 1907. At this time the patient weighed 115 pounds and was weak and anemic. On the first day five minims of trypsin (special strength) was given hypodermically. This was gradually increased each day until on the fourth day twenty minims of trypsin was administered. At this time the use of amylopsin was begun and injections of twenty minims of trypsin and amylopsin were given daily. The doses were gradually increased until February 9, when the patient left the hospital, at which time she was receiving thirty

minims of each daily. Up to this time there had been only slight rise in temperature (1.5°) and an increased pulse rate. Treatment was continued at home every other day, forty minims of both ferments being used. In the beginning of the third month of treatment there was marked tenderness in both breasts, particularly in the left one, which was accompanied by a dragging sensation. Examination revealed no enlargement; coincidentally the patient suffered from nausea and headache. These symptoms were ascribed to the treatment. The dose was gradually increased until sixty minims of each were given every other day. The glands gradually diminished in size, and the patient increased in weight and strength. Since April 19 the patient has been treated twice a week only, the maximum dose of sixty minims each of trypsin and amylopsin being given. During the treatment the patient has taken internally, holadin, twelve grains daily; pancrehepatic (extractum pancreatis), three grains; inspissated ox gall, one grain daily. Extra diet was encouraged, iron tonics used for the blood.

BRITISH MEDICAL JOURNAL.

June 22, 1907.

1. Clinical Observations on Tropical Ailments as They Are Met With in Britain. By J. CAULIIE.
2. Referred Pain and Its Diagnostic Value. By D. FORSYTH.
3. The Treatment of Locomotor Ataxy by Fibrolysin. By F. M. POPE.
4. The Causes and Significance of Certain Ambiguous Reactions Obtained in Testing Urine for Sugar. By H. MACLEAN.
5. Ligation of Common Carotid for Arterial Dilatation and Epilepsy. By R. PARKER.
6. On the Cultivation of the Meningococcus in the Present Epidemic of Cerebrospinal Meningitis in Belfast. By W. ST. C. SYMMERS and W. J. WILSON.
7. The Role of the Various Elements in the Development and Regeneration of Bone. By Sir W. MACEWEN.

2. **Referred Pain.**—Forsyth states that it is difficult to classify pain, but that the following distinctions may be made. There are the pains of inflammation, of pressure, and of stretching—the two latter probably the same. Then there is neuralgic pain—pain with no organic lesion—and subjective pain, where the mind itself is at fault. Lastly, there is referred or sympathetic pain—by this is meant that variety of pain which is located to one healthy part of the body as a result of disease in another. It may be the only pain produced by the disease, or it may coexist with a greater or less degree of local pain set up in the affected viscus. Alocheiria is that uncommon condition where the patient refers stimuli applied to one part of his body to a corresponding position on the opposite side. True neuralgia depends on no nerve lesion, neither is it referred from any remote condition. It is entirely distinct from referred pain, and yet the diagnosis is often extremely difficult. The points to be relied on are the area of distribution and the presence or absence of superficial tenderness. Referred pain is associated with hyperalgesia; with neuralgia this is unusual. Referred pain (and its superficial tenderness) is limited by boundaries set in the central nervous system; the distribution in neuralgia corresponds to some peripheral nerve.

4. **Doubtful Sugar Reactions in Urine.**—Maclean has studied the ambiguous reactions so frequently observed in testing the urine for sugar, and also the influence of kreatinin, uric acid and the urates, the phosphates, etc. The significance of such modified reactions is most forcibly presented in connection with applications for life insurance. Strictly speaking, every urine contains a certain amount of sugar, which is prevented from giving a reaction with Fehling's test by means of the kreatinin present. The kreatinin, however, is not capable of inhibiting the effect of considerable amounts

of sugar, even when it is itself present in increased amount, and if the percentage of normal carbohydrates be increased from any cause, then a modified result will be obtained with Fehling's test. If the specific gravity of the urine is high, it ought to be reduced by the addition of water to about 1.015. If now a distinct reaction is obtained when it is boiled with an equal volume of Fehling's solution for ten seconds, either immediately or after standing for a minute or two, it may be assumed that sugar is present in abnormal amount. Unless at least a distinct opalescent fluid with a greenish or yellowish precipitate is obtained, the test should be held as negative for all practical purposes. It should be remembered that a urine giving a specific gravity of 1.020 when passed will show a rise to 1.025, or more, on cooling to room temperature. In a case giving a modified reaction after dilution, it is always advisable to postpone the report until another examination can be made. The amount of exercise taken, the quantity of carbohydrate eaten, working in badly ventilated rooms, temporary mentally disturbed conditions, alcohol, etc., all tend to cause a slight increase in the amount of sugar excreted in the urine of apparently healthy persons. Again, sugar may be present in the urine without apparent cause, and the power of assimilation of carbohydrate may vary within fairly wide limits, even in the same individual. Urines containing sugar are not always of high specific gravity. The fact that every urine contains a certain amount of sugar; that the amount normally present varies with different individuals and probably for the same individuals, and that the test is at best but a relative one, indicates that the occurrence of an ambiguous reaction in a concentrated urine is generally of no clinical importance, and though largely due to carbohydrates, does not usually indicate an abnormal condition. In urines of low specific gravity these ambiguous reactions do generally indicate a slight excess of sugar, but its probable bearing and importance can only be ascertained by watching the case, and by repeated examinations of the urine at short intervals. In most cases it will be found to disappear and give no further trouble; in a few it may show the starting point of a true diabetes mellitus, and in such cases early detection of the true condition is exceedingly important.

6. **Cerebrospinal Meningitis.**—Symmers and Wilson have studied the bacteriology of the recent outbreak of cerebrospinal meningitis in Belfast. They isolated the meningococcus from the cerebrospinal fluid in fifty-two out of seventy-five patients. The organism is Gram negative, does not peptonize gelatin, produces indol, forms acid from glucose and maltose, but not from galactose, gas is never produced, grows well in media containing raw ascitic fluid, and lives for two weeks or more in fluid sugar media.

LANCET.

June 22, 1907.

1. The Nature and Treatment of Piles.
By A. E. S. BARKER.
2. The Treatment of Hysteria.
By T. D. SAVILL.
3. Two Cases of Excision of Ruptured Spleen.
By E. W. ROUGHTON and W. D'E. EMERY.
4. A Consideration of Some Symptoms Which May be Produced by Seventh Cervical Ribs.
By C. M. H. HOWELL.
5. A Case of Acute Leucemia (Lymphocythæmia).
By H. H. E. SCATLIFE, E. HOBHOUSE, and F. G. BUSHNELL.
6. A Dangerous Dry Shampoo.
By H. C. COLMAN and C. R. MARSHALL.

1. **Piles.**—Barker defines a pile as primarily a dilated or varicose condition of one or more of the plexus of veins lying under the mucous membrane of the last inch or so of the lower bowel. Probably there is a

congenital weakness of the muscular coat of these veins in most cases. There is usually a history of hæmorrhoids in other members of the family, and the trouble, as a rule, develops early in life. But there are other factors which divide themselves into two groups; first, any cause of obstruction to the return of blood through the inferior hæmorrhoidal plexus; and, secondly, any cause of local irritation. In the first group come a sluggish liver with engorgement of the veins of the portal system, heart disease, pregnancy, and most common of all, a loaded bowel in chronic constipation and with prolonged sitting or standing. In the second come every kind of septic irritation—want of cleanliness after defæcation, and local mechanical irritation, such as chafing, bumping, etc. Many cases of piles, even when very large, do not require operation for their cure, and others, when first seen, are not in a state to permit of operation, although it will ultimately be necessary. The first step in treatment is to relieve any engorgement from within by gentle laxatives and bodily exercise. The piles and surrounding parts should be washed over three times daily, first with soap and water, and then with an antiseptic lotion—*e. g.*, bichloride solution, one to one thousand. The piles should then be reduced within the anus if possible, but without force, and the patient should lie down for a while. This procedure should be carried out every morning, after the bowels have been moved, and at night just before going to bed. It often brings about a cure, and if not, it greatly improves the prospects for success of an operation. The writer is opposed to ligation or cauterization, and holds Whitehead's classical operation to be the best. Laxatives should be given four days before the operation, combined with enemata, in order to make sure that the bowel is empty. In order to control the anus properly during operation, it is well in all cases to stretch the sphincter with the thumbs. But if spinal analgesia is employed such stretching is not necessary.

2. **Hysteria.**—Savill, from a study of the disorder, concludes: 1. Hysteria consists of an instability or undue irritability of all the nervous and reflex centres throughout the body, and particularly those of the vasomotor and sympathetic systems. 2. Hysterical paralysis or tremor and many other hysterical phenomena are produced by vascular changes in the nervous system and elsewhere. 3. The essential defect in the nervous system upon which the hysteria depends is inborn and inherent—that is to say, the reflex centres in hysterical subjects are throughout life more unstable than those of other people. The general measures directed to the improvement of the nervous irritability may consist of rest, isolation from home surroundings, food, massage, electricity, hydrotherapy, and psychotherapy or hypnotism. Of all the various measures, rest is of the greatest value in allaying irritability of the nervous system. All sources of peripheral irritation must be removed. Complete rest of the body can be obtained only in bed. Abundance of sleep is essential, and it is sometimes justifiable to administer hypnotics. Removal from the conditions under which the disease arose is almost as indispensable as rest. It is often necessary not only to remove the patients from home, but to forbid any letters to be written or received. As much easily assimilable food as the patient can take improves the nutrition of the nervous system and of the body generally. To increase the power of assimilation, such increase in the amount of food should be associated with massage. Massage also soothes the nervous system. As a rule, no drugs should be given, except an occasional aperient or dose of bromide for sleeplessness. Electricity is of considerable use, especially in those cases where a rigid rest cure cannot be given. Static electricity is more useful than the galvanic or faradic forms. Hydro-

therapy is not much used in England, but it undoubtedly acts powerfully on the neurovascular system. Under psychotherapy may be included all kinds of persuasion, suggestion (autosuggestion and heterosuggestion) and hypnotism. The object is to cultivate the will and control of the patient over her unruly emotions and unstable reflex centres. Ammonium bromide is the writer's sheet anchor for allaying the irritability of the reflex centres. Apomorphine is the best remedy for the prompt cure of severe hysterical convulsions. The writer has also had a certain amount of success with vasoconstrictors (ergot), vasodilators (pilocarpine), and remedies acting on the blood (calcium salts) in cases where there is noticeable irregularity in the vasomotor regulator mechanism. Educational and other prophylactic measures are of great value.

5. Acute Leucæmia.—Scatliff and Hobhouse report a case of acute lymphocythæmia. From their studies they conclude that whatever explanation is offered for such cases, it must include all forms of leucæmia, for every kind of transitional stage between the splenomedullary and lymphatic forms is met with and they cannot be taken apart. The parasitic theory is the only one that offers any hope as regards treatment—viz., on vaccine lines.

LA PRESSE MEDICALE.

June 8, 1907.

1. Simple Treatment of Certain Dermatoses and Deformities of the Face, By LUCIEN JACQUET.
2. Definition of Dilatation of the Stomach Based on Gastric Radioscopy, By G. LEVEN and G. BARRET.
3. Intermittent Pneumonia, By ALFRED MARTINET.
4. Poisoning by Sodium Salicylate, By M. DARQUIER.
5. Atoxyl in Spirochetosis, By R. ROMME.

1. Treatment of Dermatoses and Deformities of the Face.—Jacquet's simple treatment consists in the methodical application of massage, at first gently and increasing in force, to develop the energy of the tissue, together with correction of whatever digestive trouble may be present.

2. Description of the Stomach Based on Radioscopy.—Leven and Barret describe the form, situation, relations, mode of filling, and evacuation of the stomach as revealed by radioscopy.

3. Intermittent Pneumonia.—Martinet reports a case met with in a child four and one half years old, of pneumonia, in which the fever was intermittent, and quotes another case met with in a child of two years. Malaria he thinks was absolutely excluded.

June 12, 1907.

1. The So Called Syphilitic Stricture of the Rectum, By FRIEDRICH SCHWARTZ.
2. The Role of Infection in the Grave Forms of Anæmia, By L. KREMBEY, DEJAS and POISSOT.
3. Plaster Apparatus for Immobilization of the Foot, By P. DESFOSSÉS.

1. Syphilitic Stricture of the Rectum.—Schwartz reports a stricture of the rectum met with in a woman, thirty-three years old, who had an indurated sore on the vulva and presented the symptoms of secondary syphilis.

BERLINER KLINISCHE WOCHENSCHRIFT.

June 3, 1907.

1. Studies of the Spirilla of the European Recurrent Fever, By C. FRANKEL.
2. Atoxyl in Syphilis, By O. LASSAR.
3. The Influence Exerted Upon the Viscosity of the Human Blood by Cold and Heat, By DETERMANN.
4. An Apparatus for the Measurement of the Blood Pressure in Man, By H. J. BING.
5. A New Hemacyanometer, By H. STILLMARK.
6. Modern Investigations in Regard to Disinfection with Gases and Vapors, By U. FRIEDEMANN.

2. Atoxyl in Syphilis. Lassar speaks very highly of the results he has obtained from the use of atoxyl in

syphilis. The use of atoxyl for this purpose was suggested by the good results obtained in the sleeping sickness, a disease dependent on trypanosoma, which are nearly related to the protozoan stated by Schaudinn to be the active cause of syphilis.

3. The Influence Exerted Upon the Viscosity of the Blood by Cold and Heat.—Determann says that there is almost regularly an increase in the viscosity of the blood after cold plunges, which are followed by visibly good skin reaction. Cold hand baths appear to change the viscosity of the blood in the same way.

4 and 5. Measurement of the Blood Pressure.—Bing and Stillmark have each devised a new apparatus for the measurement of the blood pressure. The descriptions of them are long and not well adapted to condensation.

June 10, 1907.

1. The Treatment of Scarlet Fever, By B. SCHICK.
2. Observations Concerning Natural Resistance to Tumors in Mice, By M. HAALAND.
3. Concerning Baths Artificially Made to Contain Radium Emanations, By A. LAQUEUR.
4. Removal of a Lump of Wax from the Bladder Through Its Dissolution by Means of Injections of Benzoin, By H. LOHNSTEIN.
5. Casuistic Contribution in Regard to Suprapubic Prostectomy, By POSNER.
6. Some Remarks Concerning Epidermal Carcinoma, By VON HANSEMAN.
7. The Influence Exerted on the Viscosity of the Human Blood by Cold and Heat, By DETERMANN.

1. The Treatment of Scarlet Fever.—Schick acknowledges that there is no one form of treatment to be recommended for all cases of scarlet fever. Aside from the strife of the antagonists and supporters of the serum treatment, he protests against a fatalistic donthingism on the part of the physician when dealing with this disease. The determination of the correct prognosis, the carrying out of prophylactic measures, the guidance of the general and the symptomatic treatment give a physician a wide field for the exercise of his skill. Prophylactic measures, which consist of isolation and disinfection, are enhanced if the physician will visit his scarlet fever patients after all the others have been seen, will wear a linen cloak during his visit, and disinfect his hands before leaving the dwelling. The duration of the period of isolation is uncertain, as infection is met with after six or eight weeks' isolation in the hospital, repeated baths and disinfection of the clothes. In the mildest cases the patients should not be allowed to return to school until eight or nine weeks after the beginning of the sickness. Under general treatment the author says that every patient, having even the mildest form of scarlet fever, should be kept in bed at least four weeks and should be given no meat during this time. He keeps his patients on a light diet, uses very little alcohol, keeps the temperature of the room about 15° C. (59° F.), and never uses antipyretics, but controls the fever with cold baths and the cold pack. Under symptomatic treatment he deals with the sore throat, the bad taste in the mouth treated by cleansing the teeth and washing the mouth out three or four times a day with cold water, the irritating nasal secretion, the otitis which is a frequent accompaniment, and the swellings of the lymphatic glands. He deprecates too much interference, or rather unnecessary interference, because rest is an important therapeutical agent in this disease. The question of serum therapy he considers closely joined to that of the etiology of the disease, and he does not think that it is yet certain that scarlet fever is a specific streptococcus infection. Sequela, particularly nephritis, he is unable to guard against, and he passes on to their treatment. Even in the mildest cases he considers that the temperature should be

taken morning and night at least until the end of the sixth week.

3. Baths Artificially Made to Contain Radium Emanations.—Laqueur states that according to Reitz's method baths made radioactive show their specific action on the body by, 1, the reaction in the diseased joints; and 2, the demonstration during the course of the treatment of a distinct quantity of radium emanation in the urine of different patients.

4. Removal of a Lump of Wax from the Bladder.—Lohnstein reports the case of a man, twenty-three years of age, who introduced a quantity of stearin into his urethra to allay some itching. A portion of the wax remained behind and soon caused painful urination, strangury and bloody urine. After he had remained two months in one hospital he entered another. In both he persistently denied that he had introduced anything into his urethra or bladder. But after a foreign body had been found in his bladder by means of cystoscopy and diagnosed as a piece of wax he was charged directly with what he had done and eventually acknowledged it to be the truth. Although the foreign body had remained nearly half a year in the bladder there were no incrustations about it. The wax was dissolved by means of benzol, 15 c.c. being injected into the bladder after it had been emptied of urine and left for forty-five minutes. The contents of the bladder were then removed by means of a catheter. These contents separated into two layers, the urine below and the benzol with the dissolved stearin above. Twenty-five grammes of benzol were then injected. This caused strangury in about two minutes, together with a feeling on the part of the patient as though he had been drinking liquor, and the bladder was immediately washed out. The wax obtained from the benzol amounted to 4.9 grammes. No foreign body could be detected on the following day by means of cystoscopy and nothing abnormal except some hyperæmia of the mucous membrane.

7. Influence Exerted on the Viscosity of the Blood by Cold and Heat.—Determann concludes from his observations that the viscosity of the blood is a factor which can be influenced to a considerable degree, at least for a short time. He finds that cold increases its viscosity, hot baths decreases it; in two cases, the only ones tested, warm hand baths decreased it. Aside from the number and volume of the corpuscles the viscosity of the blood is probably dependent on the amount of colloidal substances in the blood, and it is to a high degree dependent on the amount of carbon dioxide in the blood.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

June 4, 1907.

1. Autan, a New Means for the Disinfection of Rooms, By HAMMERL.
2. Concerning Erosions of the Stomach, By BERGER.
3. Tenderness of the Testicle with Renal Calculi, By BITTORF.
4. Concerning Some Cases of Disease of the Trachea and Bronchi Diagnosed by the Aid of Killian's Tracheobronchoscopy, By MANN.
5. A Contribution to the So Called Hand Walk as the Result of Infantile Spinal Paralysis, By KALB.
6. The Variations in the Construction of the Normal Endometrium and Chronic Endometritis, By THEILHABER.
7. Contracture of the Flexors of the Finger in Consequence of a Traumatic Division of the Extensor Tendon, By RITSCHL.
8. The Diagnostic Value of the Gruber-Widal Reaction in the Demonstration of a Claim for Cure, By KNATH.
9. A Case of Traumatic Tetanus Treated with Tetanus Antitoxine, By FEDERSCHMIDT.
10. A Case of Tetanus, By GÖRSCHEMIDT.

11. A Simple, Ever Ready Viscosimeter for the Blood, By DETERMANN.
12. Concerning the Influence of Choline and of the Röntgen Rays Upon the Course of Pregnancy, By NEUMANN and FELLNER.
13. The Investigation of the Reflex Vestibular and Optic Movements of the Eye (Concluded), By BARANY.
14. Concerning Abdominal Arteriosclerosis (Angina Abdominis) and Related Conditions (Concluded), By PERUTZ.

1. Autan.—Hammerl considers this a promising preparation, but one which is not yet ready for a general introduction.

2. Erosions of the Stomach.—Berger reports a couple of cases with the findings on autopsy. In both cases the ulcers were very superficial.

3. Tenderness of the Testicle with Renal Calculi.—Bittorf reports a case of renal calculus in a man, thirty-four years old, in which an exceeding tenderness of the left testicle was a marked symptom. The cause of this tenderness was probably, in his belief, an irritation of the spermatic plexus.

4. Diseases of the Trachea and Bronchi.—Mann reports a number of cases of this nature in which he was enabled to make the diagnosis by means of Killian's method of tracheobronchoscopy.

6. Variations in the Construction of the Normal Endometrium and Chronic Endometritis.—Theilhaber has made examinations of one hundred uterine mucous membranes, including those of women who complained of discharge, but in whom gonorrhœa could not be demonstrated, of women who complained of abnormal hæmorrhages, the cause of which was considered by the majority of gynecologists to be endometritis, of women who had neither discharge nor abnormal hæmorrhages and in whom repeated careful examinations of the uterus and internal genitals showed them to be perfectly normal, of little girls, of very old women with healthy uteri, of women who had suffered from gonorrhœal endometritis, of women who had recently aborted or borne children, and in some women in whom curetting had been performed at different periods of the menstrual cycle. He frequently found in perfectly healthy women who had never had discharge or hæmorrhage all the appearances which have hitherto been considered characteristic of endometritis glandularis hypertrophica and hyperplastica. In such women the glands were not infrequently so close together that the interstitial tissue was reduced to a minimum. In the mucous membranes taken from infants less than a year old the condition of the glands was also such as to suggest endometritis, but this certainly cannot be assumed to occur often in such young children. Hence, he concludes that the appearances, which have hitherto seemed to indicate the presence of an endometritis glandularis hyperplastica or hypertrophica, does not necessarily imply the presence of any pathological condition.

13. The Reflex Vestibular and Optic Movements of the Eye.—Barany arrives at the following conclusions: 1. The slow movement of the vestibular nystagmus originates in the primary nuclei of the ocular muscles. 2. The association of the slow vestibular ocular movements takes place through a corresponding distribution of the vestibular tracts which arise from Deiter's nucleus. 3. The quick movement of vestibular nystagmus originates in the visual centre the location of which is still hypothetical. 4. A destruction of the primary nuclear region, or of the peripheral nerves, abolishes every kind of eye movement on the part of the muscles affected, but leaves undisturbed all other voluntary, reflex, optic, and vestibular eye movements. 5. A bilateral interruption of the vestibular fibres before they end in the primary nuclei completely abolishes the vestibular eye movements, and yet leaves the

reflex and voluntary movements intact. 6. A bilateral interruption of the tract between the visual centre and the primary nuclei of the ocular muscles, or a destruction of the visual centre itself, leaves undisturbed the slow vestibular eye movements as well as the permanent innervation of the eye muscles through strong vestibular irritation, while it abolishes the reflex and voluntary eye movements. Accordingly, a sufficient vestibular stimulation causes the eyes to turn laterally to the maximum. 7. A bilateral interruption of the tract for voluntary eye movements above the visual centre abolishes the voluntary movements, yet leaves intact the vestibular nystagmus and, when consciousness is preserved, together with ability to concentrate the attention, the optic nystagmus also. 8. Monolateral interruption of the tract between the visual centre and the primary nuclei of the eye muscles causes paralysis of voluntary movements toward the affected side, and finally deviation of the eyes to the sound side. If a vestibular stimulation is then produced which normally would cause nystagmus toward the affected side a deviation of the eye toward the sound side takes place with very slight, if any, nystagmus toward the affected side. If a vestibular stimulation is produced which causes nystagmus toward the sound side the eyes can be turned voluntarily, while the stimulation lasts, to the extreme toward the affected side.

14. **Abdominal Arteriosclerosis.**—Perutz gives these conclusions: 1. Arteriosclerosis can cause attacks of severe pain in the abdomen which may resemble colic, or attacks of angina pectoris, and may pass over directly into attacks of angina pectoris. 2. The attacks are usually set up by spasms of the small vessels of the intestine and the increase of blood pressure thus caused. The site of the pain is probably the sympathetic, which in most cases shows an excessive sensitivity, and the mesenteric nerve plexus. 3. Functional disturbances (nicotine and other poisons) may cause such spasms in the absence of anatomical changes in the circulatory apparatus. 4. The diagnosis is often difficult and to be made only after a prolonged observation.

June 11, 1907.

1. Concerning Typhoid Fever and Sepsis of the Colon, and Concerning Typhoid Fever as an Endotoxine Disease, By STADELMANN and WOLFF-EISNER.
2. Contribution to the Clinical and Anatomical Picture of Cerebrospinal Syphilis, By TIEDEMANN and NAMBU.
3. With Regard to the Differential Diagnosis of Streptococcal Pathogenic to Man, By SCHULTZE.
4. The Radical Operation for Very Large Inguinal Hernia, By SAUERBRUCH.
5. Transplantation of the Thyreoid and Experimental Exophthalmic Goitre, By PFEIFFER.
6. Concerning a Diagnostic Symptom in Appendicitis, By BLUMBERG.
7. Atypical Proliferation of Epithelium and Carcinoma, By STAHR.
8. To Explain the Appearance of Green Stools of Infants, By HECHT.
9. An Intraneural Method for the Loosening of an Impacted Stone in the Ureter and for Its Discharge by the Natural Passage, By JAHR.
10. Reflex Laugh Due to the Eyes, By NEUSTÄTTER.
11. Concerning Argentoid Color of the Hair, By IPSSEN.
12. Concerning the Demonstration of Sugar in the Urine by Means of Haines' Solution, By SCHWARZ.
13. Portents in the Urine and the Demonstration of the Same, By KRAFT.

2. **Cerebrospinal Syphilis.**—Tiedemann and Nambu give very fully the clinical history of a woman, thirty-nine years of age, who was treated for syphilitic meningomyelitis, and an equally full account of the findings at autopsy. There was first an inflammation of the meninges of the base of the brain and of the entire

spinal cord with a gumma in the pia at the base of the brain. No microorganisms were found in the meninges.

4. **The Radical Operation for Very Large Inguinal Hernia.**—Sauerbruch lays down as the proper procedure in such cases preparatory treatment, no general narcosis, no extirpation of the hernial sac, and a good closure of the hernial orifice.

5. **Transplantation of the Thyreoid and Experimental Exophthalmic Goitre.**—Pfeiffer has demonstrated experimentally that it is possible to transplant tumors of the human thyreoid glands into the lower animals by the use of the proper technics, so that some 127 days after the operation functioning thyreoid tissue can be demonstrated at the place of implantation. The human thyreoid tissue thus implanted appears to cause an acceleration of the pulse in the animal, which is markedly greater when a thyreoid from a case of exophthalmic goitre has been used than when it has been taken from a case of ordinary goitre. No other symptoms of exophthalmic goitre developed in any of the animals during the period they were under observation.

6. **Diagnostic Symptom in Appendicitis.**—Blumberg refers to the pain felt by a patient who is suffering from appendicitis when the examiner suddenly lifts the hand with which he has been palpating the abdomen. It is an indication of the extension of the inflammation to the peritonæum.

8. **The Green Stools of Infants.**—Hecht says that the degree of oxidation of the biliary coloring matter in the stools of infants does not depend wholly on the oxydasis, but a distinct influence is exerted on the coloring by the very uncertain, but usually significant reducing power of the bacteria in the stool. The oxydasis can certainly develop its action only when the reduction process is so insignificant that the biliary coloring matter is unaffected. If the reducing power is increased in intensity the stool always contains somewhat reduced biliary coloring matter, preeminently bilirubin. The intestinal bacteria then hinder the oxidation of the biliary coloring matter so that such stools contain bilirubin in spite of the amount of oxydasis.

9. **Intraneural Method of Loosening an Impacted Stone in the Ureter.**—Jahr reports a case in which a woman, thirty-two years of age, upon whom it was very undesirable to operate, had an impacted calculus in her one ureter. An ordinary ureteral catheter, with a distensible rubber sheath, was introduced into the ureter as far as the obstruction, and the ureter was then dilated by the injection of water into the catheter and so into the dilatable sheath. In this manner the diameter of the ureter below the calculus was enlarged, the stone became loosened, and after the removal of the catheter at the end of five minutes there was copious excretion of urine.

10. **Reflex Laugh Due to the Eyes.**—Neustätter reports five cases in which persons of different ages and conditions of life were seized with an almost irresistible impulse to laugh on the introduction of light into their eyes, as in an ophthalmoscopic examination. Nothing wrong in the fundus was to be seen, but the author does not indicate anything else in regard to the condition of any of the eyes. A statement of the refraction and muscular condition of each patient would have been of value. It is a pity the examination was so superficial.

11. **Argentoid Color of the Hair.**—Ipsen reports the case of a man, twenty-three years of age, whose hair was of a peculiar color which he denominates argentoid. The man stated that he had a sister with the same peculiarly colored hair.

12. **Demonstration of Sugar in the Urine.**—Schwarz thinks that Haines' solution should be used by the

general practitioner much more frequently than seems to be the case.

REVUE DE MÉDECINE

June 15, 1907.

1. Meningitis Due to Lead Poisoning.
By MOSNY and MALLOIZEL.
2. Concerning the Innocuousness of Large Doses of Strychnine.
By TROISFONTAINES.
3. Catarrhal Icterus of Long Duration.
By V. AUDIBERT.
4. The Human Liver and the Liver of the Hog.
By E. GÉRAUDEL.
5. The Significance of the Eosinophile from the Standpoint of Diagnosis in Dermatology.
By H. LAMS.

1. **Meningitis Due to Lead Poisoning.**—Mosny and Malloizel observe that in most cases of lead poisoning there is nothing to indicate an early invasion of the nerve centres. It was only by chance, while making lumbar puncture upon a patient suffering with lead colic, that the authors discovered the existence of a marked meningeal reaction. They have therefore suggested as a definition for meningitis due to lead poisoning, the clinicoanatomical expression, more or less indistinct, of a meningeal reaction which can always be discovered by the aid of lumbar puncture. The condition is of such frequency that it may be said to be of constant occurrence in cases of lead poisoning, when colic is present. At a later period it becomes less distinct and then disappears. The early form of this condition is the more common, but there is also, in rare instances, a late appearing form. The first form may be latent, indistinct, subacute, or acute. It may present no symptoms, a single symptom, or a syndrome of symptoms. It may also be of chronic duration with frequent sharp exacerbations, and its diagnosis is not always easy. The form which is late in appearance may also be latent, but can frequently be diagnosed clinically. In determining a meningeal reaction in a case of lead poisoning one must eliminate all other conditions which would produce such a reaction, especially syphilis, smallpox, and alcoholism.

2. **Innocuousness of Large Doses of Strychnine.**—Troisfontaines agrees with those who regard strychnine as the most effective stimulant of the nervous system in collapse from any cause. He believes it superior to caffeine, ether, or camphor. Strychnine is not a toxic agent which is difficult to control, nor does its use require unusual caution. It is best, however, to begin its use with a dose of three or four milligrammes, and as much as a centigramme and a half may be given in a day. In urgent cases as much as five or ten milligrammes may be given subcutaneously, and as much as three and a half or four centigrammes during the twenty-four hours. It is indicated for diabetes insipidus or mellitus, for various forms of paralysis, sunstroke, psoriasis, pulmonary tuberculosis, surgical shock, acute and chronic alcoholism, and in the collapse attending various forms of infection. As it has no cumulative action, it can be given continuously for long periods, and is usually well tolerated at all periods of life.

3. **Prolonged Catarrhal Icterus.**—Audibert observes that cases of prolonged catarrhal icterus have rarely been reported, and this is his apology for narrating a case which lasted 146 days. It was characterized by remissions and recurrences, and finally resulted in cure. This form of disease has been described by Frerichs, Niemeyer, and Dieulafoy. This disease must be sharply distinguished from cancer of the head of the pancreas and from syphilis. The following significant points must be noted in the diagnosis of this condition: 1. Icterus, preceded by hepatic congestion, and by copious biliary diarrhoea. 2. Colorless feces of long duration, but with occasional recurrence of the normal color. 3. Diminished secretion of urine, the quantity becoming normal during the periods of im-

provement. 4. Diminished urea, with normal amount during the periods of amelioration. 5. Diminished quantity of biliary pigment, but toward the end of the disease the urine becomes red in color rather than green. 6. Constant glycosuria after the fifteenth day of the disease. 7. Intermittent elimination of methyl blue. 8. Purpuric spots after the second month, temperature between 38° and 40° C., and a general adynamic, typhoid condition.

4. **The Human Liver and the Liver of the Hog.**—Géraudel informs us that the human liver is comparable with a single lobule of the liver of the hog; in other words, it is an unilobular liver. But this lobule has been developed on a gigantic scale. In the course of this development one portion of its surface is invaginated, this portion ramifies and becomes the seat of the capsule of Glisson with the portal vein and the biliary ducts. On another portion of this surface, which undergoes little or no invagination, is the suprahepatic hilum or region which lodges the suprahepatic vein. At the entrance of the capsule of Glisson is the hilum proper of the lobule. Between these two hilar regions extends the capillary or sinusoidal layer with the cellular layer interposed. The capillary layer is collected by a ramifying system which is homologous with the centrolubular sinus of the liver of the hog.

ARCHIVES OF THE ROENTGEN RAY.

July, 1907.

1. Radium and Its Medical Uses.
By GEORGE H. GRAHAM.
2. A Test of Dr. Milton Franklin's Electroscopie.
By WALTER A. SCOBLE.
3. Baseball Fingers.
By J. N. HALL.
4. A Case of Hexadactylia; A Skiagraphic Contribution to the Study of Congenital Malformations.
By PROFESSOR AUGUST V. LUZENBERGER.

1. **Radium and Its Medical Use.**—Graham reviews our present knowledge of radium and its use in medicine. Among other statements he says that many experiments have been carried out on bacteria with radium, but the results reported by different observers have shown much discrepancy. Several reasons may be given for this, for not only has the technics varied with different observers, but the radioactivity of the salt used has also varied very largely. Moreover, the radium in most experiments has been enclosed in some sort of capsule, entirely shutting off the alpha rays, which alone are believed to be bactericidal. The beta rays simply inhibit growth, but do not kill. Pfeiffer and Friedberger have reported the destruction by radium irradiation of the cholera vibrio and the bacilli of typhoid fever and anthrax, and Hoffmann produced a like effect on cultures of staphylococci. Strebel has pointed out the attenuation of cultures of *Bacillus prodigiosus* exposed to radium. Caspari introduced the tubercle bacillus into the anterior chamber of the eye of a guinea pig, and the diphtheria bacillus into the muscles. When this was followed by injections of a radioactive solution, the animals were not infected. M. Danys found that the rays kill the larvæ of certain butterflies. On the physiological action of radium several remarkable observations have been made. M. Danys, in studying its action on the nervous system, irradiated the spinal column of mice, causing death from acute nervous disturbance in from three to eight days. The young mice died sooner, showing injection of the spinal cord and meninges, and abundant meningeal hæmorrhages. In a dog that had been trephined the application of radium to the brain substance caused hemiplegia after a few hours. Henri and Mayer found that radium had an action on the blood of dogs and frogs, changing its color after an exposure of three hours, and transforming it as shown spectroscopically into methæmoglobin. Georges Bohn has also shown that the rays diminish the resistance of the red blood

cells. Its action on the virus of rabies is specially notable. Tizzoni and Bongiovanni have shown that after radium irradiation the spinal cord of an animal that had died of rabies will not inoculate other animals, but will act as a vaccine. Further, an animal inoculated with rabies and showing symptoms of the disease may be cured by a prolonged radium irradiation of the cerebrospinal axis. The mineral waters in a large number of health resorts and spas in Europe have been found to be radioactive. This is due to the emanation from radium or thorium, and varies very largely in different waters. In the deposits and mud obtained from some of the springs minute traces of radium have been found. The article is too detailed to be reviewed *in toto* in condensed form.

Proceedings of Societies.

AMERICAN THERAPEUTIC SOCIETY.

Eighth Annual Meeting, held in Washington, on May 4, 6, and 7, 1907.

The President, Dr. ROBERT REYBURN, of Washington, in the Chair.

(Continued from *lxxxv*, page 1095.)

The Value of Physical Training in the Treatment of Neurotic Patients.—Dr. B. E. MCKENZIE, of Toronto, Canada, spoke on this subject, which he divided into chorea and neurasthenia. He remarked that the most gratifying results occur in chorea. A boy of ten years was advised gymnastic training, and in one week improved and in several months was almost well. Care was taken to divert his mind toward others in the class, and to forget himself. The author stated that in chronic chorea the recovery was slow, but certain. But he does not mean to exclude drugs, they are necessary also.

Neurasthenia may be due more to psychic changes than physical. In the orthopaedic gymnasium the results have been good. Dr. McKenzie cited several cases. Mrs. H., age thirty-five, was a widow of intelligent appearance. In November, 1905, she fell from a chair. There was no visible injury. She remained in bed for fifteen months. In February she was brought to the hospital. She was made to sit up without explanation; then she was taken to gymnasium. Now she walks up and down stairs alone. Another case was that of a woman, forty-two years of age, who lived in the country. She appeared to be losing coordination; had an unbrained mental condition, but distinct paralysis. No instructions or explanations were offered, but she was placed in a gymnasium and given the training. At the end of a month she wished to stay longer and improved steadily. A third patient was unable to think clearly, became discouraged and obdurate. She manifested almost an unwillingness to recover. In the orthopaedic gymnasium she improved from the first. Another patient had sprained her knee in stepping from a car. About eight months later she was first seen by the speaker. It required several months before she could be convinced there was no disease of the joint. Recovery followed with gymnasium work.

In all cases, Dr. McKenzie remarked, there was an erroneous idea toward self and the exaggerated ego. The morbid mental state if allowed to go on would lead to insanity, faulty home surroundings were etiological factors in these nervous cases. The lack of self control and concentration was prominent, and the patients often became victims of suggestion. Friends and relatives magnified pain, and lead the physician astray. The practice of the invalid became a habit. The physical condition was often good, but overstrain, masturbation, autointoxication were not causative but consequential.

A correct and prompt diagnosis was imperative. To doubt was to be damned, and vacillation was dangerous. Harmful suggestion should be eliminated, and isolation prevented this; but this did not mean that the patient should be shut in with the nurse. The work of the gymnasium was not a panacea, but an assistance of importance. There was no use of hypnotism or allied states, in connection of which treatment the gymnastic work was usually injured. Self restraint in thought and action was paramount, and it was attended with large measure of success in carrying out this line of treatment.

Dr. OSBORNE said Dr. McKenzie was the pioneer in this continent, and that his paper had opened a line of treatment which would be valuable in the future.

Dr. MCKENZIE disclaimed priority in originating this treatment.

Principles Underlying the Treatment of Tuberculosis.

—This paper was read by Dr. FRANCIS M. POTTENGER, of Los Angeles, Cal. He said that the medical profession generally believed tuberculosis an incurable disease. We should see that, on the contrary, the waiting made the disease incurable. It was the early, accurate diagnosis which made it a curable disease, and all depended on this. Not only diagnosis, but immediate treatment must be begun early; delay was dangerous. It was a disease of the lymphatic system, and the bacilli should be destroyed in its glands. It could not be said that all disease was carried directly by the lymphatics, but the trend of thought was taking this course. The cure of tuberculosis consisted in establishing an immunity in the broader sense, a certain resisting power. The immunity of various degrees was possible, although immunity might be transitory. In the treatment it was not expected to produce permanent immunity, but a temporary condition. Immunity was a chemical process, and in tuberculosis it was caused by the tubercle bacillus. The blood was flooded with antibodies, while the microorganisms multiplied and set up a wall of defense. Live or dead organisms would produce antibodies, which were specific for the organisms which may be introduced.

The ultimate aim was the establishment of immunity, either by food method of living or injection of toxine. Fresh air, climate, tonics, food, manner of living had their places. There were several methods for producing more blood and more antibodies, such as Finsen's light, Bier's congestion, etc. The opsonic index would be increased by diet and hygienic alone, and this was proved by actual work. By the injection of antitoxine and specific vaccines the opsonic index could be increased, but this was not all. More blood must be brought to the part by Bier's hyperæmic method, and tuberculin produced this local effect. In mixed infection it was possible to treat them after the manner of Wright with much more intelligence. Early diagnosis and prompt treatment was to be accentuated.

Dr. B. E. MCKENZIE said that he had adopted the usual hygienic method, and lately he had been exposing the patients to the sun, baring the parts especially affected with tuberculosis. He believed the results had been better since. He doubted whether Bier was entitled to discovery of the congestive method of treatment. Hugh Thomas, of Liverpool, described this method first.

V. E. HENDERSON, of Toronto, stated that he agreed with Dr. Pottenger in the necessity of early diagnosis and the combination of treatments not by any single method, but by food, air, antitoxines, etc.; all must be given an opportunity.

Dr. F. M. POTTENGER described briefly the opsonic index. Americans were not doing accurate work. It was not impracticable, and he did not believe any one could do this work unless he had seen the work done

by Wright or one of his students. He believed Wright's work was one of the greatest events in modern medicine. He did not believe in the specific action of fresh air; it would act just as well with the healthy nurse; she would gain weight and appear as well as any other patient. We should go further, and use drugs with hygiene.

Pyroligenous Acid and Its Internal Use in Arthritis Deformans.—This paper was read by Dr. LOUIS KOLPIŃSKI, of Washington, D. C. He remarked that pyroligenous acid was first noticed in the last century and advertised as a nostrum, but since then it had been practically forgotten. This very complexed substance was obtained from the dry distillation of wood. It was used in the arts and sciences, and as a table vinegar if properly diluted. It produced diminished alkalinity of the blood. The crude acid had a specific gravity of 1.016 to 1.030, and contained alcohol, creosote, and acetic acid. When purified it was half the strength of the crude. The dose was from 10 to 30 drops, or more. When injected hypodermically it produced vomiting, collapse, and palpitation. The most striking property was its antiseptic action which was known years ago. When applied locally it colored the skin brown. Large doses were fatal to animals, but a cat recovered after 6 drachms had been given. Pyroligenous acid was given as a synonym for impure acetic acid. The taste was that of vinegar, the odor tarry, and it therefore had been called "liquid smoke."

The dose should be pushed until a flatulent dyspepsia was produced, when the dose should be diminished. It might be toxic in cases of cardiac impairment, and the doses of one teaspoonful should never be exceeded. Locally, it acted as a desiccant. In tuberculosis it seemed to be devoid of any action; in rheumatism it showed no improvement, while in epilepsy one patient showed marked improvement. In arthritis deformans it had its greatest field, as it gave relief from pain and stiffness, the swelling disappeared, and movements of the limbs became greater. The fixation could be easily broken up, flexion and extension returned, and the use of the fingers returned.

Dr. KOLPIŃSKI concluded that pyroligenous acid deserved a place in the *Pharmacopœia*. In clinical medicine its full potency was yet to be developed. He also showed a specimen which had been kept in a cask and one which had been kept in a vial for several months. The former was of dark, amber color and tarry odor, while the second specimen was dark brown and of greater specific gravity.

Dr. A. H. HALL reported a case of arthritis deformans which had not been improved by salicylates or the usual remedies or electricity. The jaw and shoulder joint were most affected. He began the use of pyroligenous acid in 2 drachm doses in water every three hours. The joints improved at once, and from a condition of mental depression the patient was converted into a happy woman.

Dr. H. C. WOOD, JR., believed that many remedies might be forgotten which were valuable. He only regretted that the substance was so complex. It was really a mixture of phenol and cresol, and the presence of the acetic acid increased the antiseptic action, and he believed it was this action that was so beneficial. He believed the large doses might or might not be poisonous, depending on the intestinal condition.

Dr. A. B. BLACKADER stated that only a few patients could be benefited or had tendency to spontaneous recovery. He questioned whether we could judge from a few isolated cases of a disease which had baffled the practitioners for years. He admitted the complex substance of the drug might be of some assistance.

Dr. O. T. OSBORNE, of New Haven, Conn., remarked that the condition of the liver and kidney should be

known before the use of this phenol solution, and he believed the good results were due to its action on the bowel, even epilepsy might be benefited. Of course these antiseptics did inhibit some intestinal fermentation and growth of organisms, and the joint pains might be relieved on this account.

Dr. LOUIS KOLPIŃSKI, in closing the discussion, said that he appreciated the drug was a complex substance and believed it should be sifted out and the active principles noted.

The Value of Chemical Substances.—Dr. JOHN BLAKE WHITE, of New York, read this paper. Originally the hypodermic injections were intended for local use. Hunter took a firm stand that the local use of this method was wrong in practice and theory. He had an abiding faith in the remedies we had, but the method of their use was wrong; a judicious selection in the manner of use of the drugs was imperative. We were losing sight of rational therapeutics in our search for sera. To Hunter belonged the credit of hypodermic use of drugs for systemic effect. In the treatment of malarial fever quinine had been administered in $\frac{1}{6}$ the dose given by mouth, with much better effect. There was little certainty about the internal dose. Some explanation might be advanced that certain morbid influences were combated by antitoxines produced by substances injected hypodermically, while the same drug given by the mouth was inefficient.

The subcutaneous and parenchymatous or deep injections were the two methods employed, the first was the only one to be considered. The remedy given this way was not changed by gastrointestinal juices. It might be given to those unable to swallow or where an irritable stomach existed. The public looked upon every hypodermic as an anodyne, and it needed education in this regard. The results he had achieved in the last fifteen years had convinced him that the superiority of the endemic method was unquestioned. Cases of sepsis could best be reached by the hypodermic method, and as a sufferer from this disease he could personally commend it.

In selecting remedies for hypodermic use they should be soluble, nonirritating, and be prepared for idiosyncrasy. As a menstrum pure sterile water was best. The hypodermic syringe should be easily cleaned. He exhibited an antiseptic one consisting of two chambers which did not come into contact with the piston. The thorough cleaning of the field was important, and with a sharp needle the pain would be unnoticed.

Dr. S. L. DAWES, of Albany, N. Y., recommended that the temperature of the solution should be about that of the body. The drug should be completely dissolved. This had often been overlooked by the hurried physician or hospital interne. He wished to know if he could obtain the same results in diphtheria by his antiseptic injection as he could with antitoxine.

Upon Dr. O. T. OSBORNE's question about the exact composition of the injection Dr. John Blake White gave it as carbolated zinc, sodium sulphate, and conine.

Importance of the Recognition of the Natural Course of Disease.—Dr. ALEXANDER MCPHEDRAN, of Toronto, Canada, spoke on this subject. The paper will appear later.

Dr. B. E. MCKENZIE, of Toronto, said that the science of medicine had greatly improved, but it had not approached the accuracy of other sciences. One or two subjects needed special attention. Especially in motor paralysis, the physician often assumed that electricity and massage could bring about cures. In his wide experience the activity of the patient was of more value than anything else, and when a favorable result occurred the treatment was accredited to the electricity or massage.

Dr. THOMAS E. SATTERTHWAITE, of New York, believed Dr. McPhredun was referring to his paper some years ago, and contended that inhibition of growth of bacteria in the intestines was possible by antiseptics. In regard to tuberculosis all pathologists had long recognized that it was a curable disease, but the public had just realized it. The public was forcing the medical man to get a specific. There was too much of the laity in the tuberculosis congress. The results in the laboratory could not be compared to clinical work. The living being was not and could not be made a test tube. In a hospital with which he was connected a complete history in every detail was made and submitted to the joint staff and a vote taken on the diagnosis.

Dr. O. T. OSBORNE said the same history method had been adopted in some Connecticut asylums. The students were told too much and not shown enough. Perfect cleanliness could not be applied to the intestinal tract, but we could remove a large amount of uncleanness by purges.

Dr. F. M. POTTINGER, of Los Angeles, stated that the laboratory was usurping the sphere of the clinician. After we had thoroughly observed, then we should individualize. Each patient could not be treated exactly as one of a great number, but as a case isolated from every other case. Every patient would have his ups and downs, but we should expect it and teach the patient to expect it. The physician was undereducated in the course and treatment of tuberculosis. The laity had a right to force the physicians to take the initiative.

Dr. A. D. BLOCKADER observed that Skoda had been responsible for the teaching of the course of disease and almost produced a skepticism among the profession. One could not fail to have confidence and trust in drugs which would antagonize poisons in the most startling manner, especially in serum therapy. We should discard drugs if we should get good results in the majority of our cases; but if we could modify the course of a disease by the use of a drug then it behaved us to administer that drug well and good.

Dr. H. C. WOOD, JR., thought that medicine was not a science any more than music, which was an art founded on the science of acoustics. The practitioner of medicine was an artist if successful, but he should understand the science which underlies medicine.

Dr. ROBERT REYBURN, of Washington, D. C., said that the young physician was not able to care for the patient as the older physician, although he might have much more thorough knowledge of the etiology and pathology of disease. The time of the individual practitioner had passed and it was to be lamented.

Dr. ALEXANDER MCPHEDRAN closed the discussion. He said that he did not mean to decry antiseptics. It was the patient we should consider. We should get him well. The patient cared not about the diagnosis, but was only interested in the cure. He contended the science of medicine was still growing. He still remained unconvinced regarding intestinal antiseptics. He expected great advances in the science of medicine in the next few years.

The Treatment of Post Partum Eclampsia, with Report of Cases.—Dr. D. OLEN LEECH, of Washington, D. C., in reading this paper, stated that post partum eclampsia was a very different matter from ante partum eclampsia. The sudden onset was startling to the physician, coming on without the slightest warning. The etiology was not known, but it certainly was an auto-intoxication, the poisons of which should be removed by the kidneys. The mortality was much lower in post partum than ante partum eclampsia. The treatment should be to arrest convulsions and eliminate the poison. The prophylaxis was to have good hygiene. Morphine in doses of $\frac{1}{2}$ grain hypodermically should

be given, and was the remedy *par excellence*. Two grains might be given in twenty-four hours. It relieved the anæmia of the brain and assisted in the action of the infusion of digitalis. Chloroform might be administered carefully to surgical anæsthesia. Chloral by rectum was helpful. Veratrum, 10 to 20 minims of the tincture, should be given every hour until the pulse was 60, and its action was the same as venesection. He was enthusiastic about its use. It acted by its active principle jervine, diminishing congestion of the brain and cord. The poison was to be eliminated by the skin, kidneys, and bowels. An enema should be given, and large quantity of water by mouth or rectum. Salt solution should be given under the skin or by the bowel. Diuretics containing potash salts were not advisable. Six ounces of good milk every two hours should be given. The bowels should be cleaned by repeated enemata and followed with one pint of salt solution. Hot water pack or hot air bath promoted the action of the skin. The hot air bath should not last over an hour, and caution was needed to prevent burning of the patient. Pilocarpine was a dangerous drug to use. Hot sponge baths of a solution of sodium bicarbonate was valuable. Movement of the bowels might be secured by magnesium sulphate through a stomach tube. Venesection was rarely employed now. In post partum convulsions there was no scope for surgery. The after treatment was simple, and of the drugs strychnine was best. The urine should be tested for albumin daily, and the total amount in twenty-four hours noted. He cited three cases.

Dr. H. C. WOOD, JR., of Philadelphia, observed that in regard to veratrum he knew nothing of its use in eclampsia, but he did not believe it acted as the essayist indicated. It was not a vasomotor dilator, for the lowered blood pressure was due to the slowing of the pulse. Jervine was not the active principle. Protovetrine was to be considered. If the tenth nerves were cut the blood pressure was not lowered by veratrum, but raised. In about fifty experiments this was his nearly uniform result. Jervine had been the drug with which the experiments had formerly been made, and we knew now that they were based on a wrong assumption.

Dr. W. M. SPRIGG thought that the elimination of urea was more important than the albumin as an index; the latter was misleading, but with a small amount of urea we had a danger signal. The treatment of post partum eclampsia was very much like ante partum eclampsia, except it had the advantage of no placenta to contend with. The placenta might be the source of the intoxication.

Dr. JOSEPH E. JANVRI congratulated Dr. Leech on his very valuable paper.

Dr. ROBERT REYBURN agreed with Dr. Sprigg in all that he had said concerning the importance of urea as an indication of proper metabolism. He recited a case of high blood pressure which seemed to be the cause, for the patient reacted at once on bleeding.

Dr. PHILIP KING BROWN, of San Francisco, said that it has been shown very conclusively that nitrogenous metabolism had nothing whatever to do with urea and was foreign to the convulsions. In many cases in which urea nitrogen was very low, there had been no convulsions. We had reason to believe that when urea was retained, some other product also was retained, but just where or what this material was remained to be shown. Perhaps the thyroids played a very prominent part.

Dr. W. A. CAMPBELL, of Colorado Springs, had seen a number of such patients. He removed clots from the uterus several times, and the convulsions ceased at once. He believed it was a toxine for which the placenta was responsible.

(To be continued.)

Letters to the Editors.

ENZYMES. OPSONINS. CARIES OF TEETH.

NEW YORK, June 8, 1907.

To the Editors: Research by Behring, Louisson, Buchner, Cohnheim, Hektoen, and others seem to prove that Metchnikoff's phagocytes have aid in protecting tissues and fluids, and that such aid may destroy bacteria.

In a current issue of the *Lancet* occurs the following: "Bactericidal Properties of Tears. Dr. C. Lindhal has examined the bactericidal powers of tears and found them very pronounced to staphylococci and streptococci, but not, as a rule, to pneumococci. The bactericidal effect is not due to the inorganic components of the fluid, but partly to the leucocytes, and, it would seem, partly also to certain substances of enzyme nature present in tears. Thus, lacrimal fluid that has been heated to a certain temperature and afterward cooled again to the normal fails to prevent the growth of bacteria to the same degree as when it has not undergone any previous heating."

By mechanical irritation, by fermentative disintegration, by attachment, encroachment, displacement, or penetration, also by alteration, absorption, displacement, transfer, or formation of solids, liquids, or gases, enzymes may so alter the structure of bacteria or the environment of bacteria that injurious bacteria perish, are expelled, become inert, or transferred, while native bacteria are encouraged to increase or to diminish, i. e., kept at normal. Enzymes in this manner may aid Metchnikoff's phagocytes in expelling or absorbing foreign bodies or transferring foreign bodies to other tissues or fluids where they will be less harmful. Enzymes may protect against pathogenic invasion in some fluids and tissues wholly or partially unprotected by phagocytes.

Enzymes, organic and inorganic constituents of the saliva, motions of the tongue, teeth, lips, and jaws, by destroying bacteria, may, more than density of tooth structure, prevent, arrest, and resist caries of the teeth. In some saliva potassium sulphocyanide may destroy bacteria. Often mouths are seen in which saliva itself seems to sustain tooth destroying bacteria.

Soil favorable to tooth destroying bacteria may be attacked, penetrated, disintegrated by enzymes and thus dislodged from sulci, interdental spaces, and cavities of decay.

Destructive caries of the teeth in disease and in pregnancy may be due to a lack of bactericidal quality of the saliva, abnormal enzymosis, excessive dilution or concentration of the saliva, excess of certain salivary constituents in which bacteria thrive, or deficiency of certain constituents of saliva which destroy bacteria. Again, the motions of teeth, lips, tongue, jaws, and saliva may play parts.

But Robertson, Miller, Black, and others who have been referred to this subject in writing have left little to be added to the literature concerning the etiology of caries of the teeth.

NORBURNE B. JENKINS.

HORIZONTAL UNILATERAL NYSTAGMUS.

2040 SEVENTH AVENUE.

NEW YORK, June 23, 1907.

To the Editors: I beg to report this case on account of its great rarity. Master F., aged four years and a half, was brought to my clinic for examination. The family and personal histories were negative as to rheumatic, tuberculous, and venereal diseases. The patient, born at the age of seven months, he also suffered from a tuberculous baby, and as a result has gained some of the features there is nothing of note

Examination.—O. D. fingers at 40 feet. Cornea clear, media clear. Fundus normal. No muscular insufficiency. No squint. O. S., 20/20 E. Cornea and media clear, fundus normal. No muscular insufficiency or squint.

I merely wish to add my case to those compiled by Dr. Duane in 1905 (*New York State Journal of Medicine*). Dr. Duane reports fifty-two cases of unilateral nystagmus, and classifies them as follows: Thirty-four were vertical, eleven were horizontal, five were rotary, and two were mixed.

Cases of the horizontal variety have been reported as follows: Two by Norrie, one by von Reuss, one by Eversbush, one by Sachs, one by Boulard, one by Nagel, one by Neustatter, one by Oppenheimer, one by Knapp, and one by Duane—eleven in all.

A. J. HERZIG.

Book Notices.

Les Formes postérieures de l'appendicite. Par P. VIGNARD, chirurgien des hôpitaux, P. CAVAILLON, professeur à la faculté, et A. CHABANON, interne des hôpitaux de Lyon. Paris: A. Poinat, 1907. Pp. 143.

This pamphlet consists of two separate essays—on the retrocecal and retrocolic intraperitoneal suppuration resulting from appendicular inflammation, by Dr. Vignard; and on the retroperitoneal suppuration caused by the same disease, by Dr. Cavaillon and Dr. Chabanon, all three of Lyons.

With the exception of a *Thèse* by Nicod (Paris, 1904), the retrocecal form has not been fully described in the surgical literature of France. Dr. Vignard has therefore undertaken to review the international literature on this subject on the basis of having treated fifty-six patients during the last two years. He cites fifteen of his own cases, and adds—very interestingly—a short description of the attack to which Gambetta succumbed. The subject of the second part is also well taken care of by the two authors.

The theme of appendicular disease is so exhausted in our own literature that hardly anything new can be added to it. But the three French writers do full justice to the question, and show that they are well acquainted with the literature on perityphlitis.

Conférences pratiques sur les maladies du cœur et des poumons. Par le Dr. LOUIS RÉNON, Professeur agrégé à la faculté de médecine de Paris, etc. Paris: Masson et Cie., 1906.

In these admirable clinical lectures, delivered by Professor Rénon at La Pitié, many of the most important subjects in the pathology, diagnosis, and treatment of diseases of the chest are discussed in the concise, lucid style so characteristic of the best in French medical literature. Among the wide range of topics treated are diet in heart disease, cardiorenal cachexia, acute aneurysm of the arch of the aorta of rheumatic origin, mitral stenosis, syphilitic aortitis, acute dilatation of the heart, the pleuritis and embolisms of heart disease, toxic pericarditis, the pneumonias of alcoholics, subcutaneous emphysema occurring in the course of pulmonary tuberculous disease, the association of syphilis and tuberculous disease, tuberculous disease and pregnancy, and the early diagnosis and treatment of pulmonary consumption by diet, medicines, and fresh air. It is interesting to note that in France, as therapeutic procedures, hypodermic medication, opotherapy, lumbar puncture, dry and wet cups, and, in the treatment of cardiac and renal dropsies, elimination of salt from the diet (Widal) are more frequently resorted to than in this country. In a most instructive address to his students on the right sided pleuritis of heart disease, the result of infarction, M. Rénon directs attention to the frequency of a latent form, first described by Hochard,

in which the effusion takes place between the base of the lung and the diaphragm, displacing the liver downward and thus producing an apparent great increase in the area of hepatic dulness which may confuse and render difficult the true diagnosis. The author regards tobacco as a vascular poison and its abuse as a potent agent for harm in the production of the degenerative changes which result in arteriosclerosis. In cases of compensated cardiac lesions without oedema, he does not consider the skilful administration of chloroform by a competent anaesthetist to be more dangerous than for patients free from cardiac disease. The importance of safeguarding diabetics from tuberculous infection is justly emphasized.

Elements of Practical Medicine. By ALFRED H. CARTER, M. D., M. Sc., Fellow of the Royal College of Physicians, London, etc. Ninth Edition. London: H. K. Lewis, 1906. Pp. 614.

This is a confessedly elementary work, designed for students as an introduction to the study of medicine. The arrangement of the subject matter is well enough planned, and the author's statements are conservative and based upon a familiarity with the best modern writers, but the treatment of the whole field of medicine in a volume of this size is necessarily meagre and inadequate from every point of view. We doubt very much whether such books are not a positive injury to the student by diverting him from more authoritative literature and by encouraging in him a lazy habit of superficiality. A medical student whose preliminary education is what it should be needs no introduction or preparation for the study of the standard textbooks, and the author himself would probably agree that his compilation could not be considered to be in this class. The fact, however, that it has reached a ninth edition shows that it meets a large demand for the class of men for whom it is written.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Le Travail intellectuel et les fonctions de l'organisme. Par A. Maïret, professeur de clinique des maladies mentales et nerveuses à la Faculté de Montpellier, et J. E. Florence, chef de laboratoire de la clinique des maladies mentales et nerveuses. Montpellier: Coulet et Fils; Paris: Mason et Cie, 1907. Pp. 128.

Leçons de thérapeutique pratique. Par G. Rauzier, professeur adjoint à la Faculté de médecine de Montpellier. Préface de M. le Professeur Albert Robin, membre de l'Académie de médecine. Montpellier: Coulet et Fils; Paris: Masson et Cie, 1907. Pp. 382.

Die Impotenz des Mannes. Für Aerzte dargestellt. Von Dr. Orolowski, Spezialarzt in Berlin. Würzburg: A. Stuber, 1907.

The Common Bacterial Infections of the Digestive Tract and the Intoxications Arising from Them. By C. A. Herter, M. D., Professor of Pharmacology and Therapeutics in Columbia University, Consulting Physician to the City Hospital, New York. New York: The Macmillan Company; London: Macmillan & Co., Ltd., 1907. Pp. x-360.

Lehrbuch der Arzneimittellehre. Von Prof. R. Heinz, in Erlangen. Jena: Gustav Fischer, 1907. Pp. 420.

Atlas and Epitome of Diseases of Children. By Dr. R. Hecker and Dr. J. Grunip, of the University of Munich. Authorized translation from the German. Edited by Isaac A. Alt, M. D., Assistant Professor of the Diseases of Children in Rush Medical College. Philadelphia and London: W. B. Saunders Company, 1907.

Food, Its Relation to Health and Disease. By Ephraim Cutter, M. D., A. B., LL. D., and Luke A. Johnson, Cutter, M. D., B. Sc. New York: The Gazette Publishing Company, 1907.

Modern Methods of Diagnosis in Urology Surgery. By Edward Deaneley, M. D., B. Sc., F. R. C. S., Hon. Surgeon, Wolverhampton and Staffordshire General Hospital. London: H. K. Lewis, 1907.

Report of the Commissioner of Education for the Year Ending June 30, 1906. Volume I. Washington: Government Printing Office, 1907.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague, have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending July 5, 1907:

Smallpox—United States.		Cases. Deaths.	
Places.	Date.		
Dist. of Columbia—Washington.	June 15-22.	1	
Illinois—Chicago.	June 15-22.	1	
Illinois—Galesburg.	June 15-22.	1	
Illinois—Springfield.	June 20-27.	1	
Indiana—Indianapolis.	June 16-23.	2	
Indiana—Lafayette.	June 17-24.	2	
Indiana—South Bend.	June 15-22.	2	
Kansas—Kansas City.	June 15-22.	4	
Kentucky—Covington.	June 22-29.	5	
Kentucky—Louisville.	June 21-28.	2	
Louisiana—New Orleans.	June 15-22.	5	1
Massachusetts—Lawrence.	June 15-22.	2	
Michigan—Detroit.	June 15-22.	22	
Minnesota—General.	May 1-June 16.	516	
Missouri—St. Joseph.	June 15-22.	2	
Missouri—St. Louis.	June 15-22.	5	
Ohio—Toledo.	May 18-25.	24	
Tennessee—Nashville.	June 23-30.	2	
Texas—San Antonio.	June 15-22.	2	
Virginia—Richmond.	June 15-22.	3	
Washington—Spokane.	June 15-22.	3	
Wisconsin—Milwaukee.	June 15-22.	3	
Smallpox—Foreign.			
Africa—Lopono Mariquez.	Apr. 1-30.	1	3
Austria—Trieste.	May 25-June 1.	1	
China—Hankau.	May 11-18.	Present.	
China—Shanghai.	May 11-18.	2 foreign; native 20	
Ecuador—Guayaquil.	May 1-31.	4	
Egypt—Cairo.	May 20-June 3.	6	
France—Cannes.	May 1-31.	9	2
France—Nice.	May 1-31.	1	
France—Paris.	May 1-31.	10	
India—Bombay.	May 14-21.	1	
Italy—General.	June 6-13.	27	
Java—Batavia.	May 11-18.	4	
Korea—Seoul.	May 18-25.	Present.	
Madeira—Funchal.	June 2-16.	44	
Manchuria—Dahly.	May 18-June 1.	15	
Mexico—Aguas Calientes.	June 15-22.	5	
Portugal—Lisbon.	June 15-22.	16	
Russia—Moscow.	May 25-June 8.	17	4
Russia—Odessa.	June 1-8.	2	
Russia—Riga.	June 1-8.	14	
Russia—St. Petersburg.	May 11-18.	27	2
Spain—Almeria.	May 1-31.	1	
Spain—Barcelona.	June 1-10.	4	
Spain—Cadiz.	May 1-31.	6	
Spain—Huelva.	May 1-31.	1	
Spain—Seville.	May 1-31.	15	
Spain—Valencia.	June 9-16.	12	
Straits Settlements—Singapore.	Apr. 27-May 4.	1	
Turkey—Bagdad.	May 11-18.	Present.	
Turkey—Constantinople.	May 15-June 2.	3	
Yellow Fever—Foreign.			
Brazil—Manaos.	May 11-18.	1	
Cuba—Habana.	June 24.	1	
Cholera—Foreign.			
Ecuador—Guayaquil.	May 1-31.	From United States 5	
Guatemala—Puerto Barrios.	June 27.	1	
Cholera—American.			
India—Rangoon.	May 4-11.	9	
Cholera—Foreign.			
China—Atongastag.	May 18-25.	30	13
Egypt—Alexandria.	May 30-June 6.	2	
Egypt—Assiut Province.	May 30-June 6.	2	
Egypt—Beni Souf Province.	May 30-June 6.	4	
Egypt—Kerch Province.	May 30-June 6.	42	42
Egypt—Mench Province.	May 30-June 6.	6	
India—General.	May 1-11.	91,275	82,400
India—General.	May 11-18.	77,777	67,687
India—Bombay.	May 1-11.	12	
India—Rangoon.	May 4-11.	1	
India—Calcutta.	May 18-June 1.	2	
India—Chitalpore.	May 18-June 1.	2	
India—Madras.	May 18-June 1.	1	
India—Mysore.	May 18-June 1.	1	
India—Pondicherry.	May 18-June 1.	1	
India—Madrado.	May 18-June 1.	1	
India—Panaji.	May 18-June 1.	1	

Public Health and Marine Hospital Service:

Off. of Pub. H. & M. H. S. at the National Academy of Medicine, 11th St. N. W., Washington, D. C. 20001. Health Reports, Vol. 1, No. 1, 1907.

REPORTS OF THE SURGEON GENERAL, UNITED STATES PUBLIC HEALTH AND MARINE HOSPITAL SERVICE, FOR THE YEAR ENDING JUNE 30, 1906. VOLUME I. WASHINGTON: GOVERNMENT PRINTING OFFICE, 1907.

- McINTOSH, W. P., Surgeon. Granted leave of absence for one month and fifteen days, from July 25, 1907.
- SAFFORD, W. V., Acting Assistant Surgeon. Directed to proceed to Richford, Vt., for special temporary duty, upon completion of which to rejoin his station at Boston.
- SALMON, T. W., Assistant Surgeon. Directed to proceed to Richford, Vt., for special temporary duty, upon completion of which to rejoin his station at Boston.
- SCHERESCHEWSKY, J. W., Passed Assistant Surgeon. Granted leave of absence for one month, from August 1, 1907.
- SIMPSON, FRIENCH, Assistant Surgeon. Granted leave of absence for seven days, from June 22, 1907, under paragraph 191, Service Regulations.
- STANSFIELD, H. A., Passed Assistant Surgeon. Relieved from duty at Havana, Cuba, and directed to report at the Bureau of Medicine and Surgery, Washington, D. C.
- STEVENSON, J. W., Acting Assistant Surgeon. Granted leave of absence for twenty days, from July 5, 1907, and excused, without pay, for the further period of two months.
- STIMPSON, W. G., Surgeon. Directed to proceed to Beltingham, Wash., for special temporary duty, upon completion of which to rejoin station; order granting leave of absence for fifteen days amended to read for twelve days only.
- STODDARD, G. S., Acting Assistant Surgeon. Granted leave of absence for thirty days, from May 20, 1907.
- SWEET, E. A., Assistant Surgeon. Order granting leave of absence for fourteen days amended to read for eight days only.
- TARELL, B. C., Acting Assistant Surgeon. Order granting leave of absence for ten days, from April 15, 1907, revoked; granted leave of absence for thirty days, from May 15, 1907.

Boards Convened.

A board of medical officers was convened to meet at Richford, Vt., for the examination of an alien immigrant. Detail for the board: Assistant Surgeon T. W. Salmon, Chairman; Acting Assistant Surgeon M. V. Safford; Acting Assistant Surgeon J. H. Hamilton, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending July 6, 1907:

- BARTLETT, W. K., First Lieutenant and Assistant Surgeon. Ordered to proceed to San Francisco, Cal., and report in person to the Medical Superintendent of the Army Transport Service in that city for duty as surgeon of the *Buford* during the trip of that transport to the Philippine Islands, and upon arrival at Manila will report in person to the commanding general, Philippines Division, for assignment to duty.
- CROSBY, W. D., Major and Surgeon. In addition to present duties, will report in person to the president of the Army Medical School, at the Army Medical Museum, Washington, D. C., for duty as instructor, vice Major W. C. Burden, surgeon. Also detailed a member of the board to determine the results of preliminary examination of applicants, and final examination of candidates for admission to the Medical Corps, vice Major W. C. Burden, surgeon.
- MACY, FREDERICK S., First Lieutenant and Assistant Surgeon. Ordered to Fort Williams, Maine, for duty.
- O'CONNOR, R. P., Captain and Assistant Surgeon. Granted leave of absence for thirty days.

The following named medical officers will proceed to San Francisco, Cal., and take transport to sail from that place about July 25th, for the Philippine Islands, and upon arrival at Manila will report in person to the commanding general, Philippines Division, for assignment to duty:

- BRYAN, R. W., First Lieutenant and Assistant Surgeon.
- CHRISTIE, A. C., First Lieutenant and Assistant Surgeon.
- GOSTIN, B. S., First Lieutenant and Assistant Surgeon.
- JOHNSON, H. H., First Lieutenant and Assistant Surgeon.
- KING, EDGAR, First Lieutenant and Assistant Surgeon.
- PILLSBURY, H. C., First Lieutenant and Assistant Surgeon.
- RICHARDSON, W. H., First Lieutenant and Assistant Surgeon.

RUKKE, G. V., First Lieutenant and Assistant Surgeon.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending July 6, 1907:

- BUNKER, C. W. O., Acting Assistant Surgeon. Appointed an acting assistant surgeon, from June 29, 1907.
- DIEHL, O., Surgeon. Ordered to the *Lancaster*.
- GROW, E. J., Surgeon. Detached from the Marine Recruiting Station, New York, N. Y., and ordered to the Naval Hospital, Navy Yard, Washington, D. C.
- NORTON, O. D., Surgeon. Detached from the *Missouri* and ordered to the Marine Recruiting Station, New York, N. Y., and to additional duty in attendance upon officers and men of the Navy and Marine Corps in New York city not otherwise provided with medical attendance.
- RUSSELL, A. C. H., Surgeon. Detached from the Bureau of Medicine and Surgery, Navy Department, July 15th, and granted sick leave for three months.
- SPEAR, R., Surgeon. Ordered to the Navy Yard, League Island, Pa.
- SPRATLING, L. W., Surgeon. Detached from the Navy Yard, League Island, Pa., and ordered to the *Missouri*.
- The following were appointed assistant surgeons from June 29, 1907: O. V. Huffman, H. A. Garrison, M. E. Rose, J. T. Miller, and G. B. Tribble.

Births, Marriages, and Deaths.

Married.

BEHRMAN—WALKER.—In Cincinnati, Ohio, on Thursday, June 27th, Dr. Oscar Behrman and Miss Marie E. Walker.

EGERTON—MOORE.—In Danville, Virginia, on Wednesday, June 26th, Dr. Kennon W. Egerton and Miss Mary Agnes Moore.

HOLBROOK—COLLINS.—In Boston, on Monday, July 1st, Dr. Bradbury Holbrook and Miss Norena Collins.

JONES—BURK.—In Philadelphia, on Saturday, June 29th, Dr. John F. X. Jones and Miss Helen Burk.

LEAMY—DOLPHIN.—In Wilmington, Delaware, on Saturday, June 29th, Dr. Lebarre Jayne Leamy, of Philadelphia, and Miss Beatrice P. Magill Dolphin.

TALMEY—OSBORNE.—In New York, on Thursday, June 27th, Dr. Bernard S. Talmev and Miss Cecelia Osborne.

Died.

BRADLEY.—In Evanston, Illinois, on Sunday, June 30th, Dr. William Bradley, aged sixty-nine years.

CARRIER.—In Detroit, Michigan, on Thursday, July 4th, Dr. Albert E. Carrier, aged sixty-six years.

CHAMPLIN.—In Chicago, on Wednesday, June 26th, Dr. Alfred H. Champlin, aged sixty-seven years.

DERBY.—In Litchfield, Connecticut, on Thursday, July 4th, Dr. Richard Henry Derby, of New York, aged sixty-three years.

FISHER.—In Bedford, Kentucky, on Monday, July 1st, Mrs. Kate Fisher, wife of Dr. S. K. Fisher.

FORD.—In Brooklyn, on Tuesday, July 2nd, Dr. Alfred W. Ford, aged fifty-four years.

HOY.—In Altoona, Pennsylvania, on Friday, July 5th, Dr. H. K. Hoy, aged fifty-eight years.

NELSON.—In Taberg, N. Y., on Wednesday, June 26th, Dr. William H. Nelson, aged seventy-seven years.

OTIS.—In Poughkeepsie, N. Y., on Sunday, June 30th, Dr. John H. Otis, aged thirty-six years.

PEACOCKE.—In Brooklyn, on Wednesday, July 3rd, Dr. John Monsell Peacocke, aged fifty-nine years.

PLATTS.—In St. Louis, Missouri, on Wednesday, June 26th, Dr. Clyde P. Platts, of White City, Florida, aged thirty-six years.

REINERT.—In Hartford, Connecticut, on Friday, June 28th, Dr. Christian Frederick Reinert, aged sixty-nine years.

VOSE.—In Brooklyn, on Thursday, June 27th, Dr. Franklin J. Vose, aged fifty-six years.

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A REPORT OF CASES OF LANDOUZY-DEJERINE MYOPATHY (CONGENITAL), THOMSEN'S DISEASE, AND ENCHONDROMA OF THE HYPOPHYSIS,

And of Other Cases of Rare Types of Muscular Dystrophy and Anteriopoliomyelitis, with Remarks.

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The following cases are presented to illustrate some unusual symptoms in certain types of nervous disease, and inasmuch as the types are fairly well known, only the unusual features will be emphasized in the case abstracts.¹

A Case of Landouzy-Déjérine Form of Myopathy (Congenital).

CASE I.—R. M. F., male, *æt.* five, was first seen in February, 1907. The family history is as follows: The father, a salesman, had rheumatism; one paternal aunt was insane; the maternal grandmother had asthma. The patient is the second and a normal birth; the first was a miscarriage, and the third a bright and healthy girl. There is no form of dystrophy in the family. In infancy the patient was unable to suckle properly from the beginning, though he was able to swallow, and nourishment was supplied to him from a bottle in the nipple of which a large hole was cut so that while lying on his back the milk could flow into his mouth and throat. The patient had had whooping cough, chickenpox, summer diarrhea, and tonsillitis; he also had adenoids and was tongue tied; and operations were performed on the tongue and to remove the tonsils and adenoids.

The nature of the child's disease gives it an appearance of mental deficiency, which is, however, apparent only (see Fig. 1).² He is timid. There seems to be no disturbance of the special senses or of general sensibility, except that hearing is diminished to about one fourth. An eye report by Dr. Tyson was as follows: Exophoria, 1; adduction, 12; abduction, 7; sursumduction, deorsumduction, 2° each; exophoria, 5 for near. The other cranial nerves are intact. The muscles of mastication and of deglutition, and the laryngeal mus-

cles are unaffected. The patient began to walk at the age of fourteen months and made the ordinary movements of all the limbs; but the mother has never noticed any movements of the facial muscles except lately slight movements subsequently to be described. There is very little involvement of the tongue. The boy can make the associated lip movement sufficiently to permit "troughing" of the tongue. There is no fibrillation to be found anywhere; also no pain, no



FIG. 1. Shows a case of Landouzy-Déjérine myopathy with mother and sister. A family resemblance is obvious. The mother and sister are quite free from the disease.

vasomotor disturbance, no skin or bone trophic disorder, and the sphincters are normal.

The mechanical irritability in the affected muscles is less than normal, and their faradaic and galvanic excitability, as far as it could be tested in the child, seems to be diminished, but there appears to be no reaction of degeneration. The knee jerks are absent.

The chief facial muscles affected are as follows: The zygomatics, as shown by the loss of the labiofacial fold; the risorii and orbicularis oris, the patient being unable to whistle, to change expression as in crying, or to articulate clearly labials and linguals; there are no movements of the corners of the mouth in smiling; the eyelids cannot be made to meet even with strong effort, being then about 25 mm. apart left, and 20 mm. right, as shown in Fig. 2. The corrugator

¹ These cases are from the service of Dr. M. Allen Starr and published with his kind permission. They were all presented at the Neurological Society, New York.

² We are indebted to Dr. Shoup, of the Clinic, for many of the photographs appearing in the paper.

supercilii and the occipito frontales are inactive. There is no movement to puff out the cheeks, but there is some ability to compress them and to slightly move the right levator alae nasi. The appearance of the face is somewhat analogous to the appearance in myasthenia

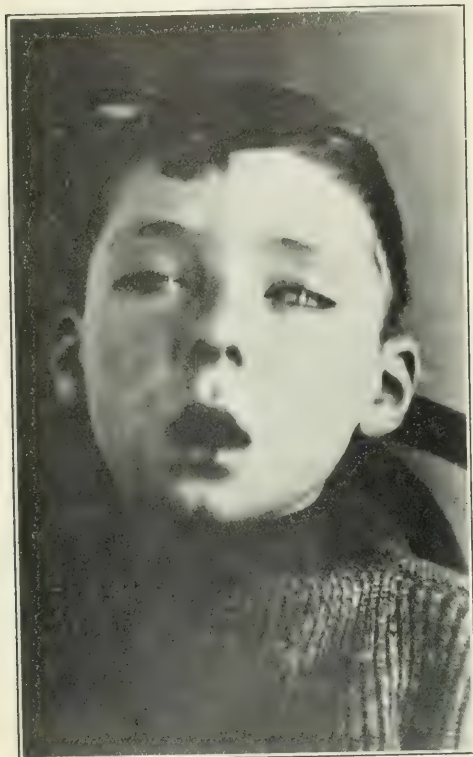


FIG. 2. Shows case of Landouzy-Déjérine myopathy in attempt to forcibly close the eyes and to smile.

gravis and the muscles in which there is some activity become quickly exhausted. The child was too timid to permit trying for the electrical myasthenic reaction. Wasting in the facial muscles is not at present demonstrable.

A report on alterations in speech by Dr. Scripture showed that for *p* and *b*, as in "peanuts" and "Boston baked beans," the lips were brought together only in the middle; this would indicate normal action of the mentalis muscles and a weakness of the orbicularis oris. When not fatigued the muscular action was better, *p* being always and *b* often correctly made. Instead of bringing the lower lip against the upper front teeth as is required for *f* and *v*, the patient brings the two lips near together, thus substituting the easier sound of the Greek phi for *f*. When fatigued the patient says "m" and "dm" instead of "thin" and "thine"; that is, instead of forming a narrow passage over the tongue he rests the tongue against the upper alveolae. When not fatigued the sounds are made correctly. The adjustment depends on the tongue muscles. When fatigued "soup" is pronounced as "moup," but the *s* is properly made when no fatigue is present. The sounds *l*, *d*, *k*, *g*, and also *sh* were correctly made at all times.

The supraspinati and infraspinati on each side are very markedly atrophied, and there appears to be a slight weakness of the right sternocleidomastoid and omohyoid muscles, and a marked weakness of most of the shoulder girdle muscles, as shown by slipping through on lifting the boy by the axilla. The serratus magnus, rhomboids, and pectorals are weak in the order mentioned. The right triceps is weak, the biceps fairly strong. The left arm is stronger than the right. The extensors and flexors of the wrist seem to have good power, also the intrinsic muscles of the hands. There is considerable hypotonia of the fingers of both hands. The recti are weak; also the glutei and hamstrings, right and left. The quadriceps, adductors, and abductors are normal; also the erector spinae. The right anterior tibial and peroneal are weak. The left extensors of the foot, long and short, are weak. The left anterior tibial and peroneal muscle groups are weak and slightly atrophied. The left foot is in moderate degree of varus. The patient is lefthanded. His measurements are as follows: Upper arm, left, 15½ cm.; right, 15 cm.; lower arm, left and right, 15½ cm. each. Thighs, left and right, each 29 cm. Legs, left, 20½ cm.; right, 22 cm.

This case is of interest on account of the early development of the symptoms, as shown by the lack of facial expression and inability to suckle, the condition being apparently a primary congenital defect.

A careful examination of the literature discloses fewer than twenty-five authentic recorded cases of Landouzy-Déjérine myopathy and no congenital cases.



FIG. 3. Myopathic faces in case of Landouzy-Déjérine myopathy.

The disease is also known as the facioscapulohumeral type of progressive muscular dystrophy, or myopathy. In a classical case, symptoms first appear between the ages of two and five; the onset of muscular weakness and atrophy is in the face, myopathic facies (see Fig. 3); next there is progressive involvement of the limbs beginning at the shoulder girdle and extending to the upper arm, chest,

and lower limbs. There is an absence of hypertrophy. The affection may remain limited to the face for from five to fourteen years, producing, however, a characteristic picture. There is bilateral lack of expression; the eyes seem wider open, the lips prominent; emotional movements are lost. The



FIG. 4. Attempt to close eyes and smile: Landouzy-Déjérine myopathy.

masseters are not affected, nor the temporals and pterygoids. It was formerly thought that the muscles of the eyeball were always free. The eyes can not be completely closed. Whistling, blowing, etc., become difficult and later impossible. After the facial muscles, the progress of the lesion is more or less symmetrical. When the intrinsic muscles of the hands suffer it is usually late in the disease. The hand then approaches the simian type. Forms of talipes arise from involvement of the leg. Involvement of the back sometimes induces lordosis. Exceptionally, and to a limited extent, the atrophic process may affect the deep muscles of the neck, the intercostals, the diaphragm, the muscles of the abdominal wall. Sensation remains intact; the sphincters are never involved. The affected muscles present no fibrillary twitching. The electrical contractility is diminished, deep reflex is absent. The facial period and the scapulohumeral period, respectively, are usually followed by stages of temporary arrest. Death is sometimes delayed from twenty to forty years and is always from some intercurrent disease (e. g., tuberculosis). Isolated cases in a family are rare.

The primary myopathies are considered as sequel to defective vitality (abiopathy of Gowers); the result of a primary developmental tendency involving the muscular tissue only, and are not regarded as a secondary result of the interstitial changes to any material degree. The chief changes are a narrowing of the fibres and disappearance of transverse striation. Longitudinal striation, fissuring, or vacuolation may be present. The spinal cord and

nerves are normal or present certain secondary degenerative changes which have no relation to the myopathy.

Cases beginning between the ages of fourteen and twenty-five years are not rare; and some cases appear in the shoulder girdle before being noticed in the face.

Our case presents the following variations from the classical type: Firstly, the malady was congenital and exhibited itself in the facies and in the inability to suckle. In this respect the case appears to be unique. Secondly, there is some involvement of the muscles moving the eyeball, as shown in the eye report. These muscles were supposed until recently to be always unaffected. Thirdly, there is no heredity. This is very rare, as heredity in these cases is considered to be one of the diagnostic features above all other types of dystrophy. Again the supraspinati and infraspinati are markedly atrophied in this case; and these muscles frequently escape. The other symptoms are more or less typical, including the voice changes which we have studied more carefully than heretofore.

CASE II.—This is one of peroneal dystrophy (Charcot-Marie-Tooth). The patient is a boy of ten years of age. Paternal grandfather had asthma, paternal grandmother died of diabetes, and maternal grandfather died of cancer. No member of patient's family had any form of dystrophy. The boy had fever with dention; dention was somewhat delayed and imperfect; otherwise our patient was a vigorous child. He learned to walk at one year of age, and then stopped walking for days without apparent cause. He had measles at three, pneumonia at five, diphtheria at six, and scarlet fever at six years six months. The family noticed nothing abnormal in the muscles until eight months ago, when the boy began to turn the left foot out, drag it in walking, and walked flat footed with the right. The condition steadily progressed. Six months ago he had difficulty in going up stairs, this difficulty has steadily increased.

The patient now presents a marked degree of left clubfoot of the varus type. The right foot shows a slight grade of talipes valgus. The peronei on the left side are weak and atrophic; the peronei and the outer part of the soleus on the right are hypertrophic, but weak in contractile power. Left quadriceps is much weaker than the right, although both are deficient. Knee jerks are absent, and all the affected muscles show diminished excitability to both currents.



FIG. 5. Landouzy-Déjérine type of myopathy.

There is a moderate degree of lordosis. The entire musculature of the shoulder girdle is slightly affected with hypertrophy, weakness, fibrillation, or fasciculation, and the right infraspinatus is especially prominent in enlargement. The muscular fasciculation induces a sort of choreiform movement in the hands and fingers. There is an extreme hypotonia in the fingers, showing advanced disease in the small muscles of the hands (see Fig. 6).

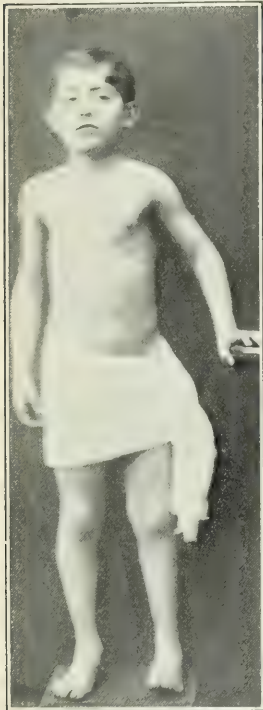


FIG. 6.—Peroneal dystrophy. Left peroneal atrophy and beginning club foot; right peroneal hypertrophy.

mitted from below; nor the likelihood that the whole process, peripheral as well as central, is a defect in vital energy of the neuromuscular apparatus in totality. The view of the neuritic nature of the affection is greatly strengthened by the fact that the affection occurs so frequently after an infectious disease, as is so exquisitely shown in our own case. An infection could easily induce that which it alone might produce. Some cases (as also shown in ours), show the transition phase of dystrophy and progressive muscular atrophy syndrome combined. Hoffmann's cases also show that peroneal and juvenile forms may be associated in the same case. Thus, as in our case, it may be questioned whether peroneal dystrophy is much out of place when classed with the general type of myopathies.

A Case of Thomsen's Disease Associated with Recurring Attacks of Oculomotor Palsy (Ophthalmic Migraine).

CASE III.—Man, twenty-three years of age, single, bookkeeper, born in Scotland, lived in U. S. ten years.

Patient applied at the clinic in November, 1906, complaining of muscular stiffness and weakness, worse after rest, and after mental excitement, and gradually disappearing with use; he also had left sided head pains, left ptosis, etc., when first seen.

Family History.—All relatives live in Scotland. Mother had rheumatic fever at time of his birth, was a sufferer from sick headaches, and later had fits. Father's sister was rheumatic for ten years. Father was healthy and grandparents were healthy and lived to be over eighty. Patient's sister, now thirty-five, had had the same muscular disorder as patient but to a less marked degree. She wrote that her earliest recollection of it is at the age of ten. She had also been

much constipated and had headaches, but did not speak of any eye trouble. Of late she had no headaches; her bowels were regular, and the "club" (as she called her myotonia) was not at all severe. She can now go up and down stairs better and the trouble is not so bad in her hands. His oldest brother wrote that he also had the same disorder when a child; when about ten he could not start quickly to run. He said, however, it left him completely. Remaining relatives had been healthy, no other cases of epilepsy than mother, and no other hereditary disorders were ascertained.

Previous History.

—As a child patient had pneumonia and incontinence of urine. At eleven or twelve he went up stairs slowly and could not lift heavy things. At twelve he also began having migraine attacks (left), with vomiting, etc., and these attacks recurred at intervals of six or eight weeks or thereabouts since; and from this age (or younger) he had been very constipated. At seventeen the left eyelid began to droop noticeably during the attacks. Puberty occurred at fifteen, and at this age after he rested from play it would be hard for him to start to play again and he feared to go into a crowd because he would get excited and could not protect himself quickly. The migraine attacks lasted usually about a week and recovered spontaneously.

Examination.—General condition: Patient was well formed and of athletic type. There were no local hy-



FIG. 7.—Thomsen's disease, showing general athletic build; no hypertrophies.

pertrophies or other external defects (see Fig. 7). Muscular strength was not proportionate to the build. Mentally, patient was intelligent and free from disorder or hysterical stigmata. There was some irritability.

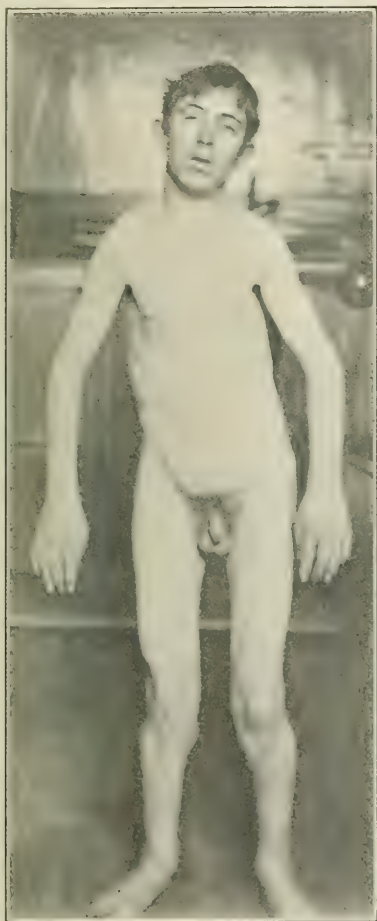


FIG. 8. Multiple enchondroma. Note especially right thigh and region of knees and ribs; also atrophic left hand and foot.

Cranial Nerves.—When first seen he had paresis of the left third nerve, associated with migraine. The pain was especially supraorbital and left temporal. This disappeared in a few days. There was no ear, nose, or throat trouble. The other cranial nerves were free. The muscles affected were the left levator palpebrae, the left superior and inferior recti and inferior oblique. The left pupil was slightly larger than the right. The right eye was normal. Taste on the left half of the tongue was present, but not as acute as on right side. Patient said that at times he thought he had noticed a slight feeling of stiffness of the tongue and a very slight thickness of speech. Neither was present on examination.

Motor.—Muscles were equally well developed and coordinated. There was no special paralyses. After

rest, voluntary muscles showed stiffness and rigidity or spasticity, both flexors and extensors and other groups being affected, as shown by manner of getting up, starting to walk, or to lift articles, or to grip the hand, etc. The face was not seen to be affected. The condition gradually wore off with exercise of the various muscle groups, only to recur again after a period of rest. After recovery after walking it would be noticeable again, however, in running or in going up stairs. Grasp increased as follows: Left, 25, 32, 34, 38. Right, 30, 35, 36, 40. Reflexes and sensory examination were negative.

On percussion the muscles showed the characteristic myotonic (ideomuscular) contraction; and a similar persistence of contraction occurred on removal of electrodes after prolonged faradism (myotonic reaction of Erb). There was also ideomuscular spasm of some quadriceps bundles on contact. Coordination, position sense, and muscle sense were apparently unaffected. Internal viscera were apparently normal, except that patient has constipation, bad breath, slightly coated tongue.

Ergograph tracings by Dr. Scripture show an incomplete relaxation of both flexors and extensors at the initial of voluntary movement; and faradaic stimulation of the abductor indicis was attended by a similar result.

No doubt now seems to exist as to the presence



FIG. 9. Ventral pathologies in an adult.

of hypertrophy of the primitive muscle fibre in Thomsen's disease. Accompanying the hypertrophy there is an increase of the sarcolemma nuclei. Experimental myotonia also shows these changes. In either condition there is no real increase in the volume of the muscle, as some muscle fibres are shown to be degenerating by simple atrophy, vacuolation, etc. These subjects to the disease can hardly be designated more than "athletic" in build.

There is no adequate proof that the changes in the muscles are not due to the long continued increased muscle tone, as in various tics and myoclonia. While an autotoxic pathogenesis has been urged of late, most observers still believe the main fault lies in a congenital muscle deficiency. However, an adequate explanation of the entire disease bids fair to be taken to the cerebral cortex, where most problems of disturbance of muscle tone and disorders of motility are meeting solution. Indeed, the modi-



FIG. 10. Acute poliomyelitis of the right leg.

fying influence of the changing mental moods of Thomsen's disease forecasts the psychomotor character of the disorders of the cortex.³

Case III.—Multiple Enchondroma, One of Which is Causing the Sella Turcica Causing Pressure on the Pituitary Body, the Chiasm, and Crura.

CASE IV.—This patient was seventeen years of age,

1. Clark, J. H., and Alwood, J. W., "The Pathology of Thomsen's Disease," in *The Pathology of the Nervous System*, Vol. 1, 2nd ed., W. B. Saunders Co., Philadelphia, 1900. 2. Clark, J. H., and Alwood, J. W., "The Pathology of Thomsen's Disease," in *The Pathology of the Nervous System*, Vol. 1, 2nd ed., W. B. Saunders Co., Philadelphia, 1900. 3. Clark, J. H., and Alwood, J. W., "The Pathology of Thomsen's Disease," in *The Pathology of the Nervous System*, Vol. 1, 2nd ed., W. B. Saunders Co., Philadelphia, 1900.

and the older of two children. Family and personal history were negative. At four years of age a tumor growth appeared on the sixth rib right side, at the juncture of rib and sternum. It grew slowly without pain, and five years later was removed by Dr. McBurney at the Roosevelt Hospital. Dr. Hodenpyl, who examined the specimen, found the growth to be a typical enchondroma. A second, third, fourth, and fifth growth appeared several months apart, on the left wrist at the end of the radius, on the upper end of both tibiae, and on the costal ends of all the ribs of the left side. The tumors are now to be found on all the long bones of the body (see Fig. 8). The tumors ranged in size from that of a pea to that of a full sized orange. The patient and all of his relatives believed that the tumors come and go, disappearing spontaneously after a certain size is attained. The patient believed that the morbid cycle for each tumor took about one year. In proof of this he showed several sites which, on careful examination, appeared to prove his contention, as these areas seemed like remnants or ruins of former tumor formation.

During the past two years this patient had been gradually growing stiff and weak, and now a progressive spastic quadriplegia is fully developed. The spastic palsy began in the right side. For the past four months the feet often "fell asleep" at night. There was no sensory defect. For the last few months patient had had paroxysmal frontal headaches. The left hand and foot steadily enlarged during the past year. An eye examination by Dr. Tyson showed that there was a blurring of the nasal half of the optic discs, with hyperæmia and slight swelling of the discs; the veins were enlarged and slightly tortuous; vision was 20/20; the field of vision was contracted on the temporal sides for form and colors.

Cases of compression of the brain or cord by enchondromata are extremely rare. We have not found a recorded case. The tumors are of slow growth and the duration of symptoms in our case, together with the fact that there is some improvement in the eye symptoms, lead us to hope that there may be some retrogression in the intracranial tumor, the same as has occurred in some of the tumors in other parts of the body.

Acute Poliomyelitis in an Adult: Onset, Four and a Half Months Ago.

CASE V.—Man, age thirty-three, college student. Family and previous history were negative. In August of last year patient had a fever of several days' duration, accompanied by certain subjective symptoms and the gradual onset of paralysis in his right arm, beginning in his shoulder and upper arm and culminating in hand and finger muscles after thirty hours. His description was somewhat as follows: He went to sleep at 8 p. m. (August 21st), awoke at 10 p. m. with dull pain in region of fifth and sixth cervical vertebrae. On applying mustard, and afterward cold cloths, he again went to sleep and awoke at 5 a. m. (August 22nd) next day, unable to use the right upper arm. He could use the fingers and hand, however, all day. There were no sensory symptoms that he could remember. That night he slept little, and the fever, he remembered, on August 23rd, was 101.5° F. On awakening that morning he could not use the fingers of the right hand. After two weeks, or about September 7th, he located four or five tender spots or points on his right upper arm and upper forearm, pressure of which caused much pain—indicating, perhaps, some associated neuritis. He also had areas of cold—one, corresponding to the deltoid, he could not get to stay warm by application of external heat. After four weeks in bed he had dull pain in the lumbar region. On getting up, after eight

weeks, he limped in right leg and had to use a cane. In November he noticed wasting of the right upper arm and front of right leg. In February (12th), or five and three quarter months after the initial lesion, he could flex his right arm weakly for the first time.

Examination showed sensation to heat and cold, and sensation to pin prick and cotton were preserved. Pinching, he thought, was a little less keen. There was marked wasting of the right upper arm, shoulder, and extensor surface of forearm; also slight wasting of the right anterior tibial. The hand and affected portions of the arm were cooler than the left arm to the touch. The position of the hand was peculiar, on account of extensor paresis. The muscles affected were the pectoralis major, upper portion, the supraspinatus and infraspinatus, the deltoid and coracobrachialis, the biceps, triceps (some power in biceps), the extensors of the wrist (could not extend wrist), the long extensors of the fingers (see Fig. 9). There was also weakness of pronators and supinators and of the abductor pollicis. The intrinsic hand muscles seemed to be normal, also the flexors.

Under the influence of massage and electricity slight power has been restored in the biceps and certain extraordinary muscles, e. g., the trapezius has become slightly enlarged by over activity. Electrical tests show reaction of degeneration.

The case was thought to be of some interest on account of the comparative rarity of acute anterior poliomyelitis in the adult, and the clearness of subjective sensations which a mature and intelligent patient could give to us.

The location of the lesion in the spinal cord, corresponding to the muscles affected, is of course in the anterior horns of the fifth, sixth, and seventh cervical segments; and for the anterior tibial a small lesion in the fourth or fifth lumbar, or first sacral segment.

The plan of treatment proposed is nerve transplantation.

A Case of Anterior Poliomyelitis with Exaggerated Knee Jerk.

CASE VI.—Male, æt. thirteen. Onset of malady at twelve and a half years of age. Involvement was in the posterior tibial and posterior thigh groups, left leg. Maternal grandfather had been a consumptive. Other heredity was good.

Previous History: As a child patient had had measles, scarlet fever, and chickenpox. Otherwise he had been healthy. In May, 1906, he was confined to bed with a fever for a week and unable to stand for at least several days after, both legs seeming to be involved. He regained power in his right leg in two or three weeks, but not much in his left leg. He was taken to a hospital in July and later to another hospital, where, in July and August, he got electrical treatment, and not improving much, he was put in plaster for five weeks during September and October, and in November he was brought under our observation. The following diagnoses had been previously made: Sprain from a fall at inception of disease, transverse myelitis, fracture at the hip, infectious arthritis of the knee.

On examination there was left talipes equinovarus, with relative shortening of about half an inch. The posterior tibial and posterior thigh muscles were in a condition of flaccid paralysis. There was hyperreflexia, the knee being thrown backward in walking and the foot pointed outward. The left knee jerk had been much exaggerated since the onset of the disease. There was no Babinski nor ankle clonus. The affected leg was cooler to the touch. All sensation was intact. There was reaction of degeneration of the posterior

thigh and posterior tibial groups; no joint pain. Measurements were as follows: Right calf, 11½ inches; thigh, 12½ inches; groin, 19¼ inches. Left calf, 11 inches; thigh, 12 inches; groin, 18¾ inches.

The case is interesting, on account of the increase of knee jerk and the various diagnoses made from time to time by surgeons, orthopaedists, and neurologists.

A Case of Poliomyelitis with Exaggerated Knee Jerk.

CASE VII.—Girl, age three, no faulty heredity or history of previous disease. As a child she walked well at the age of two years. One month later (in June), or six months ago, she had a fever of two days' duration. On the third day she could not stand or walk; on the fourth day she walked, but dragged the right heel, and this condition continued since.

On examination, in December, the muscles perma-



FIG. 11. A semidiagrammatic representation of the arteries of the spinal cord. The thrombotic lesion of poliomyelitis is assumed to occur at A in the medioanterior artery, *m. a.* The cross hatched area D indicates the region in the gray and white matter, supplied by the medioanterior branch of the anterior contralateral artery, and the area of the lesion caused by a thrombosis at A. The collaterals from the lateral pyramidal tracts (B) are interrupted on their passage through the lateral limiting layer, and the gray matter by the lesion D, and thus fail to terminate on anterior horn cells at C and E. Therefore, in lesions of this character the normal knee jerk, which is dependent upon cell groups C and E, is unimpaired. The exaggerated knee jerk is the consequence in these rare types of poliomyelitis.

nently affected were found to be the right posterior tibial group (see Fig. 10), and in these muscles there was reaction of degeneration. The knee jerk of the affected leg had been exaggerated since the onset of the disease; that of the other leg normal. There was no clonus or Babinski and no sensor change. The mental condition was good; there had been no fits, and the child was bright and active. The anterior tibial and quadriceps groups were intact in voluntary power and electrically.

It might be suggested that the lesion in these two cases is a random one in other structures at the level of the cellular lesion in the gray substance (myelitis), but in the absence of any distinct evidence secondary or tertiary such contraction seems warranted. These two cases are really lateral poliomyelitis.

It is not difficult to understand that a moderate increase in the quantitative status of certain structures

us an *intact* knee jerk, but that a lesion such as poliomyelitis, ordinarily understood, should give an *exaggerated* knee jerk is impossible of such explanation. Nor is it at all likely that such a lesion induces irritation in adjacent areas not involved in the destructive process sufficient to induce the exaggerated reflex.

It has occurred to one of us (Clark) that there is a very simple explanation for the exaggeration of the knee jerk in those cases of poliomyelitis affecting the posterior group of muscles of the leg and thigh. It is well known that these muscles are represented in the lower lumbar and first sacral segment of the cord. The grouping of motor cells which supply these muscles in the gray substance of the cord at this level is in the anterolateral and posterolateral part of the anterior horn (see Fig. 11). The central branch of the anterior spinal artery supplies not only the gray matter, but all of the lateral limiting layer at this cord level. Thrombosis in the central artery at this part not only destroys the trophic centre of the posterior leg muscles, but also damages the collaterals from the lateral pyramids running through the lateral limiting layer, to end on or about the motor cells in the gray substance, which constitute the knee jerk centre in the spinal cord. The cerebral control being withdrawn from this reflex centre in the cord, the knee reflex is therefore exaggerated, as in hemiplegics, but with this anatomical difference, that in hemiplegia the pyramidal system is injured, but in our type of poliomyelitis under consideration only the collaterals are destroyed in their transition through the diseased zone in the lateral limiting layer. As proof that the injury does not extend to the pyramids, we do not find ankle clonus or Babinski's sign or other sure evidence that the lateral tracts are diseased. The whole matter needs, however, careful animal experimentation to place the theory upon firm anatomical foundation.

PERFORATIVE APPENDICITIS, DUE TO PLUM STONE.

By J. J. RECTENWALD, M. D.,
Pittsburgh, Pa.

The following case of perforative appendicitis seems to be so interesting that I venture to describe it:

The patient, Thomas J., aged forty years, a policeman, had suffered for about ten days from severe pain in the appendicular region and had said to a friend that he believed he was going to have an attack of appendicitis, as he had such a strange feeling in the right side of the abdomen. On September 8, he was suddenly taken violently ill and I was called in to see him. I found him rolling about on the floor in great agony. At first sight I thought it to be a case of renal colic, but a few hours later as the pain was localized at McBurney's point, I diagnosed it as an attack of appendicitis. Peritonitis rapidly developed, and the patient died on the third day. A post mortem examination was held and showed a plum stone partially protruding from the base of a rat tailed appendix. The accompanying illustration shows only one half of the appendix, the tip having been broken off. I have never seen a patient with gallstone or renal colic suffer such

intense pain as did this patient with appendicitis. The plum stone had evidently been rolling about the



Caecum and appendix in case of perforative appendicitis, showing plum stone extruding.

appendicular valve at least ten days before it was caught fast.

132 SOUTHERN AVENUE, MT. OLIVER.

SEVEN GUNSHOT WOUNDS OF THE BODY.*

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The seven gunshot wounds of the body included in this report were under observation at the Emergency Hospital in the city of Buffalo.

Frequently we meet in emergency work cases of gunshot wounds of the extremities, the character of the wound showing that the bullet has entered at one point and left at another, and in such cases there is little to be done except to cleanse the surroundings of both points of entrance and exit, then place a small drain, preferably of iodoform gauze, in each opening. If in the course of seventy-two hours there is no rise in temperature, and no especial swelling appears in the injured limb, then we may conclude that little infection has occurred, and we may neglect all further precautions, except cleanly and rather infrequent dressings, with the arm or leg kept at rest.

There is another serious class of cases, in which the bullet wound is in the trunk, and which may show a large mortality even under the most favorable circumstances, and it is often a question what is the best course to pursue in such cases. All authorities unite in saying that where the injury, namely, the penetrating wound, is inflicted at a point below the level of the umbilicus, whether the point of entrance is from behind, passing forward, or from before, directed backwards, the case is much more serious than where the wound is above the level of the umbilicus. Only by the most prompt intervention and operation under the most favorable circumstances, with the wound below the level of the umbilicus, can any hope of recovery be held out.

In gunshot wounds piercing the body above the level of the umbilicus it is often quite another question whether any operation, involving any exploratory procedure, shall be undertaken at all.

Invariably each case must be considered on its

* Read before the Erie County Medical Society, April, 1907.

own merits, judicially, and no set rule can be laid down. However, there is only one rule for those cases involving the two lower quadrants of the abdomen, and that rule is, if there has been penetration, operate just as promptly as circumstances and surroundings will permit.

If the injury is above the level of the umbilicus, one of the most important considerations is the patient's general appearance and condition. If the patient suffers apparently from the external wounds only, shows little pallor, no cold sweats, subnormal temperature, or high rate of respiration, has hopeful, not anxious facies, it will be found that, however ugly the external wounds, the internal injuries had best be treated expectantly.

This generalization means that wounds of the chest or those a little lower, involving the two quadrants of the abdominal cavity, above the level of the umbilicus, and, "perhaps," involving the posterior, lower pleural cavity, and "perhaps" at the same time involving the liver and one of the kidneys, will do very well, with simple drainage of the external wounds.

I say "perhaps" because one may not know in many cases what organs have been involved except by deep probing, which should not be undertaken lightly. It is better to allow some atom of unimportant knowledge to escape us if by so doing the patient has a better chance to recover. Fowler recommends, as the only safe procedure, immediate nephrectomy in any case where the kidney is involved, as shown by the passage of urine from the wound or by the discovery of blood in the urine.

It is certain, however, that in Case IV, following, an unnecessary and severe operation (that of removal of the kidney) was avoided by pursuing an expectant plan. If this patient had shown any signs of peritonitis or septic infection, from urinary infiltration, an operation would have been undertaken at once, but the necessity did not arise.

The cases to be reported are the following:

CASE I.—P. W. was a young woman, who had been in good general health, had worked as a domestic, was at the time of the shooting living at home, with her poor but industrious people, and had but a short time before rejected the attentions of one of the young men in the neighborhood. She was sitting on the steps of her home, when the young man whose attentions she had rejected came from a nearby saloon, in which he had been brooding over the uneven course of love, and after some muttered remarks to the girl and to the others nearby shot at her several times. One bullet entered the hip, passing through the pelvis, on the right side, through several coils of intestines, and lodged in the muscle sheath of the rectus on the left side. At the time of the operation, after the injuries to the intestines had been repaired and all bleeding stopped, and yet the bullet had not been found, the operative exploratory measures were discontinued, and the bullet's lodgement was not discovered until at the post mortem examination by the medical examiner.

After the shooting the patient was taken immediately to the hospital, and although she had been kept in a roomless prison and had had some morphine before she left the place where the shooting was done, yet she was suffering from profound shock.

The bullet wounds, other than the penetrating wound of the pelvis, were of no importance, having struck the extremities, passed through the same, and needed

but little attention. (Incidentally the young man who had shot her tried to shoot himself, but made only a trivial injury to his leg and to one of the ribs on the left side of the body. He was afterwards tried, convicted of manslaughter, and is now serving his sentence at Auburn.)

As soon as the young woman could be prepared she was given an anæsthetic, the abdomen was opened after careful local preparation, and the intestines carefully gone over and five perforating wounds of the intestines were repaired, using double rows of interrupted Lembert sutures of fine silk threaded on fine cambric needles. The peritoneal cleansing was as carefully completed as possible, and the external wound was closed with temporary drainage.

She was given opium enough to lessen peristalsis and constipate the bowels for three days, during which time her temperature and pulse were below 100. Then the bowels were encouraged to move and did so, but at the same time the temperature and pulse began to go up, and her respirations and general condition showed a septic peritonitis. She failed rapidly and died on the fifth day after the shooting.

CASE II.—W. H. C., a man in poor general condition, who had been a habitual user of morphine and cocaine for some time, and was a "fiend" when he did not have the money to buy the amount he craved, on November 11th, 1906, found himself without the drugs but with a thirty-two caliber revolver handy, and shot himself in the left breast, two inches above the nipple; the bullet lodged in the posterior wall of the chest, but the heart was evidently not injured, for he lived. This bullet was not probed for. When he was admitted to the hospital he had a good pulse, did not show much evidence of internal hæmorrhage. The face was blanched, but his wife said that was his natural color and had been for months. He was not and did not become cyanotic, was not greatly distressed, but the bullet had evidently punctured the lung on that side and had lodged on the inside of the left pleural cavity, or had been stopped by the rib on the back.

He acknowledged that he was suffering from some pain under the shoulder blade, and that he could not breathe as easily as he usually did, and the respirations were 36. On examination of the chest there were heavy mucous râles, but no consolidation. There was some bloody mucous discharge, but no blood of any moment expectorated. The only wound, that in front, was packed with a small plug of iodoform gauze, and he was put to bed, with largely expectant treatment, except morphine enough to keep him within bounds, and that amount in this instance was about five grains per day, well distributed. No attempt was made to reach the bullet, which was evidently retained within the body cavity or lodged in its walls, and the man made an uninterrupted recovery so far as the wound was concerned. A few days later this man, after having recovered from the effects of his self inflicted wound, but not having the usual amount of cocaine and morphine, became violently insane and had to be committed to the State Hospital for the Insane, where he is at the present writing, but is not and has not been suffering from any untoward effects of the gunshot wound of the thorax. This wound was at such a point that I could not see how he missed the heart, for it certainly must have been very close.

On April 21st, 1907, I called up the Buffalo State Hospital and a Mr. Carter, the man who was committed to that institution, and found that the physicians in charge had on eleven or twelve of his supply of morphine entirely, and that he was clearing up gradually, and had managed to such an extent that he was up and around the wards and had been out for exercise for some time past. The bullet had appeared under the

skin of the back, two inches to the left of the vertebral column, and had been removed in March, under cocaine.

CASE III.—M. K. was admitted to the hospital in my service January 6, 1907. He had been drinking in some saloon in the Polish district, and had become involved in a fight with a drunken negro, who had promptly shot him with a thirty-two caliber revolver, the point of entrance being between the median line and the nipple line of the right side. The course of the bullet had been downward and backward, and the bullet was found just under the skin at a point one inch from the lower angle of the scapula. The bullet was removed under cocaine, and a small plug of iodoform gauze placed in the wound made by the entrance of the bullet and the wound made for its removal; the patient was put to bed and a moderate amount of morphine was given for forty-eight hours, at the expiration of which time he was free from abnormal temperature and wanted to sit up.

In this case the lung was punctured, and on examination the sounds from that lung were so muffled that one could practically make out nothing except the air bubbling through mucus and blood. A considerable amount of blood was expectorated, but always mixed with a good deal of mucus. The extravasated air from the chest appeared under all the skin on the anterior superior aspect of the chest, and when the skin was manipulated the peculiar feel present in emphysema was present to the touch. This patient insisted on getting up on the fourth day, and after doing so had a slight rise in temperature, and showed a central area of consolidation which promptly resolved, and he left the hospital January 24, 1907, convalescent. On April 19, 1907, his brother reported that he was well and had been at work for some weeks at Lancaster, New York.

CASE IV.—J. S., an Italian blacksmith, was admitted to the Emergency Hospital January 28, 1907, having been shot by a fellow countryman in the Canal street district.

This bullet entered the body at the costal cartilage of the ninth and tenth ribs on the right side of the body, passed slightly downward and backward, and was found imbedded in the left tissues on the back, over the right kidney. The wound was not probed, but from the history and direction of the bullet, and judging from the point of entrance and of exit, the bullet passed through the liver and cut through the top of the kidney on that side, as there was for several days after the accident a large amount of blood in the urine. The man was jaundiced, and blood appeared twice in the stools.

The man was taken into the hospital and an opening in the back was made, under cocaine, over its subcutaneous lodgement, the bullet extracted by means of a small pair of forceps, and both wounds, the entrance and exit of the bullet, were packed only superficially. The man was put to bed and given some opiate, and the wounds were allowed to remain sealed.

The urine was watched carefully, and the man was allowed to be up and around after a few days, but was not allowed to leave the hospital until February 18, 1907. He was seen March 6, 1907, at his home, when he was in good condition so far as the bullet wound was concerned. He had met with another accident and with a considerable laceration of another part of the body, but the gunshot wound was healed, and he was going back to work in a short time. This case was shown with Case VI and reported through the courtesy and invitation of Dr. Park to the Clinical Surgical Society on April 19, 1907.

CASE V.—G. B., a recently discharged prisoner from the Erie County Penitentiary, entered a saloon at the corner of William street and Fillmore avenue and asked for a keg of beer. As the beer appeared all the

customers present made a rush for the same, and as the saloon keeper insisted that he must be paid for the beer one of the men attempted to strike him. Our patient made as if to run away with the beer, and the saloon keeper then shot him with a thirty-two caliber revolver, at a distance of 15 feet (large caliber revolver and black powder). The bullet entered the chest, glancing slightly but passing between the ninth and tenth ribs on the right side at a point two inches to the right of the nipple line, entered the chest, punctured the lung, and apparently cut some large vessel in the lung, and finally became imbedded in the posterior wall of the chest. It made its subcutaneous appearance under the skin of the back April 15, 1907, and was removed under cocaine April 22, 1907. The man was in great distress when he was received at the Emergency Hospital on the night of March 2, 1907. He was cyanotic, breathing was labored, and he was in a cold, clammy perspiration. He was given $\frac{5}{8}$ of a grain of morphine, and was kept warm while another patient who came about the same time as he did, and who seemed to be the more critical of the two, was cared for, and then he was taken to the operating room and an exploratory operation was decided upon on account of the cyanotic condition and the evident amount of bleeding which had taken place in the pleural cavity. Some little difficulty was experienced in the tracing of the course of the bullet, as it had glanced, but it was found to have penetrated the pleura, and that after the opening had been found the lung, entirely collapsed, could be felt high up in the pleural cavity. When the cavity was opened a large amount of fluid, dark blood gushed and spurted forth. This was not clotted blood. The blood which came away from the man in the two subsequent dressings was dark, but fluid in large amounts, and no clots. The pleural cavity, which was filled with fluid and air which was retained apparently under great pressure by some valvular action in the wounded lung, was emptied, and the wound was plugged with a large piece of iodoform gauze and sealed over with adhesive plaster. The man was stimulated and put to bed with plenty of morphine ($\frac{1}{4}$ grain every four or five hours) for two or three days.

The wound was opened at the end of three days, and about one quart of bloody fluid was allowed to escape. The wound was again plugged and opened on March 8th, and about one pint of fluid again escaped.

For the first few days the man was very cyanotic, and he improved as soon as the fluid was allowed to escape from the pleural cavity. March 8th he had a temperature of 100° F., and pulse of 92, respiration 34, and was not very cyanotic. April 5th he was sitting up a little each day, respiration 24, temperature and pulse normal. The opening into the pleural cavity is still patent, and a considerable discharge is secured if the opening is made dependent.

CASE VI.—S. L., twenty-one years old, was admitted just before patient in Case V, and inasmuch as his case was thought to be the more urgent was cared for first. He was somewhat of a noted character in his Polish circle, had been taking some of their wine and eating heartily, and felt the better or the worse for it. He had been fighting with some of his countrymen, and, as the story goes, was getting the better of the argument, but at a critical moment in his fight he was shot through the abdomen, the bullet entering the abdomen at a point two and one half inches below the umbilicus and two inches to the left of the median line of the body. He had been given some morphine at the time of the shooting, and after he was admitted to the hospital he was given another quarter of a grain of morphine, but he still complained of the severe pain in the region of the wound. He was taken at once to the operating room and with plenty of good assistants given an anæsthetic. After

the abdominal skin had been prepared as well as possible the opening in the abdominal wall was enlarged and the course of the bullet sought. As fast as evidence of injury to the bowel was found the wound was at once sutured, after cleansing away the partly digested food. I attempted at first to repair the wounds seriatim with the interrupted double row of Lembert sutures, but found that there were so many of the penetrating wounds that I would not be able to make such headway as to give the man any reasonable chance to get off the table alive. I therefore resorted to the continuous Lembert suture, beginning at one end of a particular bullet wound and tying the first suture, but leaving the silk long enough so that there would be enough to tie with when the double row was complete. Thus I sewed rapidly down the length of the wound, then setting the stitches back a little, making the row double and bringing the line back to the point at which I started. Then testing the wound and washing away any of the contents of the bowel that had come into the wound, and proceeding to the examination of the length of the intestine again. I did not use Dr. Cushing's mattress suture, with which I was familiar, but made the point of entrance and exit of the needle for each stitch in a line vertical to the axis of the intestine. Of course this continuous method is many times more rapid than the interrupted Lembert suture, but I do not consider it so desirable if time and surroundings warrant the longer method.

After the intestine had been gone over for the full length and ten bullet wounds of the intestine, all in the small gut, had been found and repaired, a large piece of iodoform gauze was inserted into the abdominal wound, and the outside entrance of the bullet trimmed so the edges presented a clean surface, the wound was sutured, not tightly but closed appreciably, and the wound dressed. A poor prognosis was given to the waiting police officials. This patient was admitted March 2, 1907, was kept under morphine for three days, allowed to come out, given divided doses of calomel and small doses of salts repeated until a movement resulted, which happened with a fall in the temperature and with improvement as to the expression of the patient, which up to this time had been one of anxiety and pain.

The wound was dressed for the first time on March 9th, and all that was done then was to examine the wound from the outside, to determine if possible (simply by the odor) if there had been any leakage of gas from the intestine, and then simply loosening the packing of iodoform gauze, which had been in now for several days, and then without completely removing the same cutting off that part that had been soiled and dressing afresh. Bowels moved March 8th for the second time, and this was accomplished with scarcely any pain. March 20th the patient was allowed to sit up and to walk around after March 28th. On April 5th this man was eating a full hospital diet, walking, sleeping normally, and wanted to go home. His bowels moved regularly without cathartic. The wound healed fully, but showed scar and soft spot where packing was finally removed March 15, 1907. The silk Lembert sutures were of course in situ. No trace of the final lodgement of the bullet was discovered at the operation. Several radiographs taken by Dr. A. W. Bayliss, with area of exposure extending from symphysis pubis to ensiform, have failed to show its lodgement.

CASE VII.—Mrs. I. B. was sitting with her husband, a constable, on the evening of March 23, 1907. Her husband supposing he had emptied the revolver he had been cleaning snapped the hammer, but there had been one shell in place and this bullet had entered his wife's body. The bullet had entered from the right and toward the rear of her right hip, and no point of exit

was to be seen. They consulted some local man who advised that she be hurried to Buffalo, and an ambulance brought her to the Emergency Hospital about two hours later. She was in good condition, pulse was 96, but of good quality. She complained of a great deal of pain in the abdomen.

The doctor who had seen her at her home told them that perhaps the bullet had not penetrated the abdomen, and perhaps it was in the flesh of the thigh, but inasmuch as she was suffering much from the pain in her abdomen, there was, to me, no doubt that the abdominal cavity had been invaded. She was quickly prepared for an operation, and an incision was made over the region of the appendix, and as soon as the cavity was opened there was a spurt of venous blood which showed that there was injury to the deep vessels of the mesentery. I began very carefully at the appendix and went over the small intestines for a distance of four feet by estimate, and found no injury whatever; then proceeding in the direction of the ascending bowel I found no injury to the large bowel, but as the coils of the intestines were displaced I found a great deal of ecchymosis, and later observed, as one of the coils was displaced, that there was a large gush of blood, and on exploration found that the bullet had penetrated the mesenteric attachment, had imbedded itself in the muscles of the back, all this without injury to the small intestines. I found that the bullet had cut through several folds of the mesenteric attachment, and that the bleeding was very profuse from each of the punctures.

I tried to find some bleeding points in the surrounding tissues, but was not able to isolate any of the punctures. I had to be content with packing down the bullet wounds, leaving drainage in the wound and putting the woman to bed. I gave a hopeless prognosis to the husband, which was realized about twenty hours later.

Here are seven cases which may be divided into two classes, one class that of penetrating wound of the thorax, with three patients, all of whom recovered with practically no treatment except local drainage; the other class that of penetrating wounds of the abdomen, containing four patients, two of whom had multiple perforating wounds of the intestines; of these four patients one died of septic peritonitis on the fifth day, one died of hæmorrhage, two recovered, one with simple superficial drainage, the other after laparotomy. These cases are usually murder cases in which two lives are at stake, and should be studied carefully; a judicial decision should be reached which would conserve the interests of the prisoner and his victim, as well as our professional reputation.

The mortality in penetrating wounds of the intestines is very large, because by the peristaltic movements of the intestines at the time of injury and soon after, especially when accompanied by the "writhing" which takes place on account of the shock and severe abdominal pain at such a time with a person so severely injured, the infection is spread very rapidly; even if the peritoneal toilet is very carefully looked after and under the most favorable circumstances some infection is sure to follow. Then when the bowels are to be moved, as they should be in all cases on the second day, if they are not of too desperate a nature, it is important that some temporary repair at least should have taken place. If not, when peristaltic action is reestablished, the infection is very apt to spread, and be added to, and result fatally at about the fifth day. The cases were all, except that of the morphine fiend,

in men and women in good physical condition, a fact which was of course greatly in their favor.

REVIEW.

CASE I. P. W., five perforating wounds of the intestines; death in five days.

CASE II.—W. H. C., suicide, morphine fiend, penetrating wound of left chest over the heart, bullet in situ; recovery, insane, committed to an asylum.

CASE III. M. K., penetrating wound of right pleura, puncture of the lung; recovery.

CASE IV. J. S., penetrating wound of the abdomen, injuring liver and kidney; recovery.

CASE V. G. B., penetrating wound of the right chest, puncture of lung with collapse, drainage; convalescent.

CASE VI. S. L., penetrating perforating wound of the abdomen, ten bullet wounds of the intestines; recovery.

CASE VII. Mrs. I. B., penetrating wound of the mesentery of the abdomen, uncontrollable bleeding, and death from same on the second day, no injury to intestines.

SUMMARY.

Two perforating wounds of intestines, with one recovery.

Three penetrating wounds of thorax, one going completely through body.

Two bullets in body for thirty days, which then appeared under the skin and were removed. All patients recovered or convalescent.

One penetrating wound of abdomen, injury to mesentery, none to bowel, uncontrollable bleeding, death.

One high penetrating wound of the abdominal cavity, liver and kidney injured, bullet was recovered; patient recovered.

Three attempted murders, one successful.

One suicidal attempt, not successful.

Four street fights and saloon brawls.

One accidental shooting.

Seven cases, two deaths, mortality 28 per cent.

I have little more to say regarding these cases, except that I believe they all go to emphasize the fact that each case must be judged carefully and all the different elements taken into account, and that in many perforating wounds, with the bullet passing through the body above the umbilicus, there is recovery without operative intervention, except so much as might be called intelligent cleansing.

That the presence of the bullet in the body does not itself require that large exploratory operations must be undertaken, especially if the patient's condition is good and the bleeding is not excessive. That in perforating wounds of the intestines the operation is imperative, and the continuous Lambert suture is much more rapid than the interrupted, but of course cannot be considered as safe.

That in all abdominal operations the general resistance of the patient must be considered a great factor in securing recoveries. Such a case in point is No. VI. This patient was a thin, wiry, light complexioned Pole, whom his brothers united in saying when he was in a critical condition, that "He could fight some, and they had to take a gun to down him." His general resistance was good and assisted materially in securing a good result.

CHANCROID AND ITS COMPLICATIONS.

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The chancroid, variously designated as soft chancre, local venereal ulcer, simple chancre, and non-infecting chancre, is a local contagious venereal ulcer, probably caused by a specific poison inoculated upon an abraded surface of the skin or mucous membrane. It always remains a local disease and never becomes constitutional. The disease may extend through the lymphatic channels draining the chancroid to the nearest lymphatic glands, but not beyond. For this reason chancroid is to be distinguished from chancre, which is always followed by manifestations of a constitutional disease. The apparent exception to this rule is seen when the chancroidal and syphilitic virus are simultaneously inoculated.

The chancroid is caused by the inoculation of an abraded surface with the secretion of a chancroid, of an ulcerating chancroidal lymphangitis, or of a chancroidal bubo. When this virus is deposited upon an abraded surface, an ulcer develops which runs a distinct, characteristic course; it is autoinoculable and reinoculations can be repeated almost indefinitely. In consequence of the irritating action of the chancroidal secretion, it appears that chancroids may develop upon the tender balanopreputial mucous membrane of careless individuals without any apparent abrasion being present.

Ætiology.—The ætiology of chancroid is still a disputed question. The experiments made have not been conclusive; it has not been proved by means of pure cultures and inoculations that the Ducrey streptobacillus is the ætiological factor. The constancy with which this bacillus has been demonstrated in inoculation chancroid, by several observers, speaks strongly in favor of its specificity. (Finger) Ducrey found the same organism present in several generations of inoculations, and after the fifth and sixth generation only one organism was found. He describes the organism as a short, thick bacillus, with rounded ends, 1.48 micra in length and 0.6 micra in width, with a constriction more or less perceptible. It is found single, in pairs, and in groups, within the cell protoplasm and between the cells. Krefling observed this bacillus not only in the secretion of the chancroid but also in the pus of the bubo. Unna found the bacillus in the secretion of the chancroid arranged in the form of chains, and Max Joseph confirms their findings and believes in its specificity. Nicolli has inoculated apes with chancroidal virus and found the bacillus present in the artificial chancroid. Bezancon, Griffin, and Le Sourd allege to have grown pure cultures upon artificial media, and Tomaszewski inoculated two apes with the bacilli grown on culture media and produced chancroid, the secretions of which showed the same organisms. Lang says that the pus of the bubo is either sterile, or contains the

usual pyogenic organisms, or Ducrey's bacillus. The pus in the first two instances, when inoculated, produces simple ulcers which heal in a short time, in the latter event, a typical chancroid develops which pursues a characteristic course. He, therefore, concludes that the virulence of a bubo depends upon the presence of Ducrey's bacillus. Reille found that 9 per cent. of buboes were inoculable, and Buschke had nine positive results in thirty-nine cases.

Lydston believes that the chancroid can originate *de novo* and Taylor says that simple ulcers and herpetic lesions can be transformed into chancroidal ulcers, and that chancroid can develop without sexual exposure upon the genital organs in diathetic conditions or from uncleanliness.

Experimental chancroid shows an area of hyperæmia at the point of inoculation in twelve to twenty-four hours, followed by a papule which in the course of two or three days becomes a pustule. This pustule ruptures and leaves an ulcer which pursues a characteristic course. Through its secretion the ulcer is autoinoculable, and reinoculations can be carried on indefinitely. Chancroid is contracted almost always during sexual intercourse, and the early stages of hyperæmia, papule, and pustule are rarely seen except in autoinoculations or artificial inoculations. It has no distinct period of incubation, appearing in from two to ten days after exposure; the average incubation period in nine hundred dispensary patients was eight days.

Incubation.—Variable periods of incubation may be partly explained by carelessness of observation on the part of the patient, ulcers in many cases existing several days before they are noticed. Not infrequently dispensary patients complain only of bubo, although one or more ulcers may be seen when the prepuce is reflected, the presence of these lesions being unsuspected by the patient.

Description.—The shape and size of the ulcer at first corresponds to those of the abrasion upon which the virus has been deposited. The form is usually round or oval, with a punched out, irregular edge which is undermined. The base is uneven and covered with a gray or yellowish exudate. The secretion is profuse and purulent, the surface bleeds rather easily, and the neighboring tissue is red and infiltrated especially when the infection involves the coronary sulcus. It spreads upon the surface by the process of ulceration and is frequently painful. Autoinoculation is usual, and multiplicity of ulcers is therefore the rule; a feature of diagnostic importance is noted in the fact that all of the ulcers do not appear at the same time. In from one to four weeks, under proper treatment and care, the stage of destruction is passed, the base of the ulcer becomes covered with healthy granulations, the discharge ceases, and the ulcer is no longer inoculable. Repair rapidly follows with a resulting scar.

Chancroid on the skin surface is usually deeper than the lesion found on the mucous membrane. Skin chancroid, excepting those of the thigh and scrotum, is usually single; of the nine hundred cases forty-nine occurred on skin surfaces, of which forty-four were single and in five two ulcers were present. Differences in location frequently influence the size and form of the ulcer. Chancroid

situated on the frenum is generally linear, extending toward the meatus and frequently causing destruction of the frenum. When located on the side of the frenum the chancroid may perforate it by ulceration, leaving a bridge of loose tissue. When the hair follicles are involved multiple pustules form which break down and coalesce, forming the deep, crater like "follicular chancroid." Granulations from the base of the ulcer may become exuberant and appear above the surface, resembling warty growths, and not infrequently the scar tissue of a healed chancroid becomes the seat for the future development of warty vegetations.

Division.—Chancroid may be divided into classes according to the amount of tissue destruction and to the clinical appearance and course of the ulcer. The gangrenous, phagedenic, diphtheritic, and serpiginous varieties are recognized. Constitutional diseases, poor hygienic surroundings, lack of cleanliness, excesses, and careless treatment are usually regarded as being responsible for the virulence of the infection. We believe that while these factors may act as indirect causes the real virulence is dependent upon a mixed infection. In the gangrenous chancroid the base of the ulcer becomes gray or black, the ulcer spreads rapidly and penetrates deeply, the tissue becomes necrotic, and large areas are destroyed, the surrounding tissue appears dark red, is infiltrated and painful, hæmorrhage may be profuse and great and serious defects remain after the ulcer has healed.

In the phagedenic variety the ulcerative process remains more localized, the necrotic areas being much more limited than in the gangrenous form. The base of the ulcer is covered with a gray slough, and the neighboring tissue infiltrated and inflamed. It is frequently seen in cases complicated with phimosis and at times in paraphimosis. In phimosis the ulcer is usually found on the inner surface of the reflected layer or on the glans penis. The ulcer may perforate the prepuce, the glans being exposed through the opening. In paraphimosis the ulcer is generally found on the constriction, this being the point of election owing to the circulatory disturbances. When the ulcer is located on the shaft of the penis it may ulcerate through the spongy body with a resulting urinary fistula. Cases have been reported in which the ulceration penetrated into the cavernous body followed by considerable hæmorrhage.

The serpiginous and diphtheritic varieties are very rarely encountered. Neither of these forms have been observed at the dispensary, nor have we seen them in the patients under treatment at the Philadelphia General Hospital, where the most virulent forms of chancroid are met with. The diphtheritic form is described as a superficial ulcer covered with an adherent dry, brown or gray membrane, spreading on the surface but not penetrating to the deeper tissues. In the serpiginous variety the process of ulceration and extension is slow and without local reaction. It spreads slowly in a serpiginous manner, one part healing as another part is involved. It is very chronic and may last for months.

Location.—Chancroid is usually seen upon the genitalia or upon skin surfaces coming in direct relation to it as the thighs, groin and pubes. In

rare instances, when the virus may be carried by the fingers, instruments, etc., or by unnatural practices, other parts of the body may be infected. Although extragenital chancre is more common than the same variety of chancroid, the latter have been observed on the fingers, face, lips, mammary gland, knee, arm, eyelid, and back, in fact upon almost every exposed portion of the skin and mucous membrane. Dr. Karl Ullman has collected from the literature to 1902, sixty-three cases of extragenital chancroid, of which by far the greatest number occurred upon the fingers and face. We have observed but one extragenital chancroid occurring upon the left index finger, the patient having a chancroid of the frenum.

Chancroid of the male genitalia is most frequently found on the mucous membrane of the reflected layer, at the frenum, and in the sulcus, as these parts are most often torn or abraded by mechanical action. The reflected layer, frenum, sulcus, shaft, glans, meatus, root of penis, scrotum, thighs, and groin are common seats of chancroid, occurring, in our experience, in frequency on these parts in the order named. The scrotum and thighs are usually involved through autoinoculation. The scrotum is usually infected from a chancroid at the preputial margin, while the thighs may be inoculated from lesions situated either on the preputial margin or scrotum. Chancroid of the preputial margin is most common in cases complicated with phimosis. On skin surfaces, such as the shaft and root of the penis and the groin, the chancroid is usually single; on the scrotum and thigh the lesions are more often multiple. Multiple ulcers are found frequently on the glans and reflected layer, very often becoming confluent. Chancroid of the meatus is usually deep and destructive, and stricture often follows as a result of the contraction of the scar tissue.

Differential Diagnosis.—The most frequent and important difficulty in the diagnosis of chancroid is its distinction from chancre. Typical chancroid is supposedly easy to diagnose, but a positive diagnosis can be reached only by keeping the patient under observation for a considerable length of time in order to eliminate the possibility of a syphilitic infection. The course and conditions accompanying the ulcer are of more importance in arriving at the diagnosis than the clinical appearance of the lesion. The virus of both diseases may be inoculated simultaneously upon the same point and a double or mixed infection be produced. Again several ulcers may be present and all heal but one, which gradually becomes larger, granular in appearance, and indurated at the base. The hard and indurated base characteristic of chancre is wanting in chancroid, the period of incubation is shorter in the simple ulcer, it is also more frequently multiple, and the edges are generally irregular, punched out and undermined. One or both groins may be the seat of lymph adenitis and the process may go on to suppuration. It is to be remembered that chancroid occurring at the site of hair follicles and those that have been cauterized, has an inflammatory infiltration at the base resembling the induration of a chancre, but the induration is not so distinctly limited to the base of the ulcer as it is in chancre. The most important point is that we can never be positive that the most typical chancroidal ulcer will not

be followed by the appearance of syphilitic manifestations.

It is probable that the diagnosis in the future will be greatly facilitated by microscopical examination of the secretion for the *Spirochæta pallida* of Schaudinn and Hoffman. This organism has been found so frequently in the lesions of primary and secondary syphilis that it is conceded by most observers to be the cause of syphilis. It is not present in chancroid.

Superficial erosions seen in balanoposthitis, simple ulcers caused by hair cut or mechanical irritation, do not as a rule ulcerate, and heal promptly under appropriate treatment. Herpetic lesions which coalesce resemble chancroid. The history of burning and itching, the formation of vesicles, the small, sharply defined ulcers, and the rapidity of healing after the application of a dusting powder, will point to the diagnosis of a herpetic ulcer. In scabies other parts of the body are involved, and there is marked itching. Chancroid can be distinguished from ulcerating gumma by the history of a tumor like swelling before the ulcer, the slow course, and the prompt healing of the latter when mixed treatment is administered.

We have recently observed a patient with infected ulcers of the glans penis resembling phagedenic chancroid accompanied by a marked balanoposthitis the result of coitus per os. This case is analogous to a form of balanitis called "balanitis erosiva circinata," or "balanitis gangrenosa," in which the causal factor is a Gram positive vibrio bacterium, two to three micra in length, with pointed extremities. While this form of balanitis is rare, it has been found to follow coitus per os, and one case of experimental inoculation of the glans penis from a case of mouth ulceration giving positive results has been reported.

At times it is difficult to distinguish between a phagedenic chancroid and an epithelioma. The history, course, artificial inoculations, and microscopical examinations must be relied upon for a diagnosis.

Prophylaxis.—It is surprising to see so little mention made of circumcision as a prophylaxis against uncleanness and disease. This operation is generally advised after the mischief has been done. It is rare to see venereal ulcers on the penis of an individual who has been properly circumcised. The reason for this is self evident. The preputial pocket is filthy under the best of conditions and naturally favors the retention and cultivation of infectious organisms contracted through intercourse. With the removal of the prepuce there is less likelihood of abrasions resulting from mechanical irritation, as the skin like mucous membrane becomes less tender. Such diseases as herpes, simple infected wounds, chancre and chancroid would occur less frequently, and chapters on phimosis, paraphimosis and balanoposthitis could be excluded from genitourinary textbooks, if the operation of circumcision, properly performed, is done generally, in childhood. Other prophylactic measures include the use of a protective lubricant, the use of the condom, and the careful ablution with antiseptic solutions after intercourse.

Treatment.—Chancroid should be cauterized when seen early before much œdema is present.

The object of cauterization is to destroy the organism causing the infectious ulcer and to transform the chancroid into a simple healthy ulcer. Many cauterants have been employed to accomplish this object, among which may be mentioned the Paquelin cautery, the galvanocautery, carbolic acid, nitric acid, formaldehydeethyl chloride, etc. Under ordinary circumstances the Paquelin and galvanocauteries should not be used, as they excite too much fear on the part of the patient. In our experience formaldehydeethyl chloride has given too much pain to be recommended. Nitric acid, judiciously employed, gives the best results, but should not be used indiscriminately or carelessly. When using nitric acid the entire area should be thoroughly cleansed with soap and water and washed with a solution of corrosive mercuric chloride 1-2000. The part should be thoroughly dried and the ulcers co-cainized with a 5 to 10 per cent. solution. If co-cainization is not complete, cauterization cannot be accomplished, as the pain consequent upon the application of nitric acid will prevent the patient remaining quiet during the process. After thoroughly drying, the nitric acid should be applied upon a pointed orange wood stick, and not by a blunt instrument such as a glass rod, as the drop is too large and cannot be controlled. Every part of the ulcer should be thoroughly cauterized and care taken that no undermined edges are overlooked. A dusting powder should then be applied, and if the ulcer is on the glans or on the inner surface of the reflected layer a pledget of absorbent cotton should be interposed between the mucous membrane and surfaces. This should be changed as often as the quantity of the secretion demands, the parts being carefully washed with corrosive mercuric chloride and dried before the dusting powder and dressing is reapplied. Chancroid should not be cauterized when the ulcer is located near the meatus, or when phimosis or paraphimosis is likely to follow the use of a cauterant. It is also contraindicated when the ulcer has a healthy granulating surface, or in the presence of painful glandular enlargements.

As dusting powders many drugs, such as acetanilide, boric acid, bismuth subnitrate, and iodoform, with its various substitutes, have been advocated. In mild cases any of the bland powders will suffice. In obstinate cases, iodoform is the best powder to employ, notwithstanding the great objection to its odor, which cannot be disguised. When objection is made to the telltale odor of iodoform the finger may be bandaged to divert the attention of suspicious individuals. In susceptible cases iodoform causes a dermatitis with considerable inflammation and oedema, and its use must be dispensed with. The various substitutes for iodoform have been highly lauded, but they are no better than the ordinary bland powders. Silver nitrate should never be applied to a chancroid, as it invariably aggravates the condition, and its use is only indicated when the granulations are healthy, but need stimulation.

In the more virulent forms of chancroid the spread must be checked by cautery, curette, or nitric acid, applied in general anæsthesia, and the wound treated with strict antiseptics; in some cases, indeed, a continuous corrosive mercuric chloride bath is required to limit the spread of infection. The operation to be considered in the treatment of chancroid

are those arising from necessity. Excision of the chancroid cannot be recommended as a curative measure, as the healthy tissue invariably becomes infected with a greater destruction of tissue than if Nature's method had had its way. If phimosis is present lateral or dorsal splits should be made and antiseptic dressings applied; if paraphimosis exists it should either be reduced by one of the various mechanical methods or, this failing, the constricting band must be divided. In all cases, especially the virulent forms, attention must be given to the general health and hygienic surroundings of the patient.

Complications.—The complications of chancroid are those resulting from the destructive action of the ulcer or those depending upon the spread of the infection to the lymphatics and the lymphatic glands draining the same. Those resulting from its destructive action depend upon the part involved and the virulence of the infection. These cannot be considered in detail within the scope of this paper. Suffice it to say that they may vary on the one hand, from insignificant loss of portions of the genitalia, to the most severe destructions, such as the loss of the entire glans or the penis itself, deep ulcerations of the scrotum and abdominal wall, and death from toxæmia and exhaustion, on the other.

The complications resulting from the involvement of the lymphatics can be understood only from a knowledge of the lymphatic supply of the penis. According to G. Delamere, P. Poirier and B. Ganeu in their work on *Lymphatics*:

"1. The lymphatics of the penis comprise (1) lymphatics of the cutaneous covering of the penis; (2) lymphatics of the glans; (3) lymphatics of the penile portion of the urethra; (4) lymphatics of the erectile tissue.

"The cutaneous lymphatics are divided into two groups: Lymphatics of the sheath of the penis and lymphatics of the prepuce. The lymphatics of the sheath of the penis are fairly numerous; in this situation also appear the collecting trunks. These are four or five in number, and the more anterior their origin, the longer they are. They turn around the lateral surface of the penis and then run on its dorsal surface, passing directly backward to the root of the organ, where they make a sharp bend outward to the inguinal glands. The lymphatics of the prepuce arise in a very fine network, which follows in its plicature the skin of the prepuceal fold. In the balanic portion of the prepuce the network is continuous with the lymphatic network of the glans penis. The small trunks of this network end either in a dorsal median collecting trunk or in two juxtamedian, or in multiple collecting trunks. Contrary to the views of Sappey, Brulius regards this latter arrangement as the rule. In any case, whatever their number, these vessels run in the middle of the dorsum of the penis alongside of the superficial vein, and anastomose with each other by branches which are more or less developed in different subjects. When several trunks are present they divide into two groups at the root of the penis; when only one trunk exists, it usually divides into two branches, which are frequently unequal in size. This trunk may even remain undivided and end in the inguinal glands of one side.

"In a case of neoplasm of the meatus of the penis we must regard all the superficial glands as liable to infection. Further, by the intercrossing or the bifurcation of the collecting trunks, there is a strong probability that a lesion which is quite locally limited will affect the trunk of the lymphatic system.

"2. The lymphatics of the glans penis arise from a network with very fine meshes, which has been perfectly described by Sappey. This network is partly continuous with the network of the prepuce, and that of the balanitic portion of the urethra. From this network a series of small collecting trunks arise. The direction of these latter is remarkable; all run from before backward toward the frenum of the penis, which invariably represents the centre of their convergence; on the right and left of the frenum they receive two or three trunks coming from the mucous membrane of the urethra. They then bend backwards and arrange themselves around the corona of the glans, mounting upward as far as its median line, where the two sides anastomose. According to Sappey they bend into a single trunk, which ends in the superficial inguinal glands. The researches of Kuttner, Krubus, Cuneo, and Marcille have not confirmed the description of Sappey. They found the lymphatics of the glans to end in multiple collecting tubules, which vary from two to four in number and run parallel to the deep dorsal vein of the penis and are therefore subaponeurotic; arriving at the root of the penis they spread out, effect some anastomoses, and thus form a sort of præsymphysean plexus with very large meshes."

Inflammation of the lymphatics draining the chancroid is not so frequently observed as inflammation of the glands. In acute lymphangitis a perceptible swelling of one or more of the dorsal cords of the penis is observed. They appear as red streaks running up the dorsum of the penis, from the corona to the mons Veneris. They are exceedingly painful, tender, and can be felt beneath the integument as cords of about the size of a goose quill. At one or more points in the course of these cords hard, knot like swellings are sometimes felt, which as a rule heal by resolution, but in some cases the infiltration remains and gradually softens, spontaneous ulceration occurs, and the wound takes on the characteristics of a chancroidal ulcer. These ulcerating nodules are called bubonuli, and may be regarded as a chancroid caused by the action of the organism carried in the lymphatic vessels rather than from an infection from without. It is not of frequent occurrence, having been observed but five times in a series of nine hundred cases of chancroid. The treatment of lymphangitis is purely an antiphlogistic one, and that of the bubonulus is identical with that of the primary chancroid.

Every lymphangitis is not complicated with bubo, but as a rule the superficial lymphatic glands are enlarged. Lymphangitis, like lymphadenitis, may occur after complete healing of the chancroid.

Bubo or lymphadenitis is the most frequent complication of chancroid, its frequency varying according to different authors from 5 to 60 per cent. From our statistics bubo complicated chancroid in 281 cases, or a percentage of 30.1. It has been asserted that the left inguinal glands are more frequently involved than the right, and that it occurs on the side corresponding with that of the chancroid. Fournier states that chancroid at the frenum is most frequently followed by bubo, and Auspitz found chancroid in the sulcus most frequently complicated with bubo. According to our observations both groins are involved with equal frequency, and neither the site nor the number of lesions have any influence upon the development of bubo. This is in full accord with the anatomical arrangement of the lymphatics above described.

As to the direct ætiological factor in the causation of bubo there is some difference of opinion. By some it is alleged that bubo is caused by direct extension of the chancroidal virus by way of the lymphatics, by others it is regarded as a result of secondary infection with pyogenic bacteria. Ducrey, Kreffing, Buschke, and Adrian have all reported the presence of the streptobacillus of Ducrey in the pus of the bubo, and Columbini found the same organism in the wall of the abscess cavity when he could not demonstrate it in the pus itself. From these observations and from the facts that bubo so frequently complicates chancroidal infection, and that bubo may follow a long time after the healing of the chancroid, it would seem probable that the bubo is caused by the direct action of the streptobacillus of Ducrey.

A swelling of the inguinal lymphatics may be present a few days after the appearance of the chancroid, but a true bubo usually develops from the second to the fourth week. The average time of development in nine hundred cases was twenty-two days. It not infrequently happens that bubo develops some time, even months, after the healing of the chancroid, and in this respect latent bubo is analogous to latent gonorrhœal epididymitis. It is probable that many buboes now classified under the title *bubo d'emblée* are really chancroidal in origin, the ulcer having been overlooked or disregarded by the patient. Chancroidal bubo is more frequently unilateral, and it not infrequently happens that one groin may be involved several weeks after the subsidence of the swelling on the opposite side. It may or may not be accompanied with lymphangitis, and the size of the ulcer bears no relation to the development or course of the bubo.

The first symptoms are pain in the inguinal regions, aggravated by standing or walking, tenderness upon pressure, and by palpation an enlargement of one or more of the inguinal glands is detected. In favorable cases, under suitable treatment, the symptoms subside, and all signs of inflammation disappear in a few days. More frequently, however, the inflammatory symptoms increase, the pain is excessive, the tumor increases in size, a peradenitis results, the overlying skin becomes tense and cedematous, and suppuration follows. As the swelling further increases the capsule ruptures, and with it the pain ceases. The pus finds its way into the surrounding tissue and fluctuation is readily detected. If the resulting abscess is not evacuated it will open spontaneously at one or more points of least resistance, and the resulting fistulæ are often refractive to treatment. With the opening of a bubo the tissues may become the seat of chancroidal infection and a chancroid bubo result. In rare cases this may take the phagedenic or gangrenous form, and deep and extensive ulcerations result.

The prophylaxis of bubo consists in rest, the surgical cleanliness of the ulcer and the avoidance of silver nitrate as a cauterant. The treatment of bubo varies as to the stage of the disease. When seen early an attempt should be made to abort the bubo. Various ointments, wet dressings, and injections have been recommended for this purpose. The best wet dressing in our experience for the relief of pain and tenderness is the local application of a saturated solution of magnesium sulphate, together with rest,

and after the subsidence of the acute symptoms the application of an ointment composed of equal parts of the official mercury and belladonna, ichthyol ointments, and lanolin. This ointment should be spread one quarter to one half inch thick on lint to cover the entire swelling, a cotton pad applied, and all fixed with a spica bandage of the groin. By this method the abortive treatment was successful in 55 per cent. of the cases.

When the abortive method of treatment fails, the abscess should be opened where it tends to point, an opening being made of sufficient size to allow the free escape of pus; the cavity should then be cleansed with as little pressure as possible, and a wet sterile dressing applied and suitably fixed. Necrotic glands should be removed by blunt dissection. In abscesses which have opened spontaneously and do not heal, the edges of the sinus should be cut away, all loose and necrotic glands removed by gentle curetting, and the wound dressed antiseptically. This method of treatment has given much better results than free incisions and curetting, or extensive dissections either before or after the glands have broken down. The wounds resulting from these operations are long in healing, and in complete removal interference with the lymphatic drainage may follow, causing swelling of the penis and scrotum simulating a mild elephantiasis.

Phimosis is a very frequent complication of chancroid. This is due to the fact that chancroid is most frequently situated upon the reflected layer, in the sulcus, or on the glans, and inflammation is favored by the retention of secretion. In consequence of this inflammation the prepuce becomes thickened and infiltrated, thereby preventing its retraction over the glans, as the preputial orifice does not yield to stretching. Phimosis is frequently an early complication of chancroid, and results usually from carelessness or the too liberal use of cauterants. The diagnosis is easy. The foreskin cannot be retracted over the glans; it is red, swollen, and painful. Pus discharges freely from the preputial opening, and in a few days ulcers appear at the margin from autoinoculation. If the inflammatory process is allowed to continue unchecked, considerable destruction of the glans or reflected layer may occur, and ulceration may extend through the foreskin, the glans being seen in the opening or protruding through it. Phimosis of chancroidal origin is to be diagnosed from that caused by gonorrhœa, chancre, and balanoposthitis caused by ulcers, such as those of coalescing herpes, hair cut, or uncleanness. It should not be forgotten that two or more of these diseases may exist at the same time. Gonorrhœa can be excluded by the history of discharge and the absence of ulcers before the development of phimosis. After thorough irrigation of the preputial pocket the urine voided in two glasses will appear cloudy if gonorrhœa is present. Microscopical examination clears up the diagnosis. In chancre the induration may be quite palpable, the discharge is less, no ulcers are present at the preputial margin, and the course of the disease proves the nature of the infection. Phimosis complicating chancre alone is rarely seen. Phimosis arising from herpes has little or no response promptly to subpreputial antiseptic irrigations.

Phimosis is best treated by rest, wet applications

preferably of a saturated solution of magnesium sulphate, elevation, and frequent subpreputial irrigations. If the inflammation does not respond to this treatment the foreskin should be divided upon the dorsum as far back as the corona, or, what is better, lateral splits should be made. This operation can be performed under local anæsthesia. A grooved director is passed beneath the foreskin, care being taken that it does not enter the urethra, and the two layers of the prepuce divided with scissors. If there is much bleeding a few stitches readily control it. The cut surfaces become infected as a rule, but this is no contraindication. A pouch of oedematous tissue remains on the under surface of the glans, which can later be removed by circumcision.

Paraphimosis has been aptly described as a dislocated phimosis. In this condition the prepuce which has been retracted over the glans cannot be replaced in its normal position, on account of the constriction of the preputial margin and congestion of the glans from circulatory disturbance. Paraphimosis when complicating chancroid is caused by the patient retracting the foreskin to treat the ulcer and forgetting to replace it in its normal position. The constricting band, the preputial margin, is always the second furrow behind the glans penis. The glans penis and the inner layer of the prepuce become oedematous in a short time; the outer layer is not involved, as it lies behind the constriction. The swelling is most pronounced on the under surface of the penis, and appears as several folds of bright red glistening tissue. If not relieved ulceration of the constricting band follows, and this in turn becomes infected with chancroid. In the further course gangrene may result from circulatory disturbances; fortunately, as a rule, ulceration of the constricting band prevents it. In a few days infiltration of the oedematous part becomes so marked that reduction is impossible.

The treatment should be prompt. An attempt should be made to replace the foreskin by making pressure from behind forward with the index and middle fingers of both hands and backward counter pressure with the thumbs upon the glans. When seen early multiple punctures will relieve the œdema and facilitate reduction. Where reduction by this method is unsuccessful the constricting band should be divided from below upwards in the median line on the dorsum of the penis. If after cutting the band reduction is still impossible the penis should be elevated and wet dressings applied until the subsidence of the inflammation.

PROFESSIONAL BUILDING.

THE RELATION BETWEEN THE PHYSIOLOGICAL ACTION OF IONS AND THEIR PHYSICO-CHEMICAL PROPERTIES

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XIII. Summary.

I. Introduction.

That there is a tendency to generalize whenever possible is well known. In this way a large number of more or less discrete ideas may be conveniently associated, if the principle underlying all of them be understood. This convenient association or correlation of ideas is probably the basis of that sense of mental gratification which is experienced when a general truth is arrived at. Therefore, psychological influences such as these must be considered whenever any general proposition is critically analyzed. Even a most careful observer may be led by such influences to overlook a gap, while seeking a most desirable common factor of some kind, in the phenomena under observation. These factors are so well known that the results of an investigation are studied more critically than usual if it be known that the observer has had preconceived notions of what the outcome will be. Evidence which tends to support a favored theory, or add substance to our statements, finds our minds in a peculiarly receptive state which is entirely absent when the evidence favors the other side. We instinctively offer mental resistance to unwelcome or unpleasant truths.

The leading generalizations of physical science are not paralleled in biology. This is probably due to the variability of biological, as opposed to the constancy, of physical units. If at any time in the future, mathematical formulæ be deduced which will show a relation between biological causes and effects, the formulæ will probably contain more variables than those ordinarily met with. An equation of state involving three variables can hardly be expected to show the condition of a system which is being affected by many more influences, external and internal. In general, the simple formulæ heretofore used by those who attempted mathematically to express biological truths have very often failed to correctly express the intended relations, because of the omission of factors that would mathematically represent the conditions which can modify or shape the course of a biological event. Many of these factors are not understood; many are not known. And a formula containing all of them would, in size and complexity, resemble the hypothetical gas-thermometer of Laplace.¹

The relatively small number of broad generalizations in various branches of biology has naturally

served as a stimulus to those biologists who sought general truths. And so it was but natural, after the development of the theory of electrolytic dissociation by Arrhenius² and van't Hoff³ that physiologists turned their attention to the recently developed principles of physical chemistry for such explanations of biological phenomena as might enable them to coordinate the seemingly disconnected data at hand.

As a result of the observations of Hardy⁴, Büttschli,⁵ and other investigators, it is now believed that the contents (partly or entirely) of all living cells consist of colloidal solutions, i. e., masses of variable viscosity, resembling in some respects a thin jelly. In general, substances which when dissolved in water form thick, viscous, or jellylike solutions are called colloids, to distinguish them from crystalloids or substances whose aqueous solutions are practically (although not exactly) as mobile as the pure solvent. Albumin, glycogen, dextrin, gelatin, various gums, etc., when dissolved in water, form typical colloidal solutions. Almost all crystallizable substances can be classed as crystalloids, i. e., common salt, sugar, etc. Colloids and colloidal solutions of various kinds have been carefully studied in recent years. It is believed by many that the ultimate nature of vital processes may some day be understood as the result of such study.

II. Physiological effects due to a change in the physical condition of the cell contents.

The colloidal contents of the cell are susceptible to external and internal influences of various kinds. In many cases these influences exert a physiological effect by changing the physical condition of the protoplasm. Thus the toxicity of mercuric chloride and of many of the salts of heavy metals is referred to their property of combining with and precipitating the protoplasmic proteins.⁶ The toxicity of many salts (i. e., barium salts) is due, in part at least, to the precipitation of insoluble substances in the cell. Such insoluble substances (barium sulphate, etc.) might, in some instances, mechanically prevent or retard cell activity.

According to Lillie,⁷ electrolytes which stimulate muscle fibre do so by inducing rapid and reversible changes in the viscosity of the colloidal fibre contents. According to this view, muscle contraction is due to a coalescence (incipient coagulation) of colloidal particles; this change is reversed during the relaxation phase. The theory is open to the objection that the viscosity changes caused by electrolytes probably do not take place as rapidly as the muscle can contract and relax. Furthermore, if these effects in muscle are due to viscosity changes the latter would require the alternate presence and absence of the influencing electrolyte, which is present during both contraction and relaxation phases.

The transmission of a nerve impulse along a nerve is supposed, by Mathews, to be effected by a progressive precipitation and resolution of the colloidal particles in the nerve; the change in the phys-

¹ Laplace, *Zeitschrift für physikalische Chemie*, I, p. 181, 1881.

² van't Hoff, *Ibid.*, I, p. 631, 1881.

³ Hardy, *Journal of Physiology*, xiv, p. 163, 1899.

⁴ Büttschli, *Untersuchungen über mikroskopische Schäume und das Protoplasma*, pp. 110-113, Leipzig, 1892.

⁵ Goshing, *Text-Book of Pharmacology and Therapeutics*, pp. 605, 691, 2d ed., New York, 1901; Kunkel, *Handbuch der Toxikologie*, p. 118, Jena, 1901.

⁷ Lillie, *American Journal of Physiology*, xvi, p. 117, 1906.

ical condition of the colloidal particles as they are precipitated and redissolved, constituting the impulse.⁸ Darwin's⁹ observation that the conduction of stimuli in certain plant tissues is accompanied by changes in the plant cells somewhat similar to those just described, favors this view.

Living tissue is susceptible to many influences, mechanical, thermal, electrical, and chemical. For reasons to be made apparent presently, we may confine our attention in this connection to the physiological effects of the chemical elements and their compounds. Both electrolytes and nonelectrolytes can exert physiological effects.¹⁰ Stimulation caused by the osmotic effects of strong solutions of nonelectrolytes (sugar, for instance) are too well known to need description here.¹⁰ The nonelectrolyte may form a soluble or insoluble compound with some cell constituent. Kunkel¹¹ refers the toxicity of soluble barium salts, for example, to their ability to withdraw SO_4 from the tissues and precipitate barium sulphate.¹² The narcotic properties of chloroform, ether, acetone, and other anesthetics are seemingly due to their solvent action on the lipid constituents of nerve and brain tissue.¹³ The reaction between a nonelectrolyte and a cell constituent may liberate heat in quantities sufficient to materially alter the viscosity of colloidal substances in the immediate vicinity, i. e., the combustion of glycogen or similar substances through the agency of an oxidative factor.

In general, nonelectrolytes, as well as ionizable substances, may be physiologically active.

III. The pharmacological action of organic compounds and of their decomposition products.

The physiological effects of electrolytes are referred, by some investigators, to the number of charges carried by the ions resulting from the dissociation of the electrolyte,¹⁴ and to the ease with which these ions part with their charges and become atoms again.¹⁵ It has been stated that the chemical composition of these ions is of no importance.¹⁶ According to this view their electrical, not their chemical, nature determines their specific physiological actions. That this cannot in the present state of our knowledge be said of nonelectrolytes is obvious.

In discussing the cause of the pharmacological action of some organic drugs (amyl nitrite, chloroform, etc.) Mathews¹⁷ advances the theory that many organic drugs owe their actions to ions. He says: "There is hence good reason for thinking that both the nitrites and chloroform, and probably other

drugs as well, do dissociate slightly; that their physiological action is . . . greatest in those which decompose into ions most easily." In this connection it should be remembered that many nonelectrolytes, on long standing, *decompose* into substances which are dissociable. Thus, pure chloroform, when shaken with a solution of silver nitrate yields no precipitate of silver chloride, because pure chloroform, being a nonelectrolyte, does not ionize appreciably when dissolved in water. After continued exposure to light and air, however, chloroform decomposes, yielding chlorine, hydrochloric acid, and carbon oxychloride, COCl_2 .¹⁸ Chloroform so exposed will, of course, yield a precipitate with silver nitrate, not because the chloroform has slowly ionized, as Mathews¹⁹ would have it, but because it has decomposed, and has yielded an *ionizable decomposition product*, the hydrochloric acid in this case. The greater toxicity of old chloroform is probably due to these decomposition products and not to a slow dissociation of the pure product. The same may be said of the other substances mentioned in Mathews's paper. Apparently Mathews does not here note the difference between slow ionization on the one hand and slow *decomposition* of a nonelectrolyte into ionizable compounds on the other.

When an element is dissolved in water, it does not ionize.²⁰ A fresh solution of pure chlorine gas in water contains no chlorine ions. These (chlorine ions in aqueous solution) are always electronegative, never positive.²¹ Leblanc's²² claim that tellurium is an exception, insofar as it can form both positive and negative ions (of different valences) is not yet generally admitted.

When any substance in solution ionizes, it is separated into positive and negative ions, so that the sum of the positive charges on the positive ions is equal to the sum of the negative charges on the negative ions. For every charge of one sign there must be one of the opposite sign. The chlorine cannot ionize because it cannot dissociate into both positive and negative ions. However, chlorine is not a chemically inert substance. It slowly decomposes water, liberating nascent oxygen ($\text{H}_2\text{O} + \text{Cl}_2 = 2 \text{HCl} + \text{O}$), to which the oxidizing (and bleaching) effect of chlorine is due. Perfectly dry chlorine is chemically inert.²³ It will not act on fused metallic sodium. The intensely oxidizing effect of gaseous chlorine described by Mathews²⁴ is, perhaps, not due to chlorine ions of high potential, but to the presence of oxygen in the chlorine gas, and in larger quantity on the moist protoplasmic surface. After hydrochloric acid is formed it ionizes, yielding hydrogen and chlorine ions. But the chlorine ions are due to the ionization of the hydrochloric acid, and not of elementary chlorine. If the element when dissolved in pure water does not react with the water, like oxygen, ions of that element would not be formed, even on long standing.

Mathews, *Science*, No. 9, 497, 1902.

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Mathews, *Science*, No. 9, 497, 1902.

⁸ Mathews, *Science*, No. 9, 497, 1902.

⁹ Darwin, cited in Pfeffer, *Physiology of Plants*, III, p. 30, 2d ed., Oxford, 1906.

¹⁰ Mathews, *American Journal of Physiology*, xl, pp. 458, 471, 1905, 1906.

¹¹ Kunkel, *loc. cit.*, p. 115.

¹² In considering the stimulating action of barium salts, Mathews, *American Journal of Physiology*, xl, p. 457, 1904, does not include the possibility of the formation of an insoluble compound of barium with a tissue constituent as one of the factors determining the physiological action of barium salts. Later, however, p. 471, in discussing the stimulating action of certain polyvalent anions (citrate, oxalate, etc.), Mathews says, "calcium precipitation in the tissues is not, therefore, the cause of the stimulating power of these ions. There is, however, a general parallelism of stimulating power and the insolubility of the salts concerned." It is not clear why such a consideration of the insolubility of barium compounds is not made.

¹³ See, for instance, the experiments of Partridge and Plummer, *British Medical Journal*, 1906, 1907, 1908.

¹⁴ See, for instance, the experiments of Partridge and Plummer, *British Medical Journal*, 1906, 1907, 1908.

¹⁵ See, for instance, the experiments of Partridge and Plummer, *British Medical Journal*, 1906, 1907, 1908.

¹⁶ See, for instance, the experiments of Partridge and Plummer, *British Medical Journal*, 1906, 1907, 1908.

¹⁷ Mathews, *Science*, No. 9, 497, 1902.

Under certain conditions infinitesimally small amounts of *gases* may be ionized, forming oppositely charged ions which are not similar to ions in solution.

"The word ion has been generally adopted in the literature of the subject. In the use of this word no assumption is made that the ions in gases are the same as the corresponding ions in the electrolysis of solutions."^{24a} "Röntgen rays are able to pass very long distances through gases, and as they pass through the gas they ionize it, splitting up the molecules into positive and negative ions, the number of molecules so split up is, however, an exceedingly small fraction, less than one billionth, even for strong rays, of the number of molecules in the gas."²⁵

At ordinary temperatures and pressures, only a small part²⁶ (usually less than one thousandth) of the volume of a gas is occupied by the molecules present in that volume; the larger part of the volume is the free space through which the molecules move. It follows that any given volume of gas through which Röntgen rays are passing would contain very little ionized matter. "Thus even in the case of the ionization of a gas by pure radium only about one molecule of gas is acted on per second in every 100 millions."²⁷ Furthermore, when a gas is allowed to act on any living tissue, it probably dissolves in or reacts with the saline solution present on the surface before it exerts its physiological effect, and we really are dealing with a gas in solution, or with its reaction products. The origin of Mathews²⁸ positive chlorine ions of high potential said to be present in chlorine gas is not clear to us.

That every chemical reaction is an ionic one has not yet been proved; some reactions may be molecular. "The assumption that reactions in aqueous solution take place only between ions is itself one which I presume the majority of physical chemists have never adopted and which certainly has now been shown by the experiments of Kahlenberg and others to be directly opposed to all the evidence."²⁹ Mathews's inference that substances are physiologically active only when ionized, that their chemical composition is of no importance, and his extension of these principles to account for the action of non-electrolytes, seems to us to be unwarranted in the light of the evidence (or lack of evidence) advanced to support the theory.³⁰ In terms of this theory, how are we to account for the specific effects of substances?

In a recent work³¹ on the effects of ions on catalysis, the results obtained would indicate that solutions containing equal or equivalent concentrations of different ions do not possess the same properties. The effect of any one ion in the absence of others has not yet been studied, for the reason that solu-

tions containing only one kind of ion have not yet been prepared. By comparing the physiological properties of two solutions containing an ion in common, it is possible to obtain results which are approximately correct for the common ion, but which may not be entirely correct because of the complications arising through the presence of the other ions.

11. *Is the physiological action of an ion preceded by a transfer of ionic charges?*

Among the many problems which have attracted the attention of investigators during recent years is the explanation of the physiological action of ions. That electrolytes exert specific effects which are independent of their electrical condition, and which may be referred to their chemical composition has long been known. Ions (of different substances) of the same valence certainly are not alike.

Attempts have been made to show that the physiological and physicochemical properties of ions are functionally related. Assuming this to be true, we come to the problem of ascertaining which of these physicochemical properties are the determining factors. According to Mathews³² there is a relation between the solution tension, atomic volume, and physiological action of the elements. We will show later that the proof of the relationship of physiological action to atomic volume, as given by Mathews, is not correct. In the same paper (p. 317) Mathews offers an explanation of the mechanics of physiological action. He says:

"The positive ion, (sodium), with its unsaturated affinity, comes in contact with a protoplasmic molecule or colloidal particle which contains at some point a negative charge. If it has a greater affinity for the charge than the protoplasm has, it will steal it away and become at once an atom (of sodium).

"When the protoplasmic particle loses this charge, it changes its chemical or physical shape. If the charge comes from the surface of a colloidal particle, a reduction of surface will take place, leading thereby to movements within the protoplasm due to a change in the state of aggregation."

His theory, then, is that an ion coming in contact with a colloidal particle causes an electrical interchange, the ion loses its charge and becomes an atom, and the colloidal particle gains a charge, which causes physical and chemical changes within the particle.

In order to understand the action between an ion and a colloidal particle of living protoplasm, i. e., if we would know definitely what energy and matter exchanges take place when an ion exerts its physiological effect on a protoplasmic particle, we must first understand the ultimate nature and structure of ions and of colloidal particles. Even a superficial study of ions and colloidal particles reveals the fact that they are extremely complex systems or large aggregates of smaller particles. This makes the number of possible exchanges between two such complexes so great that no one possibility can properly be considered a probability until sufficient experimental evidence justifies an assumption in its favor.

It is one of the objects of this paper to show that certain theories of the physiological action of ions have uncertain foundations, because the ultimate

constitution of ions (in solution) is still a problem in experimental physics and the theories that have been advanced to explain the properties of colloidal solutions are, to a certain extent, contradictory. Several of the more important theories of colloidal solutions and the differences between them will here be considered in some detail, the remaining part of the problem, the constitution of the ion as related to physiological action, being reserved for the future.

V. Recent theories of the ultimate constitution of matter.

A word as to the ultimate constitution of ions and atoms, since these conceptions are among our fundamental working units. The atom, or chemical unit of matter, is now generally supposed to be a complex system, composed of many very small particles, called electrons.

"The electron or corpuscle is the body of smallest mass yet known to science. It carries a negative charge."³³ "An atom is not a large thing, but if it is composed of electrons, the spaces between them are enormous compared with their size. If an electron is represented by a sphere an inch in diameter, the diameter of an atom of matter on the same scale is a mile and a half."³⁴ . . . "It is a fascinating guess that the electrons constitute the fundamental substratum of which all matter is composed; that a grouping of, say, 700 electrons, 350 positive and 350 negative, interleaved or interlocked in a state of violent motion so as to produce a stable configuration under the influence of their centrifugal inertia and their electric forces, constitute an atom of hydrogen; that 16 times as many, in another stable grouping, constitute an atom of oxygen; that some 16,000 of them go to form an atom of sodium, about 100,000 an atom of barium, and 160,000 an atom of radium."

"The chief defect in the electrical theory of matter at present is that the *positive* electron, if it exists, has never yet been isolated from the rest of an atom of matter. It has never been found detached from a mass less than the hydrogen atom; whereas the negative electron is constantly and freely encountered flying about alone, its mass being little more than the thousandth part of an atom of hydrogen."

"Until a positive electron can be similarly isolated, the hypothesis that an atom is really composed solely of electricity,—that is to say, of equal quantities of positive and negative electricity associated together in a certain grouping of little bodies, each of which is nothing more than a concentrated charge of electricity of known amount,—must remain an hypothesis."³⁵

One of the peculiar results of recent physical research on the structure of atoms is the conclusion that the *material* atom may consist entirely of *non-material* parts.

"The importance of these deductions lies in the fact that an electric charge in motion (an electron), quite independently of any material nucleus, possesses an apparent mass in virtue of its motion, and that this mass is a function of the speed. Indeed, we shall see later that the apparent mass of the particles constituting the cathode stream can be explained in virtue of their charge without the necessity of assuming a material body in which the charge is distributed. This has led to the suggestion that all mass may be electrical in origin, and due purely to electricity in motion."³⁶

"On this view of the constitution of matter, part of

the mass of any body would be the mass of the ether dragged along by the Faraday tubes stretching across the atom between the positively and negatively electrified constituents. The view I wish to put before you is that it is not merely a part of the mass of a body which arises in this way, but that the *whole* mass of any body is just the mass of ether surrounding the body which is carried along by the Faraday tubes associated with the atoms of the body. In fact, that all mass is mass of the ether, all momentum, momentum of the ether, and all kinetic energy, kinetic energy of the ether. This view, it should be said, requires the density of the ether to be immensely greater than that of any known substance."³⁷

Until recently, physicists³⁸ have considered the ether to be a substance (?) or medium of extreme tenuity; so light, that a sphere of ether as large as the earth would weigh not much more than one ton. But the new theory of the constitution of matter requires the density of the ether to be *immensely* greater than that of any other known substance! The exact nature of the all pervading ether is still unknown, but obviously it cannot at one and the same time be both the lightest and heaviest of substances. Whether the present day electron theory of matter will remain unmodified by the results of future investigations, or by later views of the nature of the ether, is here a question of little direct importance. It is sufficient to note, however, that apparently the theory of the physiological action of ions as advanced by Mathews³⁹ so involves the new theory of matter that any modification of the latter will probably require a corresponding modification of the former.

The atom, therefore, according to current views, is composed of a large number of electric charges, or electrons, or corpuscles. An electron is not matter, it is ether, and differs from the ether surrounding it only in its condition.

An ion in solution is a charged atom or group of atoms. A monovalent positive ion is an atom (or group of atoms) minus one negative electron, a trivalent negative ion is an atom (or group of atoms) plus three negative electrons. Positive electrons are not yet known. A positive charge is due to the absence of negative electrons, a negative charge is due to the presence of an excess of negative electrons. In general, the ions of metals are positively, nonmetallic ions are negatively, charged. Colloidal particles are large aggregates or groups of atoms; several thousand atoms (usually) constitute a single colloidal particle.

When an ion of sodium, consisting presumably of about 16,000 electrons in rapid motion, approaches a colloidal protoplasmic particle (in a nerve or muscle fibre, let us say) consisting of several thousand atoms, each of which, in turn, consists of several thousand electrons, and *one* electron (negative, of course) passes from the colloidal particle to the sodium ion, which then becomes a sodium atom, the transfer of electricity and its results become interesting.⁴⁰

11. The physiological action of an ion is largely determined by its chemical properties.

Assuming that the physiological action of an ion

³³ Rutherford, *loc. cit.*, p. 56.
³⁴ Lodge, *Annual Report, Smithsonian Institution*, p. 218, p. 1, 1903.
³⁵ Lodge, *loc. cit.*, p. 220.
³⁶ Rutherford, *loc. cit.*, p. 71.

³⁷ Thomson, *loc. cit.*, p. 50.
³⁸ Wiedemann, *Handbuch der Physik*, vol. 1, 1893, 30, 31, 1900.
³⁹ Mathews, *American Journal of Physiology*, p. 37, 1904.
⁴⁰ Mathews, *Ibid.*, p. 317, 1904.

is due to the transfer of electrons or electric charges to or from the colloidal particle forming living tissue, is there any need of minutely studying the constitution of matter, of ions and electrons? Was not the science of chemistry developed during a time when the structure of the atom and the nature of chemical affinity were unknown? This was entirely possible because until recently chemical theory involved no assumptions about the structure of the atom, etc. But when we are asked to believe that the physiological properties of the barium atom, for example, consisting of over 96,000 electrons, are determined by the presence or absence of two of these, and the ease with which these two electrons separate themselves from those remaining, or that the physiological properties of the calcium atom, consisting of over 28,000 electrons, must be similar to those of barium, because both of these atoms become positively charged divalent ions by the loss of two electrons, a knowledge of the structure of an atom becomes very desirable. Physically and chemically the atoms of different elements are different. In terms of the new theory of the constitution of matter, these differences are accounted for by the differences in the numbers of electrons in an atom, and their relative positions and motions. Thus barium differs from calcium because an atom of the former consists of over 96,000 electrons, while an atom of the latter element consists of some 28,000 of them. The atomic weights of nickel and cobalt (58.7 and 59.0 respectively) are singularly close; their atoms therefore differ by a relatively small number of electrons, but they are nevertheless two distinct and separate elements.

According to Mathews,⁴¹ when a positively charged sodium ion approaches a negatively charged protoplasmic colloidal particle, an electron (or unit of negative electricity) passes from the particle to the ion, which becomes an electrically neutral sodium atom, the physiological effect of the sodium ion and its change to an atom occurring simultaneously or nearly so. Suppose another similar colloidal particle to be acted on by an ion of caesium in a similar way. The two colloidal particles are alike; they have parted with equal electric charges, but the ease with which the sodium ion (or system of 16,000 electrons) acquires this charge is different from the ease with which the caesium ion (or system of 93,000 electrons) acquires a similar charge, this difference being one of the factors which physiologically differentiate sodium from caesium. But why should these two ions have different affinities for the same things? To us the answer is obvious. Because the first process occurs in the presence of 16,000 electrons, the second process in the presence of 93,000, and this difference is part of the basis of the difference in affinity for electric charge. But according to Mathews this difference is of no consequence. The physiological action of these complicated systems, consisting of many thousands of moving parts, which are physically identical, is determined, according to Mathews, not by the number and conditions of these parts, for 50,000 more or less makes no physiological difference (although it does make a physical and chemical one), but by the presence or absence of a very few

of these! The caesium atom (93,000 electrons) and the sodium atom (16,000 electrons) should be physiologically alike, because both can become monovalent positive ions by parting with *one* electron; the barium atom (96,000 electrons) differs from the sodium atom physiologically not because it contains 80,000 more electrons, but because it can become a divalent positive ion by parting with two electrons!⁴²

If it be admitted that the ease with which an ion acquires or parts with a charge is influenced by the number of charges or electrons of which the ion is composed, it follows that the chemical nature of any ion is an important factor in its physiological action.

We here assume that the electron theory is correct, that the properties of an atom or an ion are determined by the number of electrons which constitute it, etc., and that the action of an ion on a colloidal particle takes place in the manner described by Mathews. This theory of physiological action may at some future time be confirmed, but at present, in our opinion, it is still very doubtful.

VII. *The relation between solution tension and physiological action.*

Different ions (or charged atoms) have different affinities for charges of opposite signs. Thus the positive sodium ion has a weak affinity for a negative charge. Its affinity for its positive charge is very strong (using the term positive charge in the old sense). It is said to have a high solution tension. The SO_4 ion has likewise a high solution tension, because it does not readily part with its negative charges. Atoms (or groups of atoms) which have a strong tendency to acquire and to retain electric charges, and pass readily from the atomic to the ionic condition, are said to have high solution tensions, of which sodium and potassium are examples. Atoms (or groups of atoms) which have a strong tendency to pass from the ionic to the atomic condition, and to part with their electric charges, are said to have low solution tensions; of which the heavy metals and halogens are examples.

In order to bring an inorganic salt into intimate contact with the contents of a cell the salt must be in solution, and in general a part of the salt will ionize. According to Mathews's theory, it is the ion (and not the atom) which causes the physiological action, by acquiring or parting with an electric charge and passing into the atomic condition. It follows very naturally that those ions which undergo this change readily or those having low solution tensions are most active physiologically, while those ions which do not pass into the atomic condition readily, i. e., those which have high solution tensions, are physiologically inert. Thus the lead ion is toxic, because it readily acquires two negative charges and becomes a lead atom; it has a low solution tension. The sodium ion has a strong tendency to remain in the ionic condition; it is relatively inert. According to the theory, the physiological action takes place during the change from the ionic to the atomic state, and the chemical nature of the atom is of little consequence. But the atom so formed might in some cases combine with something in the colloidal

⁴¹ Atoms having a valence higher than eight are not now known. Therefore no known atom can acquire or part with more than eight electrons.

particle to form an insoluble compound, in other cases a soluble compound would be formed. The latter by ionizing would affect osmotic conditions and currents of water (or tissue fluid) would flow from regions of lower to regions of higher molecular concentration, etc. The properties of the compound and the physicochemical reaction following its formation would depend upon the kind of ion. The physiological action of the ion is thus conditioned (in part at least) by the series of physicochemical events following the entrance of the recently formed atom into new combinations.

Thus positive ion A reacts with negative ion B (a tissue constituent) to form C. What now happens will depend (partly) upon whether C is soluble or insoluble. If C is insoluble the physiological action of A and B might be referred to the presence of particles of C in the protoplasm which interfere mechanically with its normal activity; to the temporary change in osmotic pressure, caused by the removal of ions A and B from solution; to the migration of the other ions or molecules (nonelectrolytes) to this place of lower osmotic pressure; to the heat of formation of C and subsequent changes in viscosity of the protoplasm, etc. If C is soluble its effect will depend upon whether C is an electrolyte or nonelectrolyte. There are here the same possibilities of changes in osmotic conditions as are caused by changes in ionization, etc.

These and similar changes of conditions probably are the physicochemical basis of physiological action. But since these depend upon the chemical nature of the atom, we are not convinced, as Mathews⁴³ would have it, that the chemical composition of an ion is of no physiological importance. Is it reasonable to suppose that all of these changes take place during the time that the ion changes to an atom? Probably these changes proceed simultaneously both before and after the electrical exchange.

Assuming that the relation between the solution tension of an ion and its physiological action as deduced by Mathews is proved, is this relation an argument in favor of the theory that it is the ion and its charge and not the atom which is physiologically active? This relation, if it be true at all, is true whether the physiological change is effected by the physicochemical action of the atom (or group of atoms) or by the electrical action of the ion. Assume that it is the chemical action of the atom, and not the electrical action of the ion, which effects physiological change. If the ions are inactive, those having a strong affinity for their charges, or high solution tension, do not readily become active atoms and are inert. The reverse is true for ions of low solution tension. Obviously, a relation which is true, whether the ion or the atom is the active agent, cannot be used as an argument in favor of either.

Pond⁴⁴ has recently concluded, from his study of solution tension as a factor in lipolysis, that Mathews's evidence in support of his view in this connection is insufficient.

(To be concluded.)

PELVIC TUMORS IN LITTLE GIRLS.

*With Report of a Case.**

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The exanthematous inflammations, tuberculosis, and indeed in some rare cases gonorrhœa, not excluding cancer, are among some of the causative factors which predispose the child to pelvic disease, hence careful consideration given to the female sexual organs will well repay the medical adviser, when his diagnostic powers are now and again severely taxed in solving the complex problems presented to him by an array of obscure abdominal symptoms in the child. It is well to remember in this connection that the available avenue for digital examination in little girls, when absolutely necessary, is by the rectum under the influence of an anæsthetic.

In the treatises on the diseases of children, there is but little space devoted, as a rule, to juvenile pelvic disease in girls; while the textbooks on gynecology treat largely of diseases of the ovaries and tubes, including the various abdominal tumors in the adult.

The interest which attaches to abdominal tumors in children is shown principally in the scattered cases reported in the medical journals by individual observers. This fact, together with the comparative infrequency with which ovarian tumors occur in little girls, offers sufficient excuse for the publication of my own case.

In a list of one thousand ovariectomies reported by Sir Spencer Wells, but three operations on children are recorded. Commenting on this, Dr. Howard Kelly endeavors to show by it the relative frequency of ovarian tumors in child and adult life, the fact remaining that children are not so readily brought to the operating table as adults. Dr. Marion Sims mentions a successful removal of a multilocular ovarian cyst from a patient, eleven and a half years old, the tumor weighing sixty-one pounds, the patient seventy-nine pounds. Dr. Boldt has operated upon a patient, four years old, for ovarian tumor. The late Dr. Thomas, of New York, removed an ovarian tumor from a little girl, twelve years old, weighing sixteen pounds. In this case a tumor equally large developed in the other ovary later on, and before she could be operated upon, it burst, and she died suddenly. Tumors of this character are met with in children of a still more tender age, but it is unnecessary to mention them here.

The little patient whom I present is the youngest I have operated upon for tumor of the annexa. In December of last year, this child of slender build, scarcely eleven years of age, was compelled to leave her school room because of sudden and intense abdominal pain. Home remedies were applied to no avail, the family physician was called the following day, he discovered the tumor and sent her into my service at St. Catherine's Hospital. Although no twist of the pedicle was found on opening the abdomen, it was undoubtedly the cause of the child's sudden and severe pain; the tumor was a typical dermoid cyst of the left ovary, and weighed two and one half pounds. The recovery was uneventful.

* Mathews, *American Journal of Physiology*, XI, p. 249, 1904.

⁴⁴ Pond, *American Journal of Physiology*, XIV, p. 258, 1907.

THE RATIONAL TREATMENT OF NERVOUS DISEASES.*

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I wish to take up more especially as a subject the so called functional or psychic neuroses, and I shall confine myself for the most part to the psychic or mental treatment of the same.

This is the class of patients which gives the average general practitioner the greatest discomfort and difficulty, and the least amount of beneficial results to show for the worry and trouble he has to undergo. This is the class that is continually going from one physician's office to another looking for relief. The number of physicians visited is something like the number of drugs listed under the treatment of the vomiting of pregnancy. Many are recommended, many tried, and the condition remains the same. These patients, as a rule, receive very little sympathy from the profession, and yet as a class they are deserving of the greatest attention. We lightly pass over their ills and pains and call them imaginary or simply nervous, while in fact they are of the greatest importance, for no class suffers more acutely. I think, perhaps, on the part of the patient, it is the lack of self control, the extreme selfishness, the fondness of relating in detail the minutest symptom, combined with the feeling of helplessness, which steals over the physician, as he watches the patient and listens to her narrative, which brings about this prejudice. But misunderstood as they are these psychoneurotics are ever with us and worthy of our deepest consideration. To the one possessed with the patience, and to whom each new individuality is an interesting problem, to be worked out with the greatest care, to such a one, the feeling experienced in managing such a patient is like that of the expert salmon fisherman, who patiently whips the pool all day long, possibly enduring all sorts of discomforts, yet forgetting all when he feels the strike, and after a long struggle, gradually realizes that he is getting control, and finally has the pleasure of mastering where so many have tried and failed. But in going into this work one must realize that not every day brings this happy feeling of success, but often it is our patiently working day after day and even months before we are rewarded even with a glimmer of hope.

Why is it that the profession as a whole has so signally failed with these functional neurotics? They come to our offices, and we go over them with the greatest care, seeking for what? For some somatic or physical condition, upon which we can place the blame for the whole train of functional symptoms that confront us. Heart, and lungs, and digestive system receive a thorough overhauling, and with what pleasure we discover a faulty digestion or assimilation, and surely a sluggish bowel or habitual constipation. If these fail to give us a clue, then certainly the reproductive organs will always be under suspicion. But if we fail to find the least irregularity there, what is there left for us to do?

There have been two courses, one the honest, to frankly tell the patient that there is absolutely no

physical condition that we can treat, except on general principles of rest, tonics, forced feeding and general hygiene. The other, not so honest, to temporize by prescribing a bromide, a glycerophosphate, or some of the multitude of nerve tonics. Or perhaps we possess a static machine with large shiny wheels, and we play on their nerves, the seat of the supposed functional pain, and pockets, the shower, or the breeze, or the spark, or we bring out the new vibrator, the now necessary adjunct of the well equipped barber shop, and assure them we have just the thing, at so much per treatment. When all this has been done, and the patient still ungrateful enough to complain that she feels no better, then we advise a long vacation, hoping that in the meantime something new may turn up, which we can try on her when she comes back. At present we have held her as long as we can. The chances are that after several years of this kind of treatment from the profession our patient falls into the hands of some irregular practitioner, and perhaps recovers, a firm believer in the irregular's doctrines, and a distinct enemy to the regular profession.

The trouble lies right here. All the training of the regular practitioner has been along the physical or the materialistic line. He has been taught to believe that every derangement of the human organism has behind it some physical cause, either in an irritating toxine or a pathological lesion, that we are to find that physical cause, and apply the specific remedy. In most of the medical schools we hear nothing of applied psychology or psychic phenomena. We are made to believe that everything is materialistic, that mind is but a product of body activity, in a sound body a sound mind. In the majority of all textbooks on nervous diseases, until very recently, purely psychical treatment was ignored, or the writer may add at the end of his list of diets and baths and other remedies some such statement as this: "In the majority of these cases moral treatment is very useful," leaving it to the imagination of the reader to supply what is intended by this remarkable statement.

All advanced psychologists now agree that psychical and physical processes are intimately connected. For centuries there have been the two schools of philosophy, the idealists, who make the body entirely dependent on the mind, and the materialists, who postulate that mind is dependent entirely on matter. But to-day the theory of psychophysical parallelism is that which is largely held. This theory states "that throughout life there is a chain of psychological events, which run parallel with another chain of physical events, and that these chains are in some way connected."

The close relationship between mind and body should be evident to all observant physicians. There is a mental aspect to all physical disease, but this mental aspect is too frequently overlooked, with consequent failure to recognize a symptom, the treatment of which would tend greatly to the relief of the patient. But in the psychoneurotic the mental side greatly predominates, and is often times, I believe, the whole cause of the various functional manifestations. Take, for instance, a typical case of neurasthenia. Usually there is a family history of nervous instability. If the mother happens to be the

* Read before a meeting of the Maine Medical Association at Lewiston, June 13, 1907.

offender, not only is there inherited tendency, but also a grave congenital one. The sympathetic nervous system of the mother not only controls her own nutrition, but that of the fetus as well, and in this way the equable evolution of the child may be interfered with in many ways. The nervous system fails to receive the necessary endowment of potential energy sufficient to meet the requirements of normal life, and so becomes an unstable one. The child is brought into the world with a birthright of congenital nervous instability, her infant brain a blank record to be filled in with the first impressions that happen to come along. It is not yet even determined which hemisphere of the brain is to be the seat of the intellect, all depending on whether the child begins to use the right hand or the left. Gradually these blank records of the brain are filled in, and whatever is engraved on that soft wax will come out in action when the machinery is reversed. All the new stimuli that come in are recorded, and in some way grouped together; ideas are formed and action springs into being. The same stimuli and the same associations repeated often enough, and the habit is formed, and one of the records in the *repertoire* of that character is filled and vulcanized. It is the impressions of these ideas plus the way they are associated, that determines the character of the record in the habit character of the child.

Imagine this child trained as only a neurasthenic mother can train her child. Lacking in self control herself, and beset by morbid fears and worries, she builds into the developing mental life a system of abnormal habits, the controlling power of the child's life. So the child grows up selfish and self indulgent, disobedient and absolutely lacking in self control. She acquires a system of phobias and worries, and with the first stress of life comes the various functional derangements of the unstable sympathetic system, and the misery has begun.

When such a patient presents herself for treatment, what is to be done? First of all if possible gain her confidence, show her that you are interested in her case. Give her the most thorough oral and physical examination, and satisfy yourself that there is no pathological lesion or condition. It will be less embarrassing to find this out before, than after you have begun your treatment. Satisfy yourself that you have a patient in whom the psychological element greatly predominates, or is the cause of the whole trouble. Then the course is plain, and you can confidently promise that you can help her. As Du Bois in his interesting romance on *The Psychic Treatment of Nervous Disorders* so plainly states: "Nervousness is a disease preeminently psychical, and a psychical disease needs psychical treatment." One of the first steps is to get control of your patient, and when that has been accomplished patiently begin to shift the responsibility until you have made her master of herself. Or as Du Bois has so well put it: "The object of treatment ought to be to make the patient master of himself; the means to this end is the education of the will, or, more exactly, the reason." I may differ with the author somewhat in his methods of obtaining this result, but with the plain statement of facts I heartily agree.

Teaching the patient self control is a matter of eradicating vicious habits and substituting others of opposite tendency, which shall bring about a right

mode of living and thinking. It is necessary to teach a somewhat optimistic system of philosophy, as they must be brought up to a level where they can see that there is something in life worth living for, and that their aches and pains, worries and fears can be overcome by the substitution of a habit of healthy mindedness. A spirit of hope, courage, and self confidence is inculcated, and these patients are encouraged to block the worry and fear thoughts as they come into their mind, and deliberately to substitute the thought of opposite character until the habit is fixed. Each patient has to be studied and dealt with according to the condition, and some of the more vicious habits attacked first. Most psychoneurotics are very restless. They can early be taught to control the activities of the body, as the first step in their education, by making them keep still for certain fixed periods in the day.

To illustrate, in a recent patient of mine I found a young college girl thin and anæmic, absolutely unable to keep quiet. She fidgeted in her chair, got up and walked about the room while I was talking to her. She was subject to fits of hysteria, and had an ungovernable temper. Against severe protest on her part, I made her stay in bed each forenoon, and taught her how to control her body and afterwards her emotions. Very little effort was made to increase the amount of nourishment. At the end of eighteen days she had full control of her body, and in addition had gained thirteen pounds in weight. She had used the same amount of fuel, but had learned to consume her own smoke.

The habit of sleeplessness is usually an easy one to overcome. Tell the patients confidently at each visit to go to bed at a certain hour each night and let nothing prevent their being ready for sleep at that fixed time, and that they will go to sleep at that hour. Usually in a very short time the idea becomes fixed, the habit formed, and the object accomplished. Functional constipation often yields readily to the same treatment. Fixed regularity at stool whether there is a desire or not, if persisted in, frequently brings the desired result. New habits are formed in the same manner as the habits of childhood by consciously doing the thing desired over and over again, until the subconsciousness takes it as its own. So with the functional pains, the indigestion, as soon as the patient finds that they are the result of mental fear impressions, that she must not think of them, much less to worry about them, or talk about them, one after another they tend to disappear. As to isolation and forced feeding, in the majority of cases it is a great help, especially in the anæmic and undernourished patients. It is a great help in that it gets them out of the old ruts and the old influences of association. The physician can get them more completely under his control, and can confidently expect a much earlier recovery.

Massage has been greatly overrated as a therapeutic measure, especially in the way it is usually given. As for electricity, I consider it practically useless. Some patients respond very quickly to suggestion and changed surroundings, others do not. I have just discharged a case of melancholia. The patient came to me with all the typical symptoms. She had a family history of that disease on her father's side. Twelve years ago, after unusual exertion, she began to have what she called brain pres-

sure, and since that time had never been free from it. Two years before she had lost her husband, and since then had been in the deepest depression. She began to lose flesh, menstruation became scanty. She dressed in the deepest mourning and brooded constantly over her troubles, and considered that she had lived her life and there was nothing left for her in the future. I isolated her and put her to bed. For three weeks I worked over her an hour or more each day, without seemingly making any impression. I went over the same ground day after day, week after week. She seemed absolutely lacking in will power. I was continually met by the reply: "If it depends upon my effort to get out of this condition, I never can do it. It is absolutely impossible." Yet at the beginning of the fourth week she began to improve. She eagerly read the books I gave her, and began to take an interest in the future. The pressure in the head, she had complained of so bitterly, began to disappear, as did the other functional disturbances. She made up her mind to get well, and made her plans for the future. The rest was easy. She went home at the end of the sixth week a happy, well woman, convinced that her troubles were mental. She had gained her self control and her mind was for the first time in her life master of her body.

In conclusion I wish to call attention to the great interest the people in general are taking in psychotherapeutics. One little realizes until he begins the investigation how many creeds and cults are being given out by more or less unscrupulous people, or the great number of their following. Healers, many from the more or less ignorant classes, abound everywhere. They are all busy, especially with the neurotics. There is such a demand for their literature that several large publishing houses have sprung up to furnish the supply. In the larger cities the physicians are beginning to keenly feel the result. What has brought this about more than anything else is the *blind* tenacity with which the profession has ignored the psychical and clung to the materialistic side of treatment. Unless they wake up to this fact and learn to give their patients rational scientific psychic treatment at the same time with the physical, the treatment of the psychoneurotic will pass very quickly from the educated, well equipped physician into the hands of the charlatan and to the so called mental healers.

THE TREATMENT OF ACUTE GENERAL PERITONITIS.

By GEORGE CHANDLER, M. D.,
Kingston, N. Y.

In a district where there are small out lying towns, a surgeon sees a number of cases of acute general peritonitis which have reached an extreme condition owing to the time elapsing between notifying the doctor and his arrival at the patient's bedside.

The writer has seen a number of such patients, and the mortality has formerly been great, but during the last eight months he has operated in thirteen such cases with but one death. The results have been so gratifying and the change so radical that the method followed may be of interest.

The treatment is the result of reading Dr. John

modifications as the growth of personal experience. It is as follows:

1. Use ether anæsthesia in all cases. The patient is prepared after anæsthesia. The one great secret of success lies in speed. The operation must be done quickly.

2. Always make a median incision, no matter what the condition. Handle the intestines gently while finding the lesion. If gas escapes, a perforation is present. When little or no odor is present, the lesion is high up in the gastrointestinal tract, as ulcer of stomach or duodenum. If a foul odor is present, the lesion is low down and is usually the appendix. Where lymph is present in the intestines there usually is found the lesion. After finding this, repair quickly or remove diseased appendix.

3. Do not wash out the abdomen under any conditions.

4. At the lower angle of the median incision extending to the very lowest point in the pelvis place a large rubber drainage tube three quarters of an inch in diameter. Make the holes in the tube small so that the intestines cannot be caught in these holes. Always put a wick of gauze through this tube from the bottom of the cavity to the gauze on the outside of the abdomen. This is very essential. If necessary make multiple drains by puncture wounds in the flanks, over kidney region or wherever necessary. Make too many rather than too few, but be sure and divide the muscle and do not cut the fibres, also avoid nerves. Through these puncture wounds small split rubber drainage tubes are placed with gauze in the lumen as a wick.

5. The head of the bed should be elevated at least eighteen inches, and then the patient should be in an absolutely upright sitting posture. Do not have simply the head and shoulders high, but be positively sure that the pelvis is at least 75 degrees or more upright. This can be insured by having pillows in the small of back between bedrest or a chair in the bed. This posture is the great essential of the treatment, since it is now known that drainage in the abdomen will only take place by gravitation during the first twelve or twenty-four hours, never longer. Secure therefore the most upright position possible so that the infectious material may gravitate early and be in the pelvis where, if necessary, it can be reached later through the rectum or vagina. I have done this last in three of my patients with fine results.

6. After placing the patient in bed give continuous normal salt solution by rectum. Do this by inserting a rubber catheter with the end cut off, about three inches into the rectum, attach this catheter to a fountain syringe, and have the lower end of bag only two inches above the rectum. The patient will not be aware of this procedure and will take up great quantities of the solution, several pints in eighteen hours. It relieves thirst, fills abdominal lymphatics with solution, and will not move the bowels if given gently. Later, if the patient has the inclination, remove the tube.

7. Give no food by mouth for four days, and always wash out the stomach just before the patient comes out of the anæsthesia, or immediately afterward. This is most essential. The patient will tolerate the washing very well, if you cocaineize the throat with a 1 per cent. solution, and wait at least

1: Murphy's paper on the subject, but with some

5 minutes before using tube, which is Ochsner's method. Feed by bowel every four hours, beginning with the second day, egg water, liquid peptonoids, etc., one ounce of food with three of salt solution.

8. Morphine should be given by hypodermic injection for a stimulant, also to act as an abdominal "splint." It relieves the nervous tension and is absolutely indicated after operation. Use no other heart stimulant.

9. If pulse drops to 100° then everything looks favorable. I never pay any attention to the temperature until after the third or fourth day. If it then begins to show signs of suppuration, the pus can be reached by rectum or vagina, since by the exaggerated upright method it has gravitated to the pelvis, and you have a pelvic abscess to deal with that has been walled off from the general peritoneal cavity.

10. On the fourth day I always move the bowels by a high enema of milk one pint, and molasses one pint, mixed and warm. This is the best enema I have ever found. I have rarely seen it fail and I use it in all my abdominal cases. If the first one does not act repeat two or three times. Never give a cathartic by mouth until there has been a sufficient result from the enemas. Begin then to feed with small quantities of fluid stuffs, and if the temperature goes up pay no attention to it, but if the pulse gets rapid and there is gas in the abdomen, wash out stomach and give calomel in small doses, or castor oil.

I am a firm believer in this treatment. In those cases in which the entire peritoneal cavity is involved with rapid pulse and anxious look, cases which I used to consider hopeless, I now believe that nine out of ten can be saved by this treatment.

11 EAST CHESTNUT STREET.

Therapeutical Notes.

The Protection of the Heart in Fever.—Stéplane Leduc, of Nantes, directs attention to the danger to the patient of paralysis of the heart in febrile diseases, and believes that many lives may be saved if prompt attention is given to the condition of the heart. The necessity of preserving the horizontal posture is generally recognized. Sudden death is most frequent in those patients who, rising from the bed, attempt to stand upright on the floor. This is owing to the sudden increase in the intracardiac pressure. The heart wall is also weakened by the elevated temperature of the blood (thermic myocarditis). This may in great measure be prevented by the steady application of an ice bag over the precordia. A piece of flannel should be placed under the bag to protect the skin. —*La Province médicale*, January 5, 1907.

The Pubic Angle in the Clinical Diagnosis of Sciatica. Mirerivini and de Sanctis (*Gazzetta degli ospedali*, April 14th) state that while many of the symptoms of sciatica are variable and fugacious, that of the pubic angle persists from the beginning to the end, and by its augmentation or diminution is very valuable for prognosis. Normally, in the condition of health, the two legs are perpendicular to the pelvis and parallel with each other. The an-

gle formed at the pubis is very acute when the body is upright, and disappears entirely when lying horizontally. This angle increases in sciatica on account of the pain, and in proportion to its intensity. The limb is more or less abducted by the patient in his effort to reduce the traction upon the sciatic nerve. The greater the degree of abduction, the greater the amount of pain, and inferentially the more the inflammatory thickening of the nerve. The formation of this pubic angle to relieve pain, distinguishes sciatica from coxalgia (in which abduction produces pain), and also from abscess. Finally, in coxalgia the limb is perpendicular to the body, and parallel with the healthy limb, but it is flexed.

Methyl Atropine Bromide in the Lightning Pains of Tabes Dorsalis.—Hudovernung, of Prague has given methyl atropine bromide, in capsules, and in solution, in doses of 1, 2, or even 4 milligrammes, repeated three times in twenty-four hours. In this way he has given relief for five or ten days to the lightning pains of tabes. It has also relieved neuralgia of the fifth nerve. The remedy is said to be nontoxic, and there is no danger of forming a drug habit. It has exceptional analgesic power. —*Journal de médecine*, June 2, 1907.

Improvised Esmarch Bandage.—In *Der Militärarzt*, Kirchenberger recommends that soldiers should be supplied with elastic bandages for the arrest of hæmorrhage in the wounded. In the Russo-Japanese war, seventeen of the wounded in a division of 13,000 men died of hæmorrhage. This would mean a whole battalion in an army of forty-five divisions. That could be avoided if the bearers were supplied with elastic bandages. The common elastic bandages spoil very readily and cannot be kept on hand. He suggests the use of elastic bands (garters sewed together to a width of about two or three centimetres) or five to eight elastic strings woven together. A hook is sewed on one end and a loop on the other. If in case of a campaign the societies of the Red Cross begin at once to make these bandages, many of them can be made in a short time. These can be given to every man of the troops. A soldier should perhaps only be supplied with a material which makes a complete obstruction impossible, so that the bandage may remain for four to six hours without fear of gangrene. —*Through The Military Surgeon*, July, 1907.

A Urinary Test for Grave Diabetes.—Stryzowski was the first to point out that in certain diabetes the urine, after the addition of five per cent. of the formaldehyde of commerce (40 per cent.), takes, at the end of twenty-four or forty-eight hours, a fluorescent greenish tint, and he believed that the occurrence of this reaction denoted the gravity of the case, and when obtained, it warranted an unfavorable prognosis. Kuhn (*Münchener medizinische Wochenschrift*, May 21, 1907) has recently confirmed this observation by a study of several hundred cases of diabetes. This reaction is independent of the proportion of sugar, and disappears after the patient's health improves. It is not produced by acetone, diacetic acid, or oxylbutyric acid, none of which substances strike a green color with formaldehyde. It does not occur in tuberculosis, except when this is complicated by diabetes.

Kuhn considers that the reaction is a product of the intraorganic changes, belonging exclusively to grave forms of diabetes.

Treatment of Herpes Zoster by Picric Acid.—Picric acid may be employed in zona, in an aqueous, alcoholic, or ethereal solution. In making the watery solution, a litre of water is made to boil and half a handful of crystals of picric acid is thrown in. When the solution is cold, the excess will fall to the bottom, leaving a saturated solution, which contains twelve parts per thousand. A piece of gauze or thin layer of absorbent cotton is to be moistened with this, then wrung out nearly dry, and placed on the affected area and covered with a dry piece of cotton and a roller bandage. It is important that no impermeable dressing be used which would prevent evaporation, and would lead to maceration of the epidermis. This dressing is only to be renewed after three or four days. It should be removed dry, and generally it comes away very easily. The alcoholic solution is ten per cent., the ethereal solution is five per cent. They may be employed in place of the aqueous, but they are a little more painful at the moment of application, but have the advantage of drying rapidly. They may be painted on the surface, and therefore are more useful in zona affecting the neck or face. Picric acid in the form of dusting powder or ointment should not be used. The former is liable to be absorbed and produce poisoning; the latter is keratolytic and causes solution of the epidermic cells.

Treatment of Serpent Ulcer of the Cornea with Mercury Cyanide.—H. W. Woodruff, of Joliet, Ill., reports the successful treatment of a case of serpent ulcer, and calls attention to the points which he regards as most important in the management of these cases. A recent ulcer serpens appears as a grayish white or yellowish disk, which occupies nearly the centre of the cornea. The opacity of the disk is greater at the edges than in the centre, and generally the edges show a particularly well marked gray or yellow opacity in one special direction. The disk is surrounded by a delicate, gray area, and frequently fine, radiating gray striæ extend from the margin of the disk into the transparent part of the cornea. The rest of the cornea is cloudy. There is usually violent iritis and hypopyon. The iris is discolored, and may be fastened by posterior synechia to the lens capsule. Irritative symptoms, with injection of the conjunctival and ciliary vessels, are usually present, and there is often a high degree of pain and photophobia. "The important features of the lesion are the disk like form and central situation of the opacity, the more pronounced opacity of the margin in comparison with the centre, the character of the corneal surface, which at the site of the ulcer serpens shows only a shallow depression, and finally the early hypopyon and iritis" (Fuchs). This form of cornea ulcer is now known to be due to infection with the pneumococcus, following a slight wound or abrasion of the cornea. Other pus producing organisms may cause ulcer and hypopyon, but the condition is said to be typical seriginous ulcer only when the pneumococcus (Fränkel-Weichselbaum) is present. Immunization has been produced in animals by Romer, but it is too late to attempt to protect from pneumococ-

cus infection when the patient comes under treatment for the ulcer. If the patient is seen early, before hypopyon formation, good results may be obtained by simple means, if faithfully carried out. Rest in a darkened room with a light dressing over the eye, and local rest to the eye secured by the use of atropine to "put the eye in splints," are the first steps. The eye should be cleansed with weak boric acid solution hourly, or half hourly. The washing should be especially directed to the ulcer itself; the gentle stream from a pipette or irrigator will best accomplish this. In the intervals, the eye may have applications of moist heat by cloths, wrung out of boric acid solution and covered with rubber cloth to retain the heat. If more radical treatment is demanded, the galvanocautery is a great aid in the destruction of the local infection, and produces its greatest effect if used early, before the infection is deeply seated. It is preferred above any of the ordinary chemical caustics. With regard to the hypopyon, frequent examination should be made, and if in twenty-four or forty-eight hours of the stated treatment an increase in the hypopyon is noticed, the author advises that an injection of mercury cyanide should be made, as follows: The conjunctiva is first anesthetized by three or four instillations of a 4 per cent. cocaine solution. Then eight minims of a solution of mercury cyanide (1 to 1,000) with four minims of 4 per cent. cocaine added, are injected under the external conjunctival cul-de-sac, with the hypodermic syringe. When the needle comes in contact with the external wall of the orbit, the point should be turned slightly inward so that the injection is more than subconjunctival. The swelling and oedema which follow are quite severe, but this is beneficial. He has used these injections in thirty patients, without witnessing bad result. They were used from one to sixteen times in individual cases, and from twice in twenty-four hours to every alternate day. Their beneficial effects are shown by the rapid cessation of hypopyon formation. This is not meant as an exclusive treatment, but to be used in addition to the other treatment, as it greatly stimulates phagocytosis. The antiseptic property of the salt may also come into play, as experiment shows the presence of mercury in the anterior chamber after its use in this way. In one case cited, that of a nine year old boy, pneumococcus infection was shown by the microscope, and the anterior chamber was half filled with pus; but only three injections were used, in as many days, before the hypopyon disappeared. Although complicated with purulent dacryocystitis, the ulcer healed, and the hypopyon cleared up, even with pus coming almost constantly from the lachrymal sac and lying in contact with the cornea. The following summary is given: 1. Find out in every case of ulcer the kind of infection. If pneumococcus, cauterize early. 2. The majority of cases, even with considerable hypopyon, will recover under moist heat, frequent cleansing, and atropine. 3. Injection of mercury cyanide may be safely made in any stage, except when perforation is about to occur. The injection must be made deeply, and may be used as often as twice in the twenty-four hours. 4. Paracentesis is to be used only when perforation is imminent.—*The Journal of Ophthalmology and Otolaryngology*, April, 1907.

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PSYCHOGENESIS IN MODERN PSYCHIATRY.

Psychiatry may be said to-day to be in a period of *renaissance*. Awaking as it did only a few years ago from a condition in which it was almost hopelessly dormant, its first impulse was to assimilate and ally itself with medicine. In yielding to this instinct, as was but natural to expect, the methods of medicine were adopted bodily and the solution of psychiatric problems was sought along orthodox clinical lines. This move led to the general hospital idea among the asylums for the insane and the introduction of pathological laboratories in the effort to correlate the clinical pictures with post mortem findings. The general hospital idea did much toward an amelioration of the condition of the insane and toward more rational methods of dealing with them, but the pathological laboratory failed to a considerable degree to do what had been expected of it. This failure was due in the main to two factors: First, the so called clinical types were not sufficiently clearly defined to warrant generalizations on the basis of post mortem findings; and, second, a host of cases, in fact, whole classes of cases, practically never came to autopsy, or if they did, death had been the result of an intercurrent disease which effectually clouded the findings. Then, again, in those few cases when certain findings seemed to be fairly constant, the actual relations between these findings and the psychic facts were not at all clear, and efforts at explanation too often led, on the other hand, to gratuitous theorizing or, on the other, to metaphysical discussions.

Out of this unsatisfactory state of affairs arose the conviction that the problems of psychiatry, while in general problems of medicine, were after all essentially different and required different methods of attack. The first result of this vague conviction was the psychological laboratory and an attempt to apply the methods of normal psychology in psychiatry. Great expectations were entertained by the sponsors for this change, but it soon became apparent that the accumulation of reaction time averages was not psychiatry, and that for the solution of the problems of psychopathology the methods of normal psychology must needs be modified to suit the changed conditions.

With the application and modification of the methods of laboratory psychology to the problems of psychopathology the importance of the post mortem findings lapsed, and the wealth of problems which appeared on the horizon at once indicated that the practical thing to do was to study the conditions as they offered at first hand rather than waste time and energy on the abstruse problems of the relation of mind to brain.

Out of the changed *milieu* thus brought about grew different conceptions. The mind came to be considered from a more broadly biological viewpoint—no longer in the contracted perspective of the pathologist as a function of the brain, but rather as an adaptive mechanism seeking an adjustment of the individual to conditions. Thus the phenomena of psychopathology were evidences of a maladjustment, and it became of more importance to analyze mental make up and methods of reaction to conditions than to endeavor to outline disease entities, to define types. Thus has psychiatry in its waking up gone through a process of shaking down to a fundamental basis of method—the development of points of view—distinctly its own, a process necessary for every new science before it can proceed in an orderly way to the solution of the various problems that come legitimately within its domain.

This, then, has been the evolution of the psychogenic idea in modern psychiatry—the point of view which seeks for mental causes for mental disorders. The importance of this conception has been well brought out by August Hoch in *Psychogenic Factors in the Development of Psychosis* (*Psychiatric Bulletin*, June 15th). He calls attention to the facts that in one psychosis at least, the anxiety psychosis, the mental causation is generally recognized, and that the fretting and worry which acted as causes may be seen to graduate into and form part of the picture of the fully developed psychosis. He says: "The conflict, therefore, which existed before the

development of the reaction to this conflict was the process of the disease itself. The conflict was the

tion is not observable in other conditions is evidently an important reason for the relative disregard of mental causes in psychiatry."

While it is true that there is a general disregard of the psychogenic factors, a few investigators have done a great work in calling attention to them, describing them, and outlining methods for their recognition and investigation. Freud has perhaps demonstrated most ably their importance, both in the phenomena of normal and in those of abnormal mental life. He has shown how various symptoms may arise as a result of distorted perspective, faulty valuations, efforts at the suppression of disagreeable experiences; how disagreeable experiences may become submerged and thus play their part in endeavoring to bring about a squaring of the individual with conditions. In other words, the mentality may be distorted, bent, crushed, deformed at points. These phenomena occurring in normal persons may be corrected by proper adjustment, but in some the first displacement merely creates a point of least resistance and the fault grows by its own weight.

How the various symptoms can be explained by this theory can hardly be appreciated except by reading the records of cases and their explanations. A single instance, cited by Hoch, might, however, serve to make clearer the general proposition of the influence of the psychogenic factors and how the resulting symptoms are explainable as reactions and as efforts at adaptation. A girl, disappointed by her lover, for whom she waited for a long time, fell into a delirium in which she believed her lover to have arrived, and she had hallucinations of all the necessary occurrences required to the fulfillment of her desires and interpreted her surroundings in accordance with them.

For the methods of investigating these phenomena, especially when they are due to "buried complexes," we are largely indebted to Jung. He has shown how they may be discovered by studying the patients' reaction by association to certain test words. To Blender, Strausky, and Jung also we are indebted for careful studies of these conditions in the several psychoses, particularly paranoia, hysteria, and dementia præcox, while the exploitation of the dynamic principle in psychopathology has been undertaken in this country, especially by Meyer, Hoch, White, and others.

From all this it will be seen that a new era seems to have been initiated by the opening up of distinctly psychopathological methods, and from the present indications in psychiatric literature the psychological laboratory will in future be considered as much of a necessity in connection with an asylum or clinic as the pathological laboratory was formerly. As wholesome indications of this tendency might be

mentioned the psychological laboratory established a few years ago at the McLean Hospital, Worcester, Mass., and in the past few months the creation of a psychological department with a well equipped laboratory in connection with the Government Hospital for the Insane in Washington, D. C.

THE TREATMENT OF TUBERCULOUS DISEASE WITH THE HIGH FREQUENCY CURRENT.

Dr. H. Thiellé, of Rouen,¹ well known as an authority in the use of high frequency currents in medicine, has collected with a great amount of discrimination and industry twenty-six observations made during treatment by electricity upon tuberculous patients. These observations have been thoroughly carried out, they are given with full case histories, and the conclusions are compiled in tabular form. The book contains much material for thought, such, for example, as the statement that the chemical exchange in respiration is higher in the tuberculous, in their descendants, and in persons predisposed to tuberculous disease than in the healthy.

The experiments were conducted on twenty-six different patients, all belonging to the laboring class; fourteen were cured, nine of whom were doing very hard manual work; one patient, although greatly improved, refused further treatment; four patients, still under treatment, were greatly improved; seven were not cured, but the treatment of these seven the author undertook as an experiment, not expecting any success. None of the patients received any drugs while under treatment.

Dr. Thiellé comes to the conclusion that the high frequency current has a manifest action on the chemistry of the respiratory function. It augments the respiratory volume, and diminishes the production of carbonic acid and the total consumption and absorption of oxygen by the tissues; it therefore increases the coefficient of oxidation, lowering that of absorption. This action is not only momentary; it continues to be felt after the suspension of treatment. In general metabolism the high frequency current augments the acidity of the urine, lowers or raises, according to the individual case, the coefficient of nitrogen oxidation, and arrests demineralization. The proportion of the hemoglobin is augmented, and the number of red blood corpuscles is increased, while the leucocytes decrease in number, but gain in strength, the quality making up for the decrease. The tubercle bacillus finds therefore a less convenient ground on which to develop, and the blood creating organs are not forced to produce an

¹ *Le traitement de la tuberculose par les courants de haute fréquence. A. de la Haute-Normandie, sous le titre de l'Académie des sciences, de la médecine, de la pharmacologie, de la chirurgie, de la gynécologie, de la pédiatrie, de la dermatologie, de la syphilis, de la médecine légale, de la médecine sociale, de la médecine vétérinaire, de la médecine militaire, de la médecine navale, de la médecine des colonies, de la médecine des armées, de la médecine des prisons, de la médecine des asiles, de la médecine des hospices, de la médecine des bureaux, de la médecine des écoles, de la médecine des familles, de la médecine des individus, de la médecine des nations, de la médecine des races, de la médecine des peuples, de la médecine des civilisations, de la médecine des univers, de la médecine des mondes.* (Paris, 1907.) This book is treated for private distribution, and not for sale. Through the kindness of Dr. H. G. Pittman of New York, we have been enabled to examine it.

increased amount of defenders against the attacking enemy.

The general condition of the tuberculous improves under the treatment. The respiration becomes easier and the inspiration is fuller. The patients experience a sense of stimulation, due to the penetration of air into the lungs. The feeling of oppression, the dyspnea, disappears. The cough is less aggravating, and the attacks become fewer and finally cease; however, sometimes in the beginning of the treatment a dry cough and dyspnea will be produced, in consequence of the direct application and the ozone, but the body soon becomes accustomed to them and the disagreeable effects disappear. The expectoration becomes easier and less frequent, and soon stops. The sleep is better, even during the first few nights; the night sweats diminish and disappear at about the fifteenth application. The appetite returns and increases at the tenth treatment. The digestion is good. The patient gains strength and is able to perform his work. The weight of the patients varies, but all the cured kept their weight, which was greater at the end than at the beginning of the treatment. The bacillus disappears, sometimes during the first months of treatment, sometimes later. It was never found in the patients after they were discharged as cured.

DIGITAL DETUBATION.

In many instances more difficulty is encountered in the removal of the laryngeal tube than in its insertion. This fact is eloquently set forth, with that profusion of detail for which our French brethren are noted, by Dr. A. B. Marfan in the May number of the *Revue mensuelle des maladies de l'enfance*. M. Marfan even goes so far as to express doubt concerning the continued acceptability of intubation in the absence of some simpler method of extraction than those devised by Bouchut and O'Dwyer.

Twelve years ago, according to M. Marfan, Dr. Bayeux made the discovery that it was generally feasible to dislodge the tube by external manipulation with the fingers, upward pressure being made upon its lower end through the anterior wall of the trachea. But it was found that M. Bayeux's procedure did not always prove successful when a long O'Dwyer tube had been used, and consequently shorter tubes came into rather extensive employment. However, it was recognized that the use of the long tube was often necessary, otherwise the tube would not prove efficient, on the reason that it failed to extend beyond the stenosis.

But now M. Marfan has devised a method of digital detubation which works as well with the long tubes as with the short ones. The child is placed

on a table, face downward, the head and neck overhanging the table. With his left hand the physician raises, *i. e.*, extends, the head—moderately in the case of a short tube, more decidedly in that of a long one. Then he applies the tip of the right forefinger immediately above the sternal notch and proceeds to palpate upward until the lower end of the tube is encountered. Now the child's head is lowered slightly and rather firm pressure is made upward upon the point of the tube. As the tube is ejected from the larynx it falls through the mouth into a basin provided to receive it. M. Marfan declares that this procedure almost invariably proves effective on the first trial, and that it is utterly devoid of difficulty.

THE SUPRARENAL GLANDS AND PANCREATIC DIABETES.

For several years it has been known that the introduction of suprarenal extract or the crystalline principles derived from it into the blood will produce glycosuria. This is apparently due to an excessive formation of sugar in the liver, which, however, has been ascribed, not to its direct effect upon the liver, but to its secondary effect upon the pancreas, as it has been demonstrated that the direct application of adrenalin to the latter organ is followed by the same result. Since bradycardia is also among the physiological effects of adrenalin, through its irritating influence upon the roots of the pneumogastric nerve in the fourth ventricle, this local determination in the medulla oblongata also may contribute to the explanation of the hepatic glycosuria.

At a session of the German Congress of Internal Medicine held in Wiesbaden last April, Zuelzer reported the results of some very suggestive experiments which he had made to determine the pathology of pancreatic diabetes. He found (*Revue de thérapeutique médico-chirurgicale*, June 15th) that the injection of pancreatic extract at the same time with injections of adrenalin, in animals, was not followed by the glycosuria characteristic of the latter, even though the veins of the suprarenal glands were tied. He therefore concluded that the suprarenal glands were the more important organs, and that pancreatic diabetes would be more correctly described as a suprarenal diabetes. The current or accepted etiology would, therefore, have to be modified from this point of view, which makes diabetes mellitus the result of an exaggerated internal secretion of the suprarenal glands. In the physiological condition, according to Zuelzer's views, the pancreas secretes a substance which is capable of neutralizing the mucous secretion that would be produced when the suprarenal glands are active, and that the secretion of the pancreas is

glands. If for any reason the pancreatic secretion should become insufficient to accomplish this duty, the symptoms of diabetes would appear. The hypothesis receives some support from the fact that pancreatic feeding has already been productive of good results in diabetes. The explanation certainly is novel and ingenious and deserves consideration, even if applicable only to a special or very limited group of cases. At the same time, the objection may be raised that in Addison's disease the necessary failure of function resulting from atrophy, degeneration, or other disease of the pancreas, does not result in glycosuria, as it should if this view were correct; nor, on the other hand, do we discover in diabetics the high tension, the bradycardia, and the nervous phenomena which should attend the presence in the blood of excess of secretion by the suprarenals.

News Items.

The Medicochirurgical Hospital, Philadelphia, is planning to add three stories to one of its new buildings.

The Philadelphia Nurses who served in Japan during the Russo-Japanese war received medals from the Emperor of Japan on July 3rd.

The Death of Sir William Henry Perkin, the discoverer of aniline dyes, occurred in London on July 14th, at the age of sixty-nine years.

Charitable Bequests.—By the will of Edwin C. Weaver, the Children's Aid Society, Philadelphia, receives \$1,000 and the Northern Home for Friendless Children receives an equal sum.

Philadelphia Personals.—Dr. Stella R. Lehr, of Berkeley, Cal., and Dr. William S. Howard, of Trinidad, Colo., are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

The Richmond, Va., Academy of Medicine and Surgery.—The programme arranged for a meeting of this academy, held on Tuesday evening, July 9th, included a paper entitled Chronic Disease of the Tonsils, by Dr. C. M. Miller; discussion led by Dr. R. H. Wright.

The Delaware State Pharmaceutical Board has elected the following officers: President, Dr. Willard E. Smith, of Wilmington; vice-president, Dr. W. F. Haines, of Seaford; secretary and treasurer, Mr. Oscar C. Draper, of Wilmington.

The St. Louis Medical Review Ceases as a Weekly.—In the issue of this publication for July 6, 1907, it is editorially announced that the weekly publication of the *Review* ceases with that issue, but that it will continue henceforth in a new series as a monthly publication.

The Northern Tri State Medical Association, comprising the States of Indiana, Michigan, and Ohio, held its annual meeting recently, at Detroit, and elected the following officers: President, Dr. A. E. Bulson, Fort Wayne, Ind.; vice-president, Dr. W. A. Dickey, Toledo, Ohio; treasurer, Dr. S. B. A. Weltz, Montpelier, Ohio; secretary, Dr. W. F. Shumaker, Butler, Ind.

The Iowa and Illinois Central District Medical Association.—At the annual meeting of this association, held at Davenport, Iowa, on Friday, July 11th, included: The president's address, by Dr. W. H. Ludewig; a memorial of Dr. Crawford, by Dr. W. C. Allen; and the report of a case of ovarian pregnancy with operation, by Dr. S. B. Hall, of Rock Island, Ill.

The Floating Hospital of St. John's Guild made its first trip of the season on July 8th. It started down the bay with many of the patients were transferred, to remain as

trips, stopping for patients at the foot of West Fifth Street, West Thirty-fifth Street, and West Tenth Street (Manhattan).

The Insane Department of the Philadelphia Hospital sent thirty-three men suffering from mild forms of insanity to the newly acquired farm land on the 5th of July. It is the intention of the physicians in charge of the department to have the men do light farm work during the summer. The move is one of the most satisfactory that could be devised, and we are confident much benefit will accrue to the fortunate patients.

The Mortality of Connecticut.—According to the State Board of Health's *Monthly Bulletin* for June, 1907, there were 1,211 deaths during the month. This was 118 less than in May, and 37 less than in June of last year, and 33 more than the average number of deaths during June for the five years preceding. The death rate was 15.2 for the large towns, for the small towns 12.2, and for the whole State 14.5. The deaths reported from infectious diseases were 196, being 16.1 per cent. of the total mortality.

Collapse of a Building Being Constructed of Reinforced Concrete.—In these days of engineering skill and the adoption of new and apparently more stable methods in the construction of all kinds of buildings, it is interesting to note the collapse of a section of the roof and a portion of a wall of a building in Philadelphia which was in process of construction. The building, which was to be used for factory purposes, was being put up of reinforced concrete. On the afternoon of the 10th the structure collapsed, killing three and wounding several others.

A Floating Sanatorium for Tuberculous Patients.—The old Staten Island ferryboat *Southfield* has been cleaned up and moored at the dock at the foot of West Sixteenth Street on the North River, where it is now used as a day camp for consumptives. With a trained nurse in charge, a regular visiting staff of physicians, an abundance of milk and eggs, and steamer chairs and hammocks in which to sit out of doors and watch the passing river craft, fifty men and women are keeping cool and getting back their health and strength.

The Medical Society of the County of Oneida, N. Y.—At the semiannual meeting of this society, held at Utica, on Tuesday, July 9th, under the presidency of Dr. Conway A. Frost, the following programme was presented: Dr. J. D. Jones presented a report of four cases of osteomyelitis with the results after amputation; Dr. T. H. Farrell presented two cases of eye enucleation; Dr. F. H. Peck reported three cases illustrating postoperative postural treatment of septic peritonitis; Dr. G. M. Fisher reported an interesting case; Dr. W. J. Schuyler read a paper on Oxaluria; and Dr. J. H. Glass read a paper on an interesting surgical subject. Discussions followed by Dr. William M. Gibson and Dr. A. A. Gillette.

The Kentucky Midland Medical Society.—The forty-sixth quarterly meeting of this society was held at Lawrenceburg, on Thursday, July 11th, under the presidency of Dr. C. W. Kavanaugh, of Lawrenceburg. The following papers were read: Surgery and the Country Doctor, by Dr. C. M. Paynter, Lawrenceburg; Chronic Endocarditis, by Dr. J. W. Crenshaw, Versailles; Remote Results of Adenoid Growths, by Dr. J. S. Coleman, Frankfort; Enterocolitis, by Dr. R. J. Estill, of Lexington. The officers of the society are: President, Dr. C. W. Kavanaugh; vice-president, Dr. Neville M. Garret, Frankfort; secretary and treasurer, Dr. George P. Sprague, Lexington. The next meeting of this society will be held at Frankfort in October, 1907.

The Women's Medical Society of Illinois.—On July 11, articles of incorporation were granted to this society. The purpose of the organization is to bring into communication the medical women of Illinois, in order to secure cooperation in promoting all objects of interest to women in medicine, and for increasing interest in, and the membership of, the Illinois State Medical Society. There are only two similar organizations in existence, one in New York State and one in Iowa. This society was originally projected and plans for its organization formulated at the convention last May of the State Medical Society, held at Rockford. Dr. Marion K. Bowles, of Joliet, was elected president, and Dr. Bertha Van Hoosen, of Chicago, treasurer. The society will hold its annual meetings at the same time and place as the State Medical Society.

The Health of Pittsburgh.—During the week ending June 29, 1907, the following cases of transmissible diseases were reported to the Bureau of Health, Pittsburgh: Chickenpox, 11 cases, no deaths; typhoid fever, 113 cases, 12 deaths; scarlet fever, 7 cases, no deaths; diphtheria, 9 cases, 2 deaths; measles, 32 cases, 4 deaths; whooping cough, 3 cases, 4 deaths; pulmonary tuberculosis, 11 cases, 6 deaths. The total deaths for the week were 145, in a population, according to the census of 1900, of 321,616, corresponding to an annual death rate of 23.44 in 1,000. During the week ending July 6th, the following cases of transmissible diseases were reported to the Bureau of Health: Chickenpox, 6 cases, no deaths; typhoid fever, 77 cases, 6 deaths; scarlet fever, 7 cases, 1 death; diphtheria, 9 cases, 2 deaths; measles, 18 cases, no deaths; whooping cough, 9 cases, 8 deaths; pulmonary tuberculosis, 23 cases, 13 deaths. The total deaths for the week were 154, corresponding to an annual death rate of 24.89 in a thousand population.

The Medical Society of the County of Dutchess, N. Y.—The quarterly meeting of this society was held on July 10th, 1907, at the Hudson River State Hospital, Poughkeepsie, under the presidency of Dr. D. H. MacKenzie, of Millbrook. Dr. Charles E. Nammack, of New York, president of the First District Branch of the Medical Society of the State of New York, spoke on the necessity for better organization of the profession and outlined the advantages of the present plan of county, State, and National associations. Papers were read by Dr. Charles W. Pilgrim, superintendent of the Hudson River State Hospital, on The Commitment of the Insane; by Dr. Frederick W. Parsons, on Anxiety Depressions, with presentation of illustrative cases; by Dr. Clinton J. Hyde, on The Improper Commitments of Alcoholics to Insane Hospitals; and by Dr. Isham G. Harris, on Training Schools in State Hospitals. These papers were discussed by Dr. Borst, Dr. Cotter, Dr. Mann, Dr. Nammack, and others.

The Lake Keuka Medical and Surgical Association will hold a meeting at Grove Springs, Keuka Lake, on July 25 and 26, 1907. The following programme has been arranged for this meeting: The County Laboratory Work, by Dr. H. I. Davenport, Canandaigua; County Laboratories and Their Uses, by Dr. O. J. Hollenbeck, Canandaigua; Treatment of Diphtheria, by Dr. G. D. Barrett, Clyde; Report of Diphtheria Epidemic Due to Infected Milk, by Dr. G. H. Witter, Wellsville; Kidney Stone, by Dr. R. C. McLennan, Syracuse; Goitre, by Dr. A. L. Beahan, Canandaigua; Ruptured Puss Tubes, by Dr. E. C. Mann, Buffalo; Mimicry in Disease, by Dr. A. D. Lake, Gowanda; Tetany, with Report of Cases, by Dr. C. W. M. Brown, Elmira; What Is the Place for Medical Treatment in Pyloric Obstruction? by Dr. Charles G. Stockton, Buffalo; Recurrent Empyema, by Dr. J. H. Pryor, Buffalo; Early Diagnosis of Tuberculosis, by Dr. John Conway, Rexville; Arteriosclerosis, by Dr. H. C. Buswell, Buffalo; Syphilis of the Nervous System, and New Treatment of the Same, by Dr. Floyd S. Crego, Buffalo; Intraabdominal Thrombophlebitis, by Dr. Ross G. Loop, Elmira; Psoas Abscess, by Dr. Charles G. R. Jennings, Elmira; Cocaine in Surgery, by Dr. Alexander Lyle, New York city; Errors in Diagnosis of Appendicitis, by Dr. Charles E. Thompson, Scranton, Pa.; The Therapeutic Value of Diversion, by Dr. C. Y. Ford, Dansville; Radical Operation for Mastoid Disease, by Dr. John F. Fairbairn, Buffalo. The officers of the association are: President, Dr. J. E. Walker, Hornell; vice-president, Dr. F. R. Driesbach, Dansville; secretary and treasurer, Dr. H. B. Nichols, Pulteny.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending, July 13, 1907:

	July 13.		July 6.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	49	12	48	7
Scarlet fever.....	1	—	1	—
Diphtheria.....	57	29	76	—
Measles.....	214	39	616	34
Scarlet fever.....	271	38	28	—
Whooping cough.....	5	5	18	8
Diphtheria.....	93	24	325	39
Tuberculosis, pulmonary.....	11	170	11	136
Cerebrospinal meningitis.....	10	0	14	11
Total.....	1,000	271	1,700	203

The Health of Philadelphia.—During the week ending July 6, 1907, the following cases of transmissible diseases were reported to the Bureau of Health:

	Cases.	Deaths.
Typhoid fever.....	62	12
Scarlet fever.....	28	0
Chickenpox.....	27	0
Diphtheria.....	42	6
Cerebrospinal meningitis.....	7	2
Measles.....	48	3
Whooping cough.....	12	2
Tuberculosis of the lungs.....	72	54
Pneumonia.....	36	31
Erysipelas.....	2	0
Cancer.....	15	22
Malaria.....	4	0
Septicæmia.....	1	0

The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 6; diarrhæa and enteritis, under two years of age, 32; puerperal fever, 2. The total deaths numbered 406, in an estimated population of 1,500,595, corresponding to an annual death rate of 14.01 in a thousand population. The total infant mortality was 108; under one year of age, 88; between one and two years of age, 20. There were 42 still births, 23 males and 19 females. The temperatures were moderately high, the maximum being 86 degrees, on the 2nd. Eighty-four degrees was recorded on the 1st, 5th, and 6th. There were thunderstorms on the 2nd and 6th. The total rainfall was 0.28 inch.

The Mortality of Baltimore.—The report of the Health Department for the week ending July 6, 1907, showed a total of 172 deaths, as compared with 275 the corresponding week of last year, 264 in 1905, and 250 in 1904. The annual death rate in a thousand of population was: Whole, 14.73; white, 13.25; colored, 22.53. The principal causes of death were: Typhoid fever, 4; whooping cough, 1; diphtheria, 2; membranous croup, 1; consumption, 30; cancer, 7; apoplexy, 6; organic heart diseases, 8; bronchitis, 4; pneumonia, 6; diarrhæa, under two years of age, 11; Bright's disease, 9; congenital debility, 11; lack of care, 3; old age, 4; suicides, 1; homicides, 2; accidents, etc., 12. The nativity of the decedents was: United States, whites, 97; foreign, 30; colored, 47; unknown, 4. The following number of cases of infectious diseases were reported, as compared with the corresponding week of last year:

	1906.	1907.
Diphtheria.....	6	18
Exanthematous group.....	1	1
Scarlet fever.....	5	3
Typhoid fever.....	15	17
Measles.....	9	35
Mumps.....	1	8
Whooping cough.....	4	—
Chickenpox.....	2	7
Cases of diphtheria.....	20	13

Statement of Mortality of Chicago for the Week Ending July 6, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of midyear population—2,107,620 for 1907, 2,049,185 for 1906:

	July 6, 1907.	June 29, 1907.	July 7, 1906.
Total deaths and causes.....	172	179	171
Annual death rate per 1,000.....	11.28	14.57	11.98
Sexes.....			
Males.....	243	266	272
Females.....	203	206	190
Age.....			
Under 1 year of age.....	89	72	90
Between 1 and 5 years of age.....	59	50	34
Between 5 and 20 years of age.....	28	1	34
Between 20 and 60 years of age.....	81	—	202
Over 60 years of age.....	368	300	305
Reported causes of death.....			
Apoplexy.....	9	8	12
Bright's disease.....	13	15	41
Bronchitis.....	38	40	31
Consumption.....	31	29	50
Cancer.....	24	33	27
Convulsions.....	4	6	6
Diphtheria.....	5	6	—
Heart disease.....	42	39	34
Influenza.....	1	1	0
Infantile diarrhoea.....	27	2	56
Measles.....	17	22	17
Nervous diseases.....	14	17	32
Pneumonia.....	31	27	32
Scarlet fever.....	10	—	10
Sepsis.....	1	—	—
Septicæmia.....	1	—	—
Typhoid fever.....	4	—	—
Venereal diseases.....	20	20	16
Whooping cough.....	4	—	—
All other causes.....	122	140	182

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

July 11, 1907.

1. The Segregation of Consumptives,
By J. F. ALLEYNE ADAMS.
By ELLIOTT P. JOSLIN.
2. Acidosis,
By RICHARD FROTHINGHAM O'NEIL.
3. Some Remarks on Nephrolithiasis,
By ISADOR H. CORIAT.
4. Nocturnal Paralysis,
By ISADOR H. CORIAT.

1. **The Segregation of Consumptives.**—Adams observes that the care of early cases by sanatorium treatment is now chiefly engrossing the attention of the civilized world, while the advanced cases, far greater in number, and far more likely to spread the infection, remain in their homes, where they are receiving an increasing amount of care through dispensaries and visiting nurses. This sort of care, however, cannot prevent the transmission of the disease to their families. The danger may be lessened, but in the home it is, in the great majority of cases, practically impossible to avert it. The next step in the campaign will be to undertake the prevention of consumption by separating the sick from the well. For this, two things are chiefly necessary: First, to provide ample hospital accommodation for advanced cases; and, second, to establish some systematic supervision over those who, for any reason, cannot be removed from their homes.

2. **Acidosis.**—Joslin remarks that the treatment of acidosis in diabetes is too often symptomatic. Ætiological treatment is generally forgotten. As repeatedly emphasized by Naunyn, acidosis varies inversely with the capacity of the individual to utilize carbohydrates. A gain in the power of oxidizing a few grammes of sugar avails far more than alkalis in overcoming acid intoxication. It is because the treatment of diabetes has been directed of late years toward improving this tolerance that the treatment of acidosis has also improved. Aside from general measures leading to this end, search has been directed for some form of carbohydrate which would be capable of oxidation in the diabetic body, and thus would promote the secondary oxidation of beta oxybutyric acid. For this reason lactose and levulose were tried, and recently Poulsen has suggested the employment of the alga. The most hopeful outlook, however, is presented by Baumgarten's discovery that the radicals into which the carbohydrate molecule is first split are capable of oxidation in the body. It is not unlikely that one of these radicals—gluconic, sucric, mucic, glycuronic, and other acids—may eventually be available for the secondary oxidation of beta oxybutyric acid. Schwarz obtained favorable results with gluconic acid some years ago, but its expense so far has prevented its general use. Empirically such a body has been sought by von Noorden in oatmeal. The work of Eppinger and Langstein suggests that the use of amino acids may be better symptomatically than the employment of the simple alkalis. Eppinger prevented the appearance of coma in rabbits after the injection of acids by the simultaneous injection of the amino acids, and its protection apparently was not wholly due to the ammonia therein contained. On the other hand, the work of Embden, Baer, and Blum warns us to proceed slowly with the employment of the lower fatty acids. The researches of Satta and Borchardt upon the acid forming and acid destroying components of fat and albumin must be further developed.

4. **Nocturnal Paralysis.**—Coriat reports a case of nocturnal paralysis, a rather rare case. He concludes that psychoanalytic methods yield the following interesting data concerning the attacks: They began about three months after the death of the patient's child, who died on a Monday afternoon under distressing circum-

stances. This acted as a strong emotional shock. Although the child had been ill for three weeks with pneumonia, yet his sudden death was unexpected. On this particular Monday afternoon the patient was alone and was holding the child in her lap. He suddenly reached the arms above the head, showed a general tremor, then became rigid and immediately expired. The position assumed by the patient in her nocturnal paralytic attacks exactly resembled that taken by her child at the time of his sudden death, and the worse attacks always occurred on Monday, the day of the week on which the child died. The author observes that the coincidence is too pertinent and marked to be called accidental, and it seems, therefore, that we are probably dealing with a recurrent mental state originating in a sudden and distressing emotional shock. The treatment consisted of making suggestions applied by means of a fictitious magnet (tuning fork) and directed toward a complete cessation of the attacks. This was given three times a week, and during the first month only seven attacks of palsy took place, whereas previous to treatment they had occurred every night. These attacks, too, were much lighter; she was able to come out of each voluntarily and to move the paralyzed limbs. As there have been no attacks since, a period of several months, it can be safely assumed that the patient has entirely recovered.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

July 13, 1907.

1. Deformities of the Vulva from Early and Late Indurating Oedema,
By ROBERT W. TAYLOR.
2. The Relations of the Dental Arches to Pathological Affections of the Nasopharynx and Adjacent Parts,
By E. A. BOGUE.
3. Ligation of the Common Carotid Artery for Malignant Recurrent Hemorrhage of the Vitreous,
By GEORGE S. DERBY.
4. Metastatic Conjunctivitis in Gonorrhea,
By JAMES J. CARROLL.
5. Treatment of Lachrymal Obstruction,
By MARK D. STEVENSON.
6. The Treatment of Strabismus in Young Children,
By ALFRED RUFUS BAKER.
7. Technics of Appendectomy,
By JOHN A. WYETH.
8. Gallduct Obstruction Caused by Movable Kidney,
By MARTIN B. TINKER.
9. Abdominal Symptoms of Thoracic Disease,
By ALLEN A. JONES.
10. The Acid Intoxication Theory,
By OTTO FOLIN.
11. Acute Spermatocystitis,
By A. NELKEN.
12. A Method of Performing Tenotomy Which Enables the Operator to Limit the Effect as Required,
By FRANK C. TODD.
13. Cutaneous Tuberculosis,
By J. FRANK WALLIS.
14. Technics of the Operation for the Removal of the Middle Turbinate,
By GEORGE L. RICHARDS.
15. How May Our Present Methods of Medical Illustrations Be Improved,
By MAX BRÖDEL.
16. Operation for Exstrophy of the Bladder,
By JOHN T. BOTTOMLEY.
17. The Etiology and Recent Treatment of Hay Fever,
By H. HOLBROOK CURTIS.

1. **Deformities of the Vulva from Early and Late Indurating Oedema.**—Robert W. Taylor describes these deformities as follows: Indurating oedema is in many cases a complication of the initial hard chancre, and then is an early lesion; but it may develop, owing to various causes, at later periods. It is always an expression, however, of the continued activity of the syphilitic diathesis. In some exceptional cases the initial sclerosis occupies a whole labium and much enlarges it, while in most instances the lesion is limited in extent and only occupies a segment of the part. In a limited number of cases we find that accompanying the initial lesion, either around it or in its vicinity, a hard oedema of one labium or both labia occurs. This oedema, which has been called sclerotic or indurating, is very peculiar and is the sole appanage of syphilis.

It usually begins insidiously in an indolent aphlegmasiac manner, without pain, and perhaps with no heat nor pruritus. It may become fully developed in from one, three, to many weeks. Then again, in some cases, its onset is quite brusque and rapid, and in a few days a labium may be greatly enlarged. When such a labium is examined it may be found to be of double, even quadruple, its normal size. Its tegumentary covering may be normal in color or a little redder than usual, even violaceous, while its mucous membrane is of a dull red. In some cases the corresponding labium minus may be affected, and its pinkish red color is then somewhat increased. There is no evidence of pitting on pressure, inflammatory engorgement, nor of acute oedematous swelling. The parts, as a rule, are neither hot nor tender on pressure, nor spontaneously, but in some cases of gonorrhoeal or leucorrhoeal discharges, and owing to uncleanness, ephemeral attacks of deep redness may be observed, which are probably due to staphylococci or streptococci inflammatory complications. In these cases there may be tenderness. The lesion at its acme is of an extreme hardness, sometimes presenting a dense elasticity, like the lobe of one's ear, and again a stony feel, like bone or cartilage. It may be that the whole labium or the labia (if both are involved) are thus uniformly sclerotic, or, as it often happens, there may seem to be a central kernel of great density surrounded by an atmosphere of elastic firmness. In uncleanly women, during pregnancy, and as a result of traumatism, this indurating oedema may extend beyond the labial limits. Well marked secondary symptoms are constant concomitants. Small lesions may in time undergo resorption. The sequelæ after the lesions are a general atrophy, with deformity; a condition similar to those of kraurosis vulvæ, epithelioma, chronic cellular hyperplasia, elephantiasis, gangrene, and phagedæna.

4. Metastatic Conjunctivitis in Gonorrhœa.—Carroll is of the opinion that in the light of our present knowledge that while it is possible, as maintained by Morax thirteen years ago, for a few cases of metastatic conjunctivitis to be caused by the gonococcus in the conjunctival sac, it is probable that the essential agent in the great majority of cases is not the gonococcus acting on the ocular mucosa, but a specific poisonous product of this organism called its toxine.

6. The Treatment of Strabismus in Young Children.—Baker, of Cleveland, says that the development of squint in young children is at first occasional; then it becomes alternating, and later monocular. The propitious time to treat these cases is during its first appearance, when it is only at times that the eye is noticed to converge, either when looking at close objects or when tired, sleepy, or embarrassed. Often the use of atropine for a few days in both eyes will effect a cure. If it does not, the child's eye must be carefully tested for errors of refraction and spectacles prescribed at once, which will most assuredly correct the tendency to squint. If the child declines to wear the spectacles prescribed, it is evident the lenses are wrong or the frame is not carefully adjusted. If the case has gone on to the second stage, and there is a more or less constant alternating squint, almost equally good results will be attained if the error of refraction is corrected. If the squint persists after the spectacles are ordered, it may be necessary to use atropine in both eyes for a few weeks. There are a few cases in which the squint under the use of atropine will be increased for a time; doubtless the child makes increased effort of accommodation in order to overcome the blurred vision, but a continued use of the atropine will overcome this increased convergence. In older children who have a persistent alternating squint, we will be obliged to resort to efforts to train the fusion sense,

and this may demand great patience on the part of the surgeon. The stereoscope and the amblyoscope will aid us much. The temporary use of prisms or decentred lenses will help a little. The long continued use of atropine and avoidance of all close work for the eyes will be of great service.

7. The Technics of Appendectomy.—John A. Wyeth states that preference should be given the Deaver incision because it offers free access to the cæcum and appendix, and when, as is not infrequent, it becomes necessary to have more room for safe and thorough work, it can be extended indefinitely upward or downward, giving complete command of the peritoneal cavity with the minimum of risk of being followed by ventral hernia. He prefers it to the Kammerer method, which, making the same anterior and posterior incision, displaces temporarily the right edge of the rectus toward the median line. His chief objection to this latter incision is that when drainage is found to be necessary the muscle, resuming its normal position, forms a trapdoor over the posterior opening. Both are preferable to McBurney's incision for the reason that it cannot be sufficiently enlarged to meet an emergency without great danger of ventral hernia. Wyeth opposes the pursestring suture or any technique which requires the insertion of sutures in the walls of the cæcum, because they seemed to be a violation of an important principle in surgery, viz., the minimum of traumatism the maximum of safety. Any suture method requires more handling of the intestine than the simple ligature and more exposure of the cæcum. Puncture of the walls of this organ at various points with the needle which carries the suture incurs the unnecessary danger of perforating a bloodvessel, or it may be the lumen of the intestine itself.

17. The Ætiology and Recent Treatment of Hay Fever.—H. Holbrook Curtis sums up his ideas about ætiology and treatment of hay fever as follows: Hay fever is a disorder amenable to no specific treatment. The number of cases of hyperæsthetic rhinitis from other causes than rag weed and other pollens is about one third of the total number. About one third of the cases supposed to be due to pollen reaction may be relieved by constitutional and surgical methods of treatment. Predisposition to attack in these cases being due to definite causes, would suggest the theory that induced enervation of the sympathetic was an important ætiological factor. Primary intoxications may take place from pollen toxins in cases where the sympathetic system apparently is not previously enervated. These cases, theoretically, should react to antitoxine treatment. The consensus of opinion to-day is against the claims made for pollutin, though observers who have been instructed personally by Professor Dunbar indorse unqualifiedly the great benefit to be derived from the treatment. Medically the suprarenal capsule products hold the first place to-day in the treatment of hyperæsthetic rhinitis. The importance of constitutional treatment as an adjunct to any local application is of supreme importance. The best of all treatments yet found is the climatic, with previous attention to nasal conditions.

MEDICAL RECORD.

July 22, 1907.

1. Intracranial Tumors and Its Treatment. By WILLIAM M. LEE, M.D.
2. The Importance of Surgical Cases of Compensatory Reflexive Unsteadiness of Vision. By ALBERT J. LEE, M.D.
3. Large Tumor of the Esophagus. By WILLIAM M. LEE, M.D.
4. A Case of Ocular Disease. By WILLIAM M. LEE, M.D.

5. Paraplegia Caused by an Aneurysm of the Arch of the Aorta. By BOND STOW.
6. Vaginal Implantation of Adenocarcinoma of the Uterus. Blood Metastasis in Recurrent Carcinoma. By GEORGE W. KAAN.
7. Heart Disease and Blood Pressure. Physiological Reeducation in the Cure of Cardiovascular Disease Resulting from High Tension. By LOUIS FAUGÈRES BISHOP.

1. Intracranial Tumor and Its Treatment.—Leszynsky remarks that it behooves the general practitioner to give more careful attention and study to patients complaining of intense and persistent headache, and to consider the possibility of cerebral neoplasm in every case, for headache and vomiting (unrelated to the ingestion of food) are among the initial symptoms of brain tumor. Transient attacks of blindness or failing vision often lead these patients to consult an ophthalmologist. Choked disks are then discovered and it is through this indirect channel that many cases have come under observation. Although optic neuritis does not appear in every case of brain tumor in its early stage, it does occur sooner or later in from 80 to 90 per cent. In rare instances it may be absent throughout the entire course of the disease. Headache is the most frequent, and optic neuritis the most important general symptom of brain tumor. The treatment the author outlines as follows: When syphilis is suspected or known to exist, the administration of mercury and iodides may prove of value, although they are often not of much use even when a syphilitic gumma is present. It is also to be remembered that other forms of cerebral tumor, especially sarcoma, are benefited by antisyphilitic treatment, and that at times remissions occur spontaneously. For alleviating the headache, some of the coal tar products are available. If their employment is not satisfactory, then ergot or morphine may be administered subcutaneously. At times, free catharsis proves of temporary service in relieving the intracranial pressure. Lumbar puncture and the withdrawal of cerebrospinal fluid often increases the headache. It is usually of no benefit and may endanger life if a large quantity of fluid is withdrawn. These methods often prove the banefulness and unwisdom of procrastination. In many instances our only hope lies in surgical intervention.

3. Large Tumor of the Laryngopharynx Removed by Subhyoid Pharyngotomy.—Chappell describes such a case. The author performed a subhyoid pharyngotomy upon the patient. On opening the thyreohyoid membrane and pulling the epiglottis forward the tumor came into view. The pedicle was found close to the left aryepiglottic fold, and from appearances seemed to consist mostly of large vessels. A black silk ligature was used in tying the pedicle, as it was feared anything else might not hold during vomiting or swallowing. Later these silk ligatures had to be removed through the mouth, and the author believes chronicized gut would have answered every purpose. The tumor was smooth, irregular in shape, weight 20 grammes after it had been in formalin, circumference $4\frac{1}{2}$ inches. The tumor on microscopic examination was found to consist of fibrous tissue, very moderately supplied with nuclei and round cells. Absolute rest of the organs of deglutition was ordered, and nutritive and saline enemata were given. Nasal feeding through a tube improved the general condition of the patient greatly. Five weeks later liquids were swallowed, and after one more week of rest some solid food. Three months after operation the patient was discharged in a good condition.

7. Heart Disease and Blood Pressure.—Bishop states that in an early case of high arterial tension of nervous origin the important element in physiological reeducation consists in training the victim to eliminate

worry and a tendency to too great concentration of interest in whatever pursuit is occupying him. Worry is in a measure a habit, and can be eliminated by a person of strong intellect, who definitely decides to let events in a measure take their own course, and the too great concentration of attention on one's occupation is a self indulgence that often ignores the importance of other things and the legitimate claim of the lighter things of life upon the attention. Next to worry and undue concentration of mental effort comes the question of nutrition and diet. Many persons consider themselves undernourished, when in fact the opposite is the case. A critical examination of the blood and urine often shows distinct evidence of an excess of food in persons who are seeking to be built up by physical rest and a diet selected for its nutritious qualities. When this is the case, the food should be restricted in quantity—sweets eliminated, and meat greatly reduced in quantity. The popular prescription of withholding from these patients all food that has contained blood may be extreme, but it is in the right direction. Third, but not least in importance, is the matter of physical exercise. Here we come upon the relationship, which the author says he has often traced, between the tone maintaining function of the brain over the voluntary muscles, and a possible similar function with regard to the involuntary muscles. Exercise should be carried on systematically, whether the patient feels like it or not. A distaste for physical exercise often goes with this condition, and must be overcome by emphatic instructions of those responsible for the welfare of the patient. While the patient is under treatment or reeducation the circulation must be regulated as far as possible by drugs that improve the muscular tone of the heart, and those that overcome an excess of tone in the bloodvessels. These must be given under skilled direction of some one who has the knowledge and authority to regulate the time, quantity, and nature of the medication, almost from hour to hour, to meet the manifestations of the pathological physiology of the disordered circulatory system. In some instances a few weeks will counteract the commencing high tension and the individual may go on for years without its developing again. In more severe cases several months are necessary. In those that have lasted a long time a year is necessary for the physiological reeducation. The intelligent cooperation of the patient and the friends of the patient are absolutely necessary. In difficult cases the work is most discouraging at first, though often enough after a few weeks the beneficial results become rather suddenly apparent to every one.

BRITISH MEDICAL JOURNAL.

June 20, 1907.

1. The Pathology and Treatment of Tumors of the Jaws, By F. EVE.
2. New Method of Dealing with Cleft Palate. By F. N. G. STARR.
3. Severe Hæmoptysis Treated by Means of the Icebag, By H. DOWNES.
4. Goitre Operations Under Local Anæsthesia, By A. J. F. CLARKE.
5. The Electric Treatment of Lupus Vulgaris, By J. G. TOMKINSON.

1. Tumors of the Jaws.—Eve recognizes two great groups of jaw tumors, one originating from embryonic "rests," the other, mainly carcinomata, arising as the result of chronic irritation and inflammation, and possibly from the irritation produced by microorganisms. Any irritation producing hyperæmia may cause a latent "rest" to grow and become active. Of the tumors arising from "rests" of dental structures, excluding the calcified odontomes, the writer recognizes two varieties: 1. Composite odontome, containing all the elements of a tooth follicle. a. A composite or mixed embryoplastic odontome (innocent). b. A composite

or mixed embryoplastic odontome (sarcomatous). 2. Epithelial odontome derived from enamel organ cells. a. Epithelial odontome (cystic variety) or cystic epithelial tumor. b. Epithelial odontome (carcinoma), usually described as spheroidal or columnar celled carcinoma. Of these, the cystic epithelial odontomes (2a) are quite familiar. They are composed mainly of collections of cysts and usually involve the lower jaw. The mortality of excision of the jaw is still high, even with modern aseptic methods. The chief causes of death are from septic lung affections, or from loss of blood directly at the time of operation, or more indirectly, at a subsequent period, from exhaustion. Some deaths also occur from secondary hemorrhage. Pulmonary complications due to inhalation during anæsthesia account for half the cases of death. Being impressed with the great value of ligature of the external carotid and laryngotomy as a preliminary measure in the removal of malignant tumors of the tonsils and soft palate, the writer has adopted it for some time in all cases of fairly extensive malignant disease of the maxilla. These operations of preliminary ligature of the carotid and laryngotomy do not prolong the operation, and tend to decrease the amount of shock. The average period required for both is fifteen minutes, when no glands require removal. Very few vessels require ligature; in some cases none, except one or two in the cheek flap. Much time is saved in securing vessels, sponging, etc. The neck incision for ligature of the carotid permits the surgeon to ascertain the condition of the glands behind the angle of the jaw and around the upper part of the internal jugular vein. These glands are more commonly involved than is generally believed. The laryngotomy, which should be performed after the ligation of the carotid, greatly diminishes the chance of inhalation pneumonia, and also lessens shock. Cyanosis is entirely avoided, and no strain is thrown on the right heart. After the insertion of the tube, the air passages are protected by a large marine sponge thrust into the pharynx. The tube is taken out immediately or the next morning. The writer has removed the maxilla twelve times with two deaths—a mortality of 16.6 per cent. None of the cases had any secondary hemorrhage.

2. **Cleft Palate.**—Starr states that many operations for cleft palate are failures from breaking down of the line of closure. Such breaking down may be due to tension along the line of suture, sucking of the stitches by the patient, and infection from the mouth. In order to avoid these, the author has modified the procedure of Mayo, who introduces a tape through the lateral incisions, completely surrounding the flaps and thus preventing tension. Starr replaces the tape by aluminium, beaten out thin. It prevents tension, and prevents till union of the edges has occurred—adhesions taking place between the mucoperiosteum and the bone of the hard palate. It also prevents the child sucking the stitches. To avoid infection, the mouth is sprayed with a solution of boric acid and ten per cent. rectified spirit, which may easily find its way under the splint and come in contact with the wound for some time. In future the writer proposes to take the patient's opsonic index to the germs within the mouth previous to the operation. If it be found to be low, an injection of vaccine will be administered a day or two before the operation, when there will be little possibility of infection.

3. **Ice in Hemoptysis.**—Downes reports a case of pulmonary hæmoptysis, occurring in a consumptive, in which good results followed the continuous application of an ice bag. During a period of eight days the patient lost over 150 ounces of blood. The ice bag was applied over the front of the right upper lobe, and

kept continuously in position for six days, the ice being frequently changed. This mode of treatment of hæmoptysis by means of icebags, is not a novelty, but has been little used of late years. It is seldom that the bleeding point can be localized with sufficient accuracy for the ice to be applied directly over the seat of the hæmorrhage, and thus to produce reflex contraction of the pulmonary vessels in the affected lobule. If applied in the wrong place it probably does harm by raising the blood pressure in the region of the hæmorrhage.

5. **Lupus Vulgaris.**—Tomkinson holds that the x rays are a very valuable addition to the armamentarium of the dermatologist for the treatment of lupus vulgaris. But, unfortunately, some cases appear to be altogether irresponsive to their curative action. On the other hand there are cases which respond with relative rapidity and with the formation of a cicatrix of high æsthetic value. All are agreed as to the value of the Finsen treatment in cases of limited extent, but the length of time required in the treatment of extensive areas considerably limits its practical value in such cases. The older methods of treatment still play an important rôle and should be employed as adjuvants.

LANCET.

June 29, 1907.

1. Plague (*Croonian Lectures, I*). By W. J. R. SIMPSON.
2. The Conservative Surgery of the Abdomen, Especially of the Appendix Vermiformis and Its Relation to the Surgical Treatment of Chronic Constipation (*The Croonian Lecture*). By C. R. B. KEETLEY.
3. The Influence of School Life on the Spread of Scarlet Fever. By B. K. GOLDSMITH.
4. Rescue Work in Mines: Lessons from the *Courrières* Mine Catastrophe in France. By T. OLIVER.
5. Two Cases of Cerebral Abscess. By J. M. CLARKE.
6. Grocco's Triangle: Physical and Anatomical Explanation. By F. W. FORBES-ROSS.
7. The Loss of the Tendo Achillis Reflex and Its Diagnostic Value in "Alcoholic" Failure of the Heart. By R. T. WILLIAMSON.
8. A Case of Splenic Abscess. By R. H. LUCY.
9. Rice and Beriberi: Preliminary Report on an Experiment Conducted at the Kuala Lumpur Lunatic Asylum. By W. FLETCHER.
10. The Introductory Gresham Lecture. By F. M. SANDWITH.

1. **Plague.**—Simpson, in the first of the Croonian lectures, discusses the history of plague, the most important epidemic disease of the present day. A new era dates from the discovery of the plague bacillus by Kitasato and Yersin. Smears from the contents of plague buboes or from the hæmorrhagic effusion around them and from the sputum of pneumonic cases show usually large numbers of bipolar microbes. In some cases the microbes are few in number, and can only be demonstrated by culture and inoculation into susceptible animals. This is practically the rule in septicæmic cases. The stalcactie growth in peptone broth is the surest culture test, in that no other bacilli give a similar stalcactie formation. The involution forms which the plague bacilli assume in dry agar are also very distinctive. They only appear in bacilli recently removed from the bodies of plague patients. The involution forms when quite typical are spheres and cells of various sizes, resembling yeast cells, and many times larger than the bacilli themselves. The appearance of the culture on dry agar furnishes a third characteristic. When the tube is held in a horizontal position with the growth downwards and is examined through the depth of the agar by reflected light, it has the appearance of the sheen seen in the back of a locking glass. Inoculation into rats, mice, and guinea pigs furnished the additional test.

2. **Surgery of the Abdomen.**—Keetley states that when we are about to operate on a given appendix, we should ask whether in that particular case it would not

be better to preserve it. This is to be done by transferring the appendix from the peritoneal cavity and imbedding it in the abdominal wall, and by opening or amputating its distal end if its lumen is anywhere narrowed by stricture or other cause. The following cases are suitable for this parietal transplantation: 1. The healthy appendix in some cases of colitis, and in some of doubtful nature. 2. Appendices of which a fair length of the proximal part is free from stricture, kink, ulceration, and perforation, or which can be opened towards their distal end and cured of their defects. The following cases are more or less unsuited: 1. Obliterated appendices. 2. Tuberculous, cancerous, and actinomycotic appendices. 3. Appendices which are gangrenous or perforated near the proximal end. 4. Appendices of which the base cannot be brought up to the parietal peritonæum without undue tension. 5. Those of which the mesoappendix is not long enough to permit them to be sufficiently straightened out or to be brought into the abdominal wall without dangerously interfering with their blood supply. 6. Appendices which cannot be placed in good position in the abdominal wall without interfering with such drainage as the case may require. To take care of the main artery running to the appendix is an important point. The appendix should be brought through the deep muscles of the abdominal wall nearly opposite the opening in the peritonæum, then through the aponeurosis of the external oblique close to, but not exactly over, that aperture, and finally to place the greater part of the organ on the surface of the external oblique beneath the fat and superficial fascia. In conclusion, the writer suggests that the present and practical treatment for those cases of constipation and bacterial infection of the large intestine which are grave enough to appeal to surgery is appendicostomy.

7. Diagnosis of "Alcoholic" Heart Failure.—Williamson states that a clinical form of cardiac disease is not infrequently met with which is due to the drinking of large quantities of beer or spirits. The disease is a form of cardiac muscle failure and has been termed alcoholic dilatation of the heart and alcoholic heart failure. In cases in which oedema, shortness of breath, and other signs of cardiac failure are present the diagnosis is based chiefly on: 1, the history and evidences of alcoholism; 2, on the absence of indications of valvular cardiac disease; 3, on the absence of nephritis; and 4, on the absence of indications of others known causes of cardiac muscle failure. Under certain conditions the tendo Achillis reflex may be of service in the differential diagnosis, but diabetes mellitus, diphtheria, and tabes must first be excluded. Providing there is no glycosuria, no evidence of a recent attack of diphtheria, no sign of lesion of the spinal cord or cauda equina, and providing the pupils react to light and that there are no lightning-pains or other signs of tabes dorsalis, then the loss of the tendo Achillis jerk is of value in diagnosis as a confirmatory sign that the alcoholic beverages taken have had an injurious action on the system—i. e., that they have produced one of the first signs of their toxic action on the peripheral nerves.

9. Beriberi.—Fletcher reports the results of an experiment in an Indian insane asylum. Among 120 patients fed on uncured rice there were forty-three cases of beriberi and eighteen deaths. Amongst 123 patients fed on cured rice there were two cases and no deaths. Ten patients with beriberi were put on a diet of cured rice; all recovered. Of twenty-six patients not put on a cured rice diet, eighteen died. In conclusion, he states that uncured rice is either directly or indirectly a cause of beriberi, the actual cause being either: 1, A poison contained in the rice; 2, deficiency of protein matter, the disease being due to ni-

trogen starvation; or 3, uncured rice does not form a sufficiently nutritive diet and renders the patient's system specially liable to invasion by a specific organism, which is the cause of beriberi.

LA PRESSE MEDICALE.

June 10, 1907.

1. Studies in Regard to the Cardiac Liver, By A. BAUER.
2. Apropos of the Cardiac Reflex of Abrams, By JEAN HEITZ.
3. Apropos of the Laterolateral Anastomosis in Intestinal Surgery, By E. BOUGON and P. DEROCQUE.
4. A New Diagnostic Sign of Tuberculosis in Man. The Ophthalmoreaction from Tuberculin, By Professor G. CALMETTE.

1. Studies in Regard to the Cardiac Liver.—Bauer presents a well illustrated account of his studies of the pathology of the diseases of the liver which result from diseases of the heart.

3. Laterolateral Anastomosis in Intestinal Surgery.—Bougon and Deroque report a successful case of the employment of the laterolateral anastomosis in strangulated hernia with gangrene of the strangulated loop of intestine.

4. New Diagnostic Sign of Tuberculosis.—Calmette has found that if a drop of a 1 per cent. watery solution of precipitated tuberculin is instilled into the conjunctival sac of an infant or an adult, a very evident congestion of the palpebral conjunctiva will appear at the end of about five hours if the subject is tuberculous, followed in another hour by a free secretion. If the subject is not tuberculous the instilled drop produces no effect.

June 22, 1907.

1. Thiosinamine and the Treatment of Deafness, By M. LERMOYER and G. MABU.
2. Sterilizable and Adjustable Hæmostatic Apparatus, By R. LHOMME.
3. A Simple, Practical, Clinical Method of Determining the Amount of Sugar in the Urine, By ALFRED MARTINET.
4. The Treatment of Cancer by the Proteolytic Ferments, By R. ROMME.

1. Thiosinamine and the Treatment of Deafness.—Lermoyer and Mabu find thiosinamine of essential service in the treatment of deafness due to adhesive inflammation following otorrhœa. They use a solution of 15 per cent., which is nonirritant and not painful, with half the quantity of antipyrine, introduced as a bath in the ear daily, while pneumatic massage is practised twice a week. They allege that the improvement in hearing thus obtained is permanent. This treatment is of no avail in deafness due to labyrinthine disease or to otosclerosis.

3. Method of Determining the Amount of Sugar in the Urine.—Martinet gives this rule: The number of grammes of sugar contained in a specimen of urine is equal to the quotient of 100 divided by the number of drops of urine necessary to reduce completely 1 cubic centimetre, or 26 drops of Fehling's solution.

June 26, 1907.

1. Lime and the Arteries, By M. LOEPER and P. BOVERI.
2. The Nature of Malignant Tumors According to von Dungern and Werner, By L. HALLION.
3. Diagnosis of Cutaneous Lesions by Grattage, By JOURDANET.

1. Lime and the Arteries.—Loeper and Boveri find that an accumulation of the salts of lime in the tissues predisposes to a deposit of lime in the walls of the arteries. The causes of this accumulation are numerous, but three are of particular importance; the quantity, and perhaps the quality, of the lime ingested, the disassimilation of the bones, and habitual or occasional insufficiency of intestinal and renal elimination.

2. The Nature of Malignant Tumors.—Hallion criticises the views recently advanced by von Dungern and

Werner, and persists in his preference for the karyogamic theory of cancer.

3. Diagnosis of Cutaneous Diseases by Grattage.—According to Jourdanet, Brocq recommends a curette to be methodically passed over the affected skin so as to remove it layer by layer, and to examine what is obtained by each stroke of the curette. In this way the quality of the epithelium, its thickness, stratification, friability, and adherence can be learned, as well as the serosity from the Malpighian bodies, sometimes vesticulation with or without admixture of blood. The aspect of the derma, more or less brightly red, as it lies bare, deprived of epithelium, is likewise to be observed. In certain cases purpura is easily induced by two or three scratches, and if the scratching is continued a true hæmorrhage may be produced. In psoriasis a hæmorrhage may be readily developed, and finally the sensibility of the patient to this little operation may be greater or less, according to the case. He gives a considerably long list of diseases in which this means of diagnosis has proved of value.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT.

June 18, 1907.

1. The Practice of Operations on the Placenta, By SELLHEIM.
2. Concerning the Pharmacological Behavior of Oxybenzyltannin, By HILDEBRANDT.
3. Practical Experience with Oxybenzyltannin (Tannothymal), By BAUMGARTEN.
4. The Relations of the Medulla Oblongata to the Pupils, By BACH.
5. Concerning Massage by Rhythmic Pressure (According to Professor Cederschiöld) and Its Use in the After Treatment of Operations on the Intraabdominal Organs, By SCHMIDT.
6. Congenital Functional Defects in the Region of the Cranial Motor Nerves, By NEURATH.
7. Contributions to the Subject of Scopolamine Anæsthesia in Obstetrics, By HOLZBACH.
8. More Cases of Scleroderma Treated with Mesenteric Glands, By SCHWERDT.
9. Heredity of Strabismus, By VON SICHERER.
10. Concerning a Case of Fat Embolism of the Brain Associated with Tetanus, By JÄHNE and SCHMIDT.
11. A New Fermentation Tube for the Demonstration of Sugar in the Urine and a Simple Sterilizable Safety Pipette, By SCHUMM.
12. A New Stomach Sound for X Ray Work, By GROSS.
13. Does the Injection of Stovaine Into the Lumbar Sac Influence the Motor Functions of the Intestines? By LENKERT.
14. Reply to B. Fischer's Criticism of My Article on the Cause of Cancer and of Tumors in General, By SPUDE.
15. Concerning Typhoid and Sepsis of the Colon and Concerning Typhoid as an Endotoxine Disease (Concluded), By STADELMANN and WOLF-EISNER.
16. Giorgio Baglivi, By SCHOFF.

3. Practical Experience with Oxybenzyltannin.—Baumgarten reports three cases in which he controlled an obstinate diarrhoea by means of this drug.

4. Relations of the Medulla Oblongata to the Pupils.—Bach finds that the laying bare of the fourth ventricle from the supraoccipital bone causes a miosis which is frequently of high degree, together with a loss or a great lowering of the reaction of the pupil to light. After waiting in vain for some time, once three quarters of an hour, for a return of the light reaction the writer observed, greatly to his surprise, its immediate and prompt return after a cerebral incision had been made from the middle of the fourth ventricle. Hence he looks upon the medulla oblongata as controlling the light reaction of the pupils.

5. Massage by Rhythmic Pressure.—Schmidt has employed this method of massage, recommended by Professor Cederschiöld of Stockholm with very satisfactory results after operations on various intraabdominal organs.

6. Congenital Functional Defects.—Neurath reports a case in which he observed a congenital paralysis of certain cranial nerves together with other congenital faults of development.

7. Scopolamine Anæsthesia in Obstetrics.—Holzbach discusses the disadvantages to be met with in the use of scopolamine anæsthesia during labor with particular reference to the effect of the drug on the child during and after the birth. He states that the drug is excreted by the mother for some days after the labor not only in the urine but also in the milk and the colostrum in a small demonstrable quantity.

8. Scleroderma.—Schwerdt reported in 1905 a case of circumscribed scleroderma which he had successfully treated with the mesenteric glands of the sheep. In the present number he reports six additional cases treated in the same manner.

9. Heredity of Strabismus.—Von Sicherer reports a family in which strabismus has been present in four successive generations.

10. Fat Embolism of the Brain Associated with Tetanus.—Jähne and Schmidt report the clinical course and the anatomical findings on autopsy in a case of this nature.

LA RIFORMA MEDICA

May 18, 1907.

1. The Diagnostic Value of the Pharyngeal Reflex, By L. GUERRA-COPPIOLI.
 2. Hepatic Sclerosis of Tuberculous Origin in Infants, By L. M. SPOLVERINI.
 3. Experimental Researches with Suture of the Vas Deferens, By UGO DALL'ACQUA.
- 1. The Pharyngeal Reflex.**—Guerra-Coppioli calls attention to the value of the pharyngeal reflex in diagnosis of various diseases. This reflex is absent, not only in hysteria, but also in other functional diseases, such as epilepsy and neurasthenia, as well as in some organic diseases, such as progressive paralysis, hæmiplegia, and in tumors of the brain. The reflex is also absent in a considerable percentage of persons completely free from nervous disease. In hysteria it is not always absent. According to the average figures of various authors the reflex is absent in only 60 per cent. of cases of hysteria. The conclusion from this study is that the value of the pharyngeal reflex in diagnosis is very slight, and that its absence, far from being a pathognomonic sign of hysteria, can only acquire importance when accompanied by other signs of an undisputable value.

2. Tuberculous Sclerosis of the Liver in Infants.—Spolverini reports some cases of sclerotic liver in infants in which the process was due to tuberculosis. Hutinel was the first to speak of this special clinical form of sclerosis and named it cardiutuberculous sclerosis of the liver. The primary lesion, according to Hutinel, is a tuberculous pericarditis, which is accompanied by hepatic changes which ultimately lead to hepatic insufficiency. There are, however, cases in which no cardiac lesions are present, while the liver is the seat of tuberculous sclerosis. A case of this kind is reported by the present author. The patient, a little girl, six years of age, presented prominence of the upper part of the abdomen, and on percussion the liver was found enlarged, painful, and hard, with a knobby surface and an irregular border. On administering 40 grammes of glucose the latter was found in the urine four hours later. Smaller doses, however, did not show in the urine. Under treatment with guaiacol and other antituberculous remedies the child improved markedly, and the liver gradually diminished in size. The origin of the sclerosis was tuberculous, in all probability, as the tuberculin test gave a positive reaction, as she also presented the physical signs of enlarged peribronchial lymph nodes, and as the antituberculous treatment had

given such good results. The second case reported was a boy, six years of age, with a very large liver occupying nearly the entire abdomen. This patient died of exhaustion and under the marked symptoms of hepatic failure. At autopsy the case was found to be one of the cardiac hepatic type.

3. **Suture of the Vas Deferens.**—Dall' Acqua experimented with various methods of suturing the vas deferens with a view of determining how much could be done in this direction in cases of injuries of this structure. He tried end to end suturing, lateral implantation, suturing with and without sustaining sutures of catgut, of silk, and of silver. He found that the best method was suturing by means of catgut No. 00 combined with a union of the connective tissue of the duct. This method furnishes the best functional result. The spontaneous union of the stumps of the vas was possible even after complete transverse division, provided the satellite vessels of the vas had not been severed. The testes of the animals operated on did not show marked changes even when union afterwards failed. The union of the vas at best is rather uncertain, and in operations in the neighborhood of this structure surgeons should use great caution lest they injure the duct.

May 25, 1907.

1. Contribution to the Study of Traumatic Amyotrophy (To be continued), By L. FERRANINI.
2. The Treatment of Cutaneous Epithelioma by Means of an Arsenical Mixture, By ALBERTO SERRA.
3. Large Colloid Lipoma, By ALCIDE LAFFRANCHI.

2. **Epithelioma of the Skin Treated with Arsenical Solution.**—The case reported by Serra was treated with the method recommended by Cerny and Trunecek. It consists in carefully cleaning the neoplasm, so that its surface bleeds slightly. A solution of powdered arsenious acid, 1 gramme, in alcohol and water, of each 75 grammes, is then applied with a brush and allowed to evaporate, leaving the lesion open without any dressing. The pain, which is acute, passes after ten or fifteen minutes. On the following day a second application is made upon the yellowish crust, and the medication is repeated daily, the eschar being allowed to fall spontaneously. As the eschar gets thicker, it may be necessary to use a stronger caustic, and the following mixture may be applied: Powdered arsenious acid, 1 gramme; alcohol and distilled water, of each 40 grammes. After ten or fifteen applications the eschar becomes dark brown, almost black, becomes detached at its borders, and finally falls off. The surface of the neoplasm is then again touched with the arsenical solution, and the yellowish crust again appears. This goes on until the entire growth is destroyed. Pasini, in 1904, reported excellent results with a treatment based upon this method, declaring that a solution of 1 part of arsenic to 150 of water was quite sufficient to produce a destruction of cancerous tissue. The present author reports four cases, in all of which small bits of tissue were removed for diagnosis and found cancerous. In all of them excellent results were obtained with this treatment. The solution used was a modification of that described by Cerny and Trunecek. Instead of using water and alcohol as a solvent, alcohol and ether were used. The advantage of this is that it is borne much better by patients and does not produce any severe burning sensation.

ROUSSKY VRATCH.

May 11, 1907.

1. Peculiar Anomaly of the Gluteus Maximus, By T. M. KOZNESSOFF.
2. Contracture of the Knee in Flexion in Meningitis (Continued), By V. M. KERNIG.
3. Mental Disease as a Result of Recent Political Conditions in Russia, By F. E. RYBAKOFF.

4. On the Technique of Spinal Anæsthesia, By V. N. TOMACHEVSKY.
5. Two Cases of Cæsarian Section with Favorable Results, By L. A. BOFF.
6. Methods of Testing Drinking Water According to Petruschky and Push, and to Eijkmann, By K. E. DOBROVOLSKI.
7. The Treatment of Scarlet Fever with Palmirski's Serum (Concluded), By L. O. FINKELSTEIN and N. L. TSCHZHNAKOFF.

3. **Mental Disease and Political Disturbances.**—Rybakoff studied a considerable number of cases of mental disease which were undoubtedly connected with current political disturbances in Russia. Thirteen of these cases he reported in a previous article. He notes that persons who took a passive part in the present unsettled conditions were much more frequently affected than those who were actively involved. Some were affected because they had been accidentally witnesses of outrages, others because they were seized with fear of the riots. Still others because they were frightened by the bombardment of the city. The type of disease chiefly observed was the depressive paranoia; in rare cases the affection became maniacal. In nearly all cases the hallucinations were directly connected with the political events. The chief delusions are of persecution and of fear of being beaten, killed, etc.

4. **Technique of Spinal Anæsthesia.**—Tomachevsky says that it is important in employing this method to inject the same amount of anæsthetic solution as the amount of spinal fluid previously removed. In order to facilitate this he devised a special syringe which allows the operator to measure accurately the amount of spinal fluid removed, and enables him also to employ this fluid as a vehicle for the dilution of the anæsthetic. The apparatus consists of an ordinary trocar, at the distal end of which is a metallic tube provided with a stop cock. The syringe is attached by means of a T joint at right angles to the head of the trocar. The trocar is introduced into the spinal canal in the usual way, and when the connecting stop cock is opened the fluid is allowed to flow into the barrel of the syringe, which is graduated. When the desired amount of fluid has been removed the stop cock connecting the syringe is closed and the same amount of anæsthetic solution is injected directly through the trocar. If it is desired to use the spinal fluid for the purpose of diluting the anæsthetic the needed amount of dry and sterile anæsthetic is weighed and is placed in the barrel of the syringe, and the desired amount of spinal fluid is allowed to enter the barrel. The syringe is then disconnected from the trocar, its contents shaken so that the anæsthetic dissolves and is then injected through the trocar without being removed from the syringe.

7. **Palmirski's Scarlet Fever Serum.**—After trying Palmirski's serum against scarlet fever in forty-five patients Finkelstein and Tschzhnakoff conclude that the remedy does not lower the temperature in complicated cases of scarlet fever; that it does not prevent the occurrence of complications, and that it has no specific effect upon the nervous system, the heart's action, or the local lesions.

May 26, 1907.

1. Contracture of the Knee in Flexion in Meningitis (Continued), By V. M. KERNIG.
2. The Treatment of Chancroid Bubo with Bier's Method, By M. A. TOLLENOFF.
3. Plans and Methods for a Systematic Study of Russian Watering Places for the Treatment of Nervous Diseases, By B. S. HEIDENBERG.
4. Mental Disease in Connection with Current Political Events, By A. S. SHOLOMOWITCH.
5. The Influence of Sterilized Food Upon the Flora of the Intestine, By G. C. BELONOVSKI.
6. Respiratory Mobility of the Lungs and the Theory

of Physiological Compensation in Chronic Tuberculosis of the Lungs (*To be continued*).

7. Medical Report of the St. Petersburg Municipal Lying-In Asylums for 1905 (*Continued*).

By L. A. KRYSKI.

2. Bier's Method for Buboes.—Tschlenoff found Bier's method very satisfactory in the treatment of chancroid buboes. Of twenty-six patients, twenty-one were cured, but in five unfavorable results were obtained. In two of the latter the incision was infected with chancroid virus, in one the bubo suppurated, and in two the affection assumed a "strumous" character. Of the twenty-one favorable cases some patients took a considerable time before the bubo was cured, because either several glands had been affected simultaneously, or because in these the incision was made more extensive than was afterwards found to be necessary. In general, the results do not show that the method of Bier lessens the time necessary for the cure of bubo resulting from soft chancre. The chief advantages of the method are that it preserves the glandular tissue, that it is very pleasant for the patient, and that it avoids the need of leaving permanent scars in the groins where such scars may be very conspicuous. The technique of the method was as follows: For obtaining artificial hyperæmia in buboes special cups of the type devised by Klapp were employed. Separate kinds of apparatus are necessary for opened and unopened buboes, respectively. For unopened buboes dressings of 50 per cent. alcohol were found useful in connection with the apparatus. In the case of opened buboes, compresses of Burrow's solution were used as dressing. The treatment in each case was applied for half an hour at a time and repeated daily, save that on the day when the bubo was opened no Bier's treatment was applied, and on the following day the application was divided into two parts, with an interval of five minutes between. The region of the bubo was always carefully shaved and sterilized, and the sterilized cups were always of such size that their edges reached beyond the limits of the bubo. At first the punctures in the open cases were made quite large, but afterwards it was found that this was rather unfavorable and the puncture was made with a small knife with better results. Puncture is indicated before the application of Bier's method in all cases in which there is much painful induration, and especially when there is fluctuation.

5. The Influence of Sterilized Food Upon the Flora of the Intestine.—Belonovsky found, in a series of experiments on mice, that sterilized food had no influence on the flora of the intestine. This is interesting, in view of the fact that it has been stated that food has much to do with the conditions of bacterial invasion of the intestine. Man is born with an intestine free from bacteria. The latter begin to appear in the intestine within from ten to twelve hours after birth and rapidly multiply. The number of microbes in the intestine is enormous, and no less than forty-four varieties of bacilli alone have been isolated from the fæces. According to some authors when a man is fed on sterilized food the quantity of bacteria in the intestine is markedly diminished; on the other hand, Escherich found that when infants were fed on sterilized milk the number of intestinal bacteria did not diminish. The same result was obtained by Eberle in a child and by Hemmerl in a dog. Stern, Casciani, Albu, and Eisenstaedt obtained similar results. Recently Ballner for a week fed himself with sterilized food and found scarcely any change in the number of bacteria in the intestine. The present author fed mice upon grain sterilized by dry heat or upon sterilized milk for seven months. He made agar plates to determine the number of colonies of bacteria in one

milligramme of fæces. The average number of bacteria per milligramme before the experiment was 1,630,000, practically the same number was obtained at the end of the experiment.

ARCHIVES OF PÆDIATRICS.

June, 1907.

1. Ætiological Factors in the Recurrent Vomiting of Children, By J. HOWLAND and A. N. RICHARDS.
2. Tuberculous Cervical Lymph Nodes in an Infant. By L. E. LA FETRA.
3. Mongolian Pigment Spots of Earliest Infancy, By J. BRENNEMAN.
4. Pyelitis in Infancy and Childhood, with Remarks on Urine, By L. FISCHER.

1. Ætiological Factors in the Recurrent Vomiting of Children.—Howland and Richards remark that these have always been obscure. There is an underlying neurotic condition, inherited or acquired, which is usually determinable, while the exciting cause may be fright, excitement, fatigue, anger, exposure to cold, or blows upon the abdomen. Errors in diet are not the direct cause. It is important to note that during the attacks acetone, diacetic acid, and betaoxybutyric acid are excreted in the urine in large quantity, and that at the outset of an attack there is an increased excretion of uric acid. The urine also invariably contains a heavy sediment of amorphous urates which fails to occur when the vomiting ceases. Three cases were studied and the foregoing facts were elicited, which were also confirmed by a series of animal experiments.

2. Tuberculous Cervical Lymph Nodes.—La Fetra thinks tuberculous adenitis in early infancy is very unusual. In the author's case the patient was about four months old, and the nodes removed were clearly tuberculous. Infection may have proceeded from the father, who suffered with cold at the time of the infant's birth, or from the inhalation of street dust. The author thinks that most of the reported cases in early infancy are not cases of true tuberculosis, but are simple inflammatory enlargements due to pyogenic cocci. The infection must come by breathing and swallowing through the mucous membrane of the nasopharynx, oropharynx, tonsils, or adenoids. The bacilli can pass through the mucous membrane without producing any lesion. It is quite possible that latent or larval tuberculosis may exist in infancy and remain latent until adult life. Numerous cases of this character have been reported and confirmed by the successful inoculation of animals.

3. Mongolian Pigment Spots of Earliest Infancy and Childhood.—Brenneman observes that in newborn infants in the dark skinned races there are irregular areas of bluish pigmentation in the sacral and sacrogluteal regions, which contrasts strongly with the general color of the body. In Japanese children it is almost constant and many extend into the lumbar region, also to the skin over the shoulders and the extensor surface of the extremities. It gradually fades away and in a few years disappears entirely. In Chinese children the color is bluish gray. Adachi studied the subject very thoroughly, both in man and in monkeys, and found pigment both in the epidermis and the corium, varying in quantity in different races and individuals. Two layers of pigment bearing cells were found in the corium, as follows: 1. A faint layer, high up, near the deeply lying epidermal pigment. 2. A deeper layer of large spindle shaped or stellate cells forming a horizontal band deep in the corium. The author examined a series of colored children under one year of age, and found the pigment spots in thirty-five out of forty cases. It has rarely been seen in white children, and may be regarded as a normal human characteristic, the persistence of a functional layer of pigment such as exists in certain monkeys.

4. **Pyelitis in Infancy and Childhood, with Remarks on the Urine.**—Fischer observed three groups of prominent symptoms in a series of cases of pyelitis: 1. Fever, intermittent in character, progressive emaciation, and constipation. 2. Bed wetting and pain in urination, passage of small quantities of urine at a time as if pain prevented free urination, absence of fever during the entire disease. 3. Digestive disturbances indicated by the passage of scybala and feces mingled with shreds of membrane, anorexia, and little if any fever. The diagnosis of the disease was made by microscopical examination of the urine. A review of the author's cases shows that pyelitis suggests intermittent fever, and that it is occasionally seen in infancy in an afebrile form, also that if it were not for the enuresis no symptoms associated with the genitourinary tract would have directed attention to the kidneys. Treatment consists in rest, careful hygiene and diet, benzoate of soda, and urotropin.

THE JOURNAL OF NERVOUS AND MENTAL DISEASE.

July, 1907.

1. Unilateral Paralysis Agitans Occurring After Hemiplegia, By JOSEPH SAILER.
2. A Study of Reflexes of the Lower Extremities in Sixty Cases of Paresis, with a Special Reference to the Paradoxical Reflex, By ALFRED GORDON.
3. Sensory and Motor Disturbances in Parts Above the Distribution Involved in Delimited Organic Lesions of the Spinal Cord, By T. H. WEISENBURG.
4. Korsakoff's Psychosis Superimposed Upon Melancholia, By JOHN W. STEVENS.

2. **A Study of Reflexes of the Lower Extremities in Sixty Cases of Paresis, with a Special Reference to the Paradoxical Reflex.**—Gordon observes that the old triad of reflex phenomena, viz., exaggerated knee jerks, ankle clonus, and Babinski's sign, which we are accustomed to find in hemiplegia or in any other organic disease with a distinct degenerative lesion in the motor pathway, is markedly dissociated in the series of sixty cases collected by the author. While the first is present in the majority of his cases, the other two are rare. Of the two more recently described reflexes, Oppenheim's is also rare, while the paradoxical is frequent. In view of the fact that the pathological studies of competent observers show a constant presence of motor fibres' lesion, and that the latter is in the majority of cases only very slight, the rarity of Babinski's and Oppenheim's reflex, also of ankle clonus, and the frequency of the paradoxical phenomenon will acquire for this reason a valuable clinical significance.

3. **Sensory and Motor Disturbances.**—Weisenburg concludes from his paper on this subject that an injury to the spinal cord will cause at first interference with the blood supply of the whole cord. If, as a result of such an injury, there should be produced a limited lesion of the spinal cord, there will be interference with the blood supply of the contiguous areas. This interference will be progressive, thus causing arterial obliteration and necrosis in the contiguous parts. This progressive degeneration will cause disturbance of function, it being manifested clinically by a gradual extension of the areas of disturbed sensation, and by increase in the tendon and skin reflexes. A lesion in any portion of the spinal cord will cause disturbance of physiological relations in the associated parts. This disturbance is greatest directly after the injury, and becomes less in the course of time. Secondary degenerations give rise to the more pronounced direct symptoms, for whatever has produced secondary degenerations has at the same time caused loss of function in the related parts. The degeneration, however, causes some physiological disturbance. Every degenerating or degenerated tract has healthy fibres from other sources mingling with it. The arterial degeneration present in the involved tract will cause degeneration in these

healthy fibres, and of the immediate fibres surrounding the degenerating tract.

THE EDINBURGH MEDICAL JOURNAL.

July, 1907.

1. The Cause of the Heartbeat, By G. A. GIBSON.
2. The Differentiation of Partial from Total Transverse Lesions of the Spinal Cord, By ALEXIS THOMSON.
3. On the Administration of Gas and Ethyl Chloride, By WILLIAM GUY.
4. Signs and Symptoms of Mucous Colitis, By H. DOUGLAS WILSON.
5. Observations on the Effect of Prolonged and Severe Exertion on the Blood Pressure in Healthy Athletes, By G. A. GORDON.
6. Two Cases of Renal Sarcoma in Children, with Some Remarks on the Pathology and the Recent Results of Surgical Treatment, By K. W. MONSARRAT.

1. **The Cause of the Heartbeat.**—Gibson reviews our knowledge on this subject, and concludes that the embryological facts cannot be claimed by the adherents either of myogenesis or of neurogenesis, for the heart begins to beat before muscle or nerve appears. The anatomical conditions do not favor one or other hypothesis, for nerve and muscle are closely interwoven in the region where the pulsation is initiated. The physiological evidence is equally given by the upholders of both views, and structural considerations show that both have much weight on their respective sides. The pathological results are equally impartial in their bearing, and prove neither opinion. The clinical observations, however, are distinctly easier to explain on a neurogenetic basis. Beyond all doubt the singular structure recently described by Keith and Flack is the mechanism by means of which pulsation is initiated, but the original impulse, to the author's mind, is clearly given by the nervous elements.

4. **Signs and Symptoms of Mucous Colitis.**—Wilson says that mucous colitis in its varied forms, and cases whose symptoms are directly traceable to absorption of toxic products from the large intestine, are commonly to be met with. Abdominal symptoms are not always by any means marked, and it is a mistake to imagine that a patient suffering from the disease must pass mucus in very obvious quantity. Errors of diagnosis may readily occur if cases are looked at in the light of their secondary symptoms only. One would like to insist upon the necessity of making the thorough examination of the colon as much of a routine as is that of the stomach, heart, or other important organ. The use of balneotherapeutical measures for the treatment of this disease is attended with excellent results, often after the usual methods have met with little or no success. Special baths for the treatment of mucous colitis are now greatly in favor. The baths consist of two parts, which may be given together or separately as the medical attendant may direct. (A) The intestinal douche is administered while the patient lies on a special couch. A rubber tube, the lengths used varying from fourteen to seventeen inches, according to prescription, is passed into the bowel by an experienced attendant, and the prescribed amount of hot mineral water allowed gently to flow from a jacketed cylinder, the pressure being graduated according to directions. The patient's position is altered during the time the douche is retained, the bowel emptied, and the process repeated. (B) The Tivoli douche. This consists of an ordinary reclining bath, in which the patient lies covered, except for the head and neck, with warm mineral water. While lying in this way a hot water douche is played on the abdomen from a special apparatus, and is usually prescribed at a much higher temperature than that of the bath. These methods are carried out in conjunction with special dieting, massage, and the drinking of mineral waters.

Proceedings of Societies.

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Forty-first Annual Meeting, held in Long Branch, on June 25, 26, and 27, 1907.

The President, Dr. ALEXANDER MARCY, JR., of River-ton, in the Chair.

The Legality of State Medical Examinations and Reciprocity in Interstate Medical Licensure.—This was the title of a paper by Dr. E. L. B. GODFREY, of Cam-den, who said that the right of a State to demand that graduates of medical colleges should pass a State board before being allowed to practise was based upon the police power of the State. It was one of the rights not vested by the constitution in the Federal government or denied to the States. It could not be exercised by the Federal government without an amendment to the constitution. He also made a strong plea for reciprocity between States having nearly similar standards of qualifications.

Dr. WILLIAM PERRY WATSON, of Jersey City, said that the existing medical law of New Jersey was second to none in any State, with one exception. Dr. Watson then gave the society his idea of a perfect law of the kind.

Dr. MORTIMER LAMPSON, of Jersey City, objected to a statement contained in Dr. Godfrey's paper, that there were three great medical schools; and he denied that medical examining boards had had any influence in advancing the merits or standing of the profession.

Some Remarks on the Lymphatics.—Dr. E. Z. HAWKS, of Newark, read this paper, dealing principally with the physiology of the lymphatics and their rôle in pathology and surgery.

Dr. CHARLES YOUNG, of Newark, considered the part played in the nutrition of the tissues by the lymphatics, and said that it seemed as if the lymphatic system had been especially designed as a protective agency of the body, carrying off waste and preventing the absorption of infective material.

Dr. NORTON L. WILSON emphasized the point that enlargement of the lymph glands meant bacterial infection.

The Oration in Surgery was delivered by Dr. ALBERT VANDER VEER, of Albany, who reviewed the progress made in surgical procedures during the last forty years.

The Oration in Medicine (The Physician and the Medical Press) was delivered by Dr. MORRIS MANGES, of New York. His principal contention was that what was regarded as unfit for the body of a medical journal should be considered as unfit for its advertising pages. He thought that articles regarding the newer drugs should be published for the information of physicians, but that manufacturers should be forbidden to reprint these for commercial purposes.

The Question of Operation in Ectopic Gestation with Rupture.—Dr. J. S. BAER, of Camden, read a paper on When to Operate and When Not to Operate in Ruptured Ectopic Gestation Sac. He said that, although it would be best to operate before rupture had taken place, this was not always possible; therefore, the question was when to operate after the rupture had been diagnosed. He said that in most cases one should operate as soon as the diagnosis was made, but that in some few cases, when there was profound shock, a little waiting would sometimes result in saving life. He reported six cases, illustrating these points.

Dr. B. F. EYRE, of Philadelphia, opened the discussion. He always operated before there was a tumor found in the pelvis, whether it was due to extrauterine pregnancy or not. It was often very hard to make a

diagnosis in extrauterine pregnancy. In regard to what should be done when the rupture had occurred and the patient was practically dead, he had not the courage to operate under such circumstances. He believed that the patient would be saved more frequently if the gynecologist waited for a while. He did not endorse the operation by vaginal section in extrauterine pregnancy.

Dr. EDWARD J. ILL, of Newark, thought that such patients should not be taken to a hospital, but should be attended to on the spot, no matter where it might be. He also thought that no operation should be performed in cases of tubal abortion.

Dr. P. A. HARRIS, of Paterson, said that there were two things by which the general practitioner could diagnose ectopic gestation—atypical menstruation and pains. He should not accept a statement that it was probably a case of abortion without inquiring whether the fetus had been seen by any one.

Dr. G. K. DICKINSON, of Jersey City, did not think that an operation had ever hastened death in extrauterine pregnancy. He believed in always operating, without waiting to transfer the patient to a hospital, and thought that the method of anæsthesia afforded hope in patients that had lost a great deal of blood.

Dr. EMERY MARVEL, of Atlantic City, said that in conditions of shock stimulation would benefit the vaso-motor system, and it could be used during the operation. Therefore delay on that ground was unjustifiable.

Dr. J. M. RECTOR, of Jersey City, said that the blood pressure would show the exact condition of the patient and how great was the shock from which she was suffering.

Dr. J. W. MARTINDALE, of Camden, said that he had recently had two cases in the "tragic" stage of ectopic gestation. One patient was operated upon and died, and the other was operated upon and recovered. One could not tell which patient would recover and which would not, so one should operate in all cases. Collapse was a fainting condition, and fainting was Nature's attempt to stop bleeding. If stimulation was applied, the bleeding would begin again; it would therefore be productive of more harm than good.

Dr. BAER did not believe in stimulation, except in a radical operation. He had saved one patient, he believed, by intravenous infusion of salt solution. He did not know in which cases waiting would save the patient, but felt that such cases existed. All his patients were out of bed sooner than if he had operated from below. He believed that the hematocoele was absorbed in but a limited proportion of cases.

Diet in Pulmonary Tuberculosis.—Dr. THEODORE SENSEMAN, of Atlantic City, read this paper. The subject was considered under the following headings:

1. Not the amount of food ingested, but the amount assimilated, is the important consideration.
2. Improve digestion, and allow appetite to follow of its own accord.
3. There is a pivotal point in each patient's digestive ability, which must be ascertained.
4. This pivotal point is capable of being raised.
5. All tuberculous individuals show tendencies of digestive derangement. It is futile to attempt to make them do more work in this condition than they could in a healthy state. Stuffing patients with solid food is, therefore, a mistake.
6. The diet that gives the greatest amount of nourishment and makes the least demand upon the digestive organs is the diet of choice. Raw eggs and milk meet these requirements.
7. Each patient has a normal weight, beyond which we should not endeavor to increase.
8. The normal weight is reached after the appetite

of food that will enable him to maintain it is sufficient.

9. So long as this normal weight can be maintained, the patient has nothing to fear from tuberculosis.

Dr. D. E. ENGLISH, of Milburn, felt sorry that Dr. Senseman had not laid more emphasis upon purgation. He favored three or four bowel movements a day, to get rid of the waste products of the extra amount of food ingested. He added a little water and salt to each glass of milk.

Premature Separation of the Placenta.—Dr. J. W. MARTINDALE, of Camden, in a paper thus entitled, first described a fatal case of the kind that occurred in his practice during the last year. He at first thought the patient was suffering from placenta prævia, but soon became suspicious that there was a separation of the placenta, and that the blood was working its way between the uterus and the bag of waters. The uterus was emptied, and the placenta was swept out with a tremendous gush of blood. The uterus contracted well, and the woman did not lose much blood after delivery. The pulse was very weak and the respiration rapid. Stimulation of various kinds failed to rally her, and she died an hour and a quarter after being seen.

Dr. Martindale then cited cases seen by Dr. Coe, of New York, and Dr. Nicholson, of Philadelphia, and referred to Dr. Goodell's paper, published in the *American Journal of Obstetrics* in 1870. The condition had been ascribed to the hemorrhagic diathesis, nephritis, hydramnios, death of the fœtus, short funis, and fatty and calcareous degeneration of the placenta. Its symptoms were a steady pain in the lower part of the abdomen, weak fetal heart sounds, irregularity of the uterine contractions, and a show of blood. Sometimes external hæmorrhage was not noted. The hæmorrhage was usually concealed until it reached serious proportions. The diagnosis from colic was made by the absence of shock in the latter, the history of having eaten indigestible food, and the presence of constipation; from ruptured tubal abscess by the absence of a previous history of tubal disease and of localized tenderness over the tubes; and from rupture of the uterus by the fact that the condition came on more gradually in detached placenta than in rupture of the uterus, and that the uterine tumor got larger after the accident in detached placenta, while it got smaller in rupture of the uterus.

The prognosis was very bad. The children almost always perished; and only vigorous women that received prompt attention were likely to survive.

Dr. Martindale then discussed the treatment, the question being whether one shall wait or empty the uterus at once. After quoting the opinions of various writers, he decided that the latter gave the lowest mortality. The condition required for its management a stout heart and prompt action on the part of the attendant.

Dr. H. H. SHERK, of Camden, who had been called by Dr. Martindale to see the case mentioned in his paper, gave some additional details of it, and then cited some cases reported by Dr. Franks, of Louisville.

Dr. CHARLES P. NOBLE, of Philadelphia, said that every one that attended labor cases should inform himself regarding premature separation of the placenta; because, though such cases were rare, the only salvation of the patient when they occurred was that the physician should act promptly and courageously. The consensus was that if, at the time the diagnosis of concealed hæmorrhage was made, the cervix was sufficiently dilated for the application of the forceps, that instrument should be used. If not, a Cesarean section should be done at once, provided there was available any one that could do it properly; but it should

never be done by one that did not know anything about it.

The Etiology and Pathology of Diseases of the Gall-bladder.—In this paper, by Dr. H. G. NORTON, of Trenton, the author said that cholecystitis, which was nearly as frequent as appendicitis, was more difficult to diagnose and less amenable to treatment. It was thought to be most commonly caused by microbic infection, toxins, and direct traumatism to the gallbladder. The microbic infections include septicæmia, pyæmia, influenza, pneumonia, and typhoid fever; the toxins arose from diseases of the alimentary canal, including typhoid fever and dysentery. Appendicitis was sometimes a focus for the spread of the infection to the liver and gallbladder. There might be direct extension from the duodenum through the common and cystic ducts or by way of the bloodvessels or both.

In general blood infection, the microorganisms might be excreted into the bile ducts or gallbladder from the hepatic artery and portal vein. That cholecystitis did arise from typhoid infection was proved by the finding of typhoid and colon bacilli in the gallbladder. It sometimes occurred years after the typhoid infection. The author had never seen a well marked case of typhoid cholecystitis, but it did occur as a complication. The irritation of previous cholelithiasis might be the factor needed to produce cholecystitis as a complication of typhoid, acting either by obstructing the duct and causing distention or by ulceration of the mucous membrane from pressure, thus affording an avenue of infection. More than one variety of germ might be found at the same time in the gallbladder. Suppurative cholecystitis was due to a further development of the causes of acute cholecystitis. The presence of gallstones in the gallbladder was probably a frequent causative factor of cancer, but gallstones were frequently present for years in cases in which no cancer developed. Primary cancer occurred without the presence of gallstones in twenty per cent. of the cases. Irritation from the gallstones in the gallbladder of a person predisposed to cancer probably produced cancer of the liver. Analogous to irritation by the gallbladder as a factor in causing cancer was the greater frequency of uterine and mammary cancer in multiparæ.

The Diagnosis of Diseases of the Gall-bladder.—This paper was by Dr. P. A. HARRIS, of Paterson. He said that, to make the diagnosis, one should uncover the body of the patient and have the exact seat of the pain pointed out. Palpation, inspection, and percussion should then be practised. The great progress in the understanding of visceral disease dated from the investigation of these cavities by the knife of the surgeon—autopsies *in vivo*, as they had been called, being particularly useful in the study of gallstone disease. In cholecystitis, it was the inflammation caused by the stones, rather than the stones themselves, that caused the symptoms. The commonest diagnostic symptom was colic. The pain did not always centre over the gallbladder, although it usually did. The diagnosis was to be made from lesions of the gallbladder, from ulcer and cancer of the stomach and duodenum, from appendicitis, from kidney stone or tuberculosis, and from pancreatitis. Under the heading of gastralgia might often be found a good description of gallstone colic. Jaundice did not appear when the inflammation was limited to the gallbladder. Its presence was presumptive evidence of gallstone disease, but its absence would not disprove this diagnosis. The test of finding or not finding gallstones in the stools after the attack had only a restricted value.

Complications in Diseased Conditions of the Biliary System.—In this paper, Dr. G. K. DICKINSON, of Jersey City, said that, until recent times, various conditions discovered in conjunction with diseased states

had been considered to be partially independent of the same, and been called complications; but recent betterment of knowledge had demonstrated that these were but an extension of the primary disease to other structures. Conditions leading to an extension of disease processes of the region under discussion were: 1. Receptive nerve states. The gallbladder region being supplied by filaments from the cerebral, spinal, and sympathetic nervous systems, it was not to be wondered at that a person in great pain should have some disturbance in parts innervated by one or other of these. 2. Obstruction of the flow of bile, depriving the intestines of their accustomed fluid, on the one hand, and, on the other, inducing morbid dynamic and physiological conditions by the failure of the bile to be discharged. 3. Conditions of tension. Bile was secreted under low tension, as compared with some other fluids. Consequently, alterations in the structure of the bile tract and liver induced through this condition would be slow of progress; and, according to whether the obstruction was steadily maintained or intermittent, there would be two distinct pathological results. 4. Bacterial invasion, either ascending from the duodenum or transmitted through the blood. Bile, not being bactericidal, would harbor germs for an indefinite time. 5. Inflammatory states in surrounding structures and their concomitants. Protective adhesions formed with the omentum. This, if the inflammation was not too intense, might bring about resolution through phagocytic action. Adhesions between the neighboring organs might produce serious pathological conditions. 6. Ulceration from calculi. The pressure of calculi might cause pressure necrosis or ulceration; and if adhesions formed, calculi might pass through them to adjoining viscera. 7. Hyperplasia, of regular or irregular development. Hyperplasia of the mucosa produced by calculi impacted in the cystic duct might take on adenomatous changes and eventually become a true adenocarcinoma.

The Medical Treatment of Diseases of the Gallbladder.—Dr. JOHN H. MUSSER, of Philadelphia, in this paper, said that the subject should not be the medical treatment of gallstones, but, rather, the medical treatment of that state of the liver and the ducts, including the gallbladder, on account of which there was a tendency to the formation of stones. There were many instances in which an operation could not be resorted to. Cholelithiasis was caused, on the one hand, by toxic influences, and, on the other, by alterations in the digestion producing modifications in the reflexes of the duodenal end of the stomach, thus causing either a limitation or an increase of hepatic secretion. It might also arise from circulatory conditions of the liver secondary to heart trouble and from infection. Remembering these four predisposing conditions, one realized that there was a large field for medicinal or hygienic therapy.

In a general way, then, it might be said that cholelithiasis demanded hygienic treatment, removal or modification of the cause, so far as it could be brought about, and, further than this, the use of specific measures. In a number of cases Dr. Musser had succeeded in probably lessening the number and severity of the attacks by having the patient wear a properly constructed bandage. In regard to the use of olive oil, he had seen no relief to the gallstones from its use; but sometimes there was a relief to the hyperacidity that usually accompanied gallstones. After its administration the patient could nearly always exhibit pseudo-gallstones. The treatment of cholelithiasis was not merely the treatment of a local process, but was the broad general management of a man that was sick.

The Surgical Treatment of Gallbladder Disease.—This paper was by Dr. JOHN B. DEEVER, of Philadel-

phia. He said that disease of the gallbladder, except the mild variety, was due to some form of infection. It showed itself in two forms—the calculous and the noncalculous. In both forms there were various grades of inflammation of the gallbladder. Adhesions of the upper abdomen were sometimes so thick that the liver was never seen during the operation for stone. These adhesions were the result of delay in surgical intervention under the guise of medical treatment. The physician should not delay until hope was gone and the surgeon became a last resort. The indications for immediate intervention were complications showing the spread of infection and symptoms of obstruction of the common duct after a reasonable interval. Other conditions demanded operation, but the necessity was not so urgent. The purpose of an operation was to remove the inflammation, to remove the stones, and to prevent recurrence.

Dr. Deever then described the technique of the operation. When the structures were not normal, the procedure became very difficult, and one should be a master of the anatomy of the upper abdomen. It was much wiser to drain outside of the abdomen than to allow the infectious bile to flow into the duodenum. The drain should be left in until it had accomplished its purpose and was ready to drop out. The speaker deprecated the practice of what he termed meddlesome surgery, by which he had seen patients' recovery prevented. He did not mind, even should the drains remain in for six months. Dr. Deever considered the diet, which should be restricted.

The variety of organism causing the symptoms called for some discrimination in operative procedures. The symptoms of streptococcus infection were much more intense than those commonly produced by the staphylococcus.

(To be concluded.)

Letters to the Editors.

PARALYSIS OF UNCERTAIN ORIGIN.

902 BROADWAY,

NEW YORK, June 22, 1907.

To the Editors: The following report may be of some interest on account of the obscurity of the symptoms and causes: Mrs. C., aged thirty-seven, the wife of a farmer living on a mountain farm, consulted local physicians for pain in the right leg, associated with great weakness. A diagnosis of sciatica was made by one at least. In February, 1905, the case came under my observation. The patient was generally well nourished—not especially anemic. The urine was negative as to albumin, sugar, and casts. It contained a large amount of indican. The right leg was nearly helpless, and the patellar reflex was absent. This reflex was present to a normal degree on the other side. Cutaneous sensation was normal, muscular reaction to the faradic current was absent, although the application caused much pain. A history of a previous fall, in which the patient had struck her back, led to a provisional diagnosis of descending traumatic neuritis. In a few weeks, however, the appearance of paralysis in the arm of the same side showed that it must be due to some general cause. The extensor group was the one involved, and as in the case of the leg, it would not respond to faradism, although the flexor groups readily reacted.

The history showed no colic, and no line was present on the gums. The source of water supply was a free running pure mountain spring, with no chance for contamination outside the lead pipe through which it was brought to the house. A specimen of the urine, together with a concentrated specimen of the drinking water, was sent to Dr. E. E. Smith, of New York. He

found unmistakable evidence of lead in the urine, but could find no trace in the water. A second specimen of the water gave the same result in analysis. The patient had been, for three weeks, on iodide of potassium, the maximum being about forty grains a day, together with strychnine and salts, at the time lead was found in the urine. Following the arm involvement, there was an involvement of the diaphragm, which at first caused no great inconvenience, except that the patient noticed she could not cough. A few weeks later a slight bronchitis, without rise of temperature, developed, followed by excessive dyspnoea and rapid and weak heart's action. Death ensued in about three days, apparently from cardiac syncope. There was no autopsy. The case is of interest mainly on account of the unilateral paralysis, together with the paralysis of the diaphragm. Strychnine, up to gr. $\frac{1}{4}$, a day, together with the iodides and sulphates, produced no effect on the course of the disease. No electrical reaction was ever established in the paralyzed muscles.

E. F. ARNOLD.

Book Notices.

A Textbook of Embryology. For Students of Medicine. By JOHN CLEMENT HEISLER, M. D., Professor of Anatomy in the Medico-Chirurgical College, Philadelphia. With 212 Illustrations, 32 of them in Colors. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 432.

This book, designed primarily for students, is interesting and profitable as well for those who are more advanced, especially for those whose training was acquired before the days when laboratory teaching played so essential a part in medical education.

It is interesting as a book of reference to those who must occasionally revert to the "beginnings of things," in the elucidation of important medical or surgical problems.

A book of this kind is by no means easy reading, particularly if unaccompanied by the specimens or preparations illustrative of the text.

If we were to offer a criticism it would be that the nomenclature should, if possible, be simplified. The technical terms involve one in a maze of difficulties.

It seems unreasonable that the onomatology should be a mixture of English, German, Latin, and Greek, and for one who is not familiar with all these languages and cannot analyze the terms they are a meaningless and obscure mass. Simply to memorize terms without comprehending their etymology always seems an unsatisfactory task. Embryology should be reconstructed, as to its nomenclature, upon a rational basis.

The Drink Problem in Its Medicosociological Aspects. By Fourteen Medical Authorities. Edited by T. N. KELYNACK, M. D., M. R. C. P., Honorary Secretary of the Society for the Study of Inebriety. With Two Diagrams. New York: E. P. Dutton & Co., 1907.

It cannot be denied that among thoughtful physicians there is a growing disposition to question the value of alcohol, not only as a beverage, but also as a therapeutic agent. The series of authoritative articles contained in this volume, all by able writers whose names command respect, cannot but strengthen professional opinion as to the unfavorable effects of alcohol, and thus be of much real service in promoting the cause of temperance. The entire subject of alcoholism, its medicinal and social relations is treated in a log-

ical and dispassionate manner, which is far more convincing than the fervid, sentimental, and exaggerated appeals of the unscientific literature which has hitherto characterized so much of the popular temperance propaganda. We have here a solid array of facts and statistics which are for the most part corroborated in the observation and experience of every practising physician. It would really seem that the total abstainer had by far the best of the argument. Every medical man in active practice sees almost daily as a part of his routine work the most deplorable results of the abuse of alcohol, and, as Osler has well said, in individual cases it is always difficult or impossible to define the limits of moderate use. On the other hand, who among us can say that he has ever seen any one injured by abstinence?

Lehrbuch der Arzneimittellehre und Arzneiverordnungslehre unter besonderer Berücksichtigung der deutschen und österreichischen Pharmakopöe. Von Dr. H. v. TAPPEINER, ord. Professor der Pharmakologie und Vorstand des pharmakologischen Instituts der Universität München. Sechste, neu bearbeitete Auflage. Leipzig: F. C. W. Vogel, 1907. Pp. 378. (Price, 7 marks.)

Professor von Tappeiner, of Munich, has published six editions of his pharmacology in about six years. The book has met with great favor among the medical students of Germany and Austria, and is in accordance with the pharmacopœias of these two countries. Would it have enlarged the book too much if the author had added the Swiss pharmacopœia, as Binz, of Bonn, prepared his *Grundzüge der Arzneimittellehre*, and as Cloetta, of Zürich, wrote his *Arzneiverordnungslehre*, thus combining the three pharmacopœias of the German language? We doubt it. The author has added those new remedies which in his opinion are of such importance that their retention by the medical profession may be expected. Many prescriptions are given, which are to serve as samples for the student, showing him how to combine remedies in a useful form.

The book is divided into two parts, general (pp. 1 to 42) and special (pp. 43 to 345) pharmacology and the art of prescribing, the first part being an introduction to the second. Chapter xxiv treats of animal organotherapy and serum therapy, dealing with the thyroid, the antitoxines, and the toxins. In chapter xxv the author discusses the artificial foods and digestive preparations. In an appendix is given a list of the newer remedies not spoken of in the text, with a short description of their composition and use. A table of German and Austrian maximal doses is also added.

Atlas und Grundriss der Embryologie der Wirbeltiere und des Menschen. Von Dr. ALEXANDER GURWITSCH, St. Petersburg, früher Privatdozent in Bern. Mit 143 viel farbigen Abbildungen auf 59 Tafeln und 186 schwarzen Abbildungen im Text. München: J. F. Lehmann, 1907. Pp. xxi-345.

Lehmann's medical hand atlases have come to occupy a distinctive place in medical literature. Characterized as they are by their masterly mechanical execution, supplemented by the truly worthy text, contributed by masters in their respective fields, these volumes have won for themselves an enviable position as convenient and authentic works for the student and the practitioner.

The field of embryology is not widely cultivated in our American medical colleges; were it so, we believe that the work of Gurwitsch's would, in our English dress, be an ideal guide. For the reader with but a fragmentary knowledge of German this volume of the hand atlases will be welcomed.

BOOKS, PAMPHLETS, ETC., RECEIVED

A Manual of Treatment of the Diseases of Children. By W. F. Radue, M. D. Chicago: The Clinic Publishing Company.

Atlas und Grundriss der Embryologie der Wirbeltiere und des Menschen. Von Dr. Alexander Gurwitsch, St. Petersburg. München: J. F. Lehmann, 1907.

Fortieth Annual Report of the Hudson River State Hospital, at Poughkeepsie, N. Y., to the State Commission in Lunacy, for the Year Ending September 30, 1906.

Materia Medica, Therapeutics, Pharmacology and Pharmacognosy. Including Medical Pharmacy, Prescription Writing and Medical Latin. By William Schleif, M. D., Demonstrator of Medical Pharmacy in the Medical Department of the University of Pennsylvania. Series edited by Bern B. Gallaudet, M. D., Demonstrator of Anatomy and Instructor in Surgery, College of Physicians and Surgeons, New York. Philadelphia and New York: Lea Brothers & Co., 1907.

Nephritis. A Manual of the Disease Commonly Called Nephritis, or Bright's Disease, and of Allied Disorders of the Kidneys. By Seelye W. Little, M. D. New York: The Grafton Press, 1907. Pp. xiii-134.

L'Occultisme hier et aujourd'hui. Le Merveilleux préscientifique. Par le Dr. J. Grasset, professeur de clinique médicale à l'Université de Montpellier, associé national de l'Académie de médecine. Montpellier: Coulet et Fils; Paris: Masson et Cie, 1907. Pp. 435. (Price, 5 francs.)

The Standard Family Physician. A Practical International Encyclopædia of Medicine and Hygiene Especially Prepared for the Household. By Professor Charles Reissig, M. D., of Hamburg, Germany, and Smith Ely Jelliffe, A. M., M. D., Ph. D. With the Assistance of Many American and German Specialists in the Treatment of Disease and Experts in Medicine and Surgery. In Two Volumes. New York and London: Funk & Wagnalls Company, 1907.

Treatment of the Diseases of Children. By Charles Gilmore Kerley, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, etc. Fully Illustrated. Philadelphia and London: W. B. Saunders Company, 1907.

A Textbook of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and their Employment upon a Rational Basis. By Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Twelfth Edition, Enlarged, Thoroughly Revised and Largely Rewritten. Philadelphia and New York: Lea Brothers & Co., 1907.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending July 19, 1907.

Smallpox—United States

Places	Date	Cases	Deaths
Illinois—Chicago	June 29-July 6	1	2
Idaho—Caldwell	June 22-29	1	1
Indiana—Indianapolis	June 22-29	1	1
Indiana—La Porte	June 29-July 1	1	1
Indiana—Marian	June 1-30	1	1
Indiana—South Bend	June 22-29	1	1
Iowa—Cedar Rapids	June 1-30	1	1
Iowa—Des Moines	June 16-30	1	1
Kansas—Kansas City	June 22-29	1	1
Massachusetts—New Orleans	June 22-29	1	1
Mississippi—Gulf of Mexico	June 1-31	1	1
Missouri—St. Joseph	June 1-30	1	1
Missouri—St. Joseph	June 22-29	1	1
New York—New York	June 29-July 6	1	1
North Carolina—Greensboro	June 22-29	1	1
Ohio—Cincinnati	June 22-29	1	1
Ohio—Cincinnati	June 28-July 6	1	1
Ohio—Cincinnati	June 21-28	1	1
Pennsylvania—Harrisburg	June 7-14	1	1
Pennsylvania—New Castle	June 1-30	1	1
Tennessee—Memphis	June 22-29	1	1
Tennessee—Nashville	June 20-July 6	1	1
Texas—Galveston	June 21-28	1	1
Vermont—Rutland	June 22-27	1	1
Washington—Fort Stevens	June 10-16	1	1
Washington—Spokane	June 21-29	1	1
Washington—Tacoma	June 22-29	1	1
Washington—Albany	June 22-29	1	1

Smallpox—Foreign

Brazil—Para	June 8-15	12	7
Brazil—Para	June 15-22	10	7
Brazil—Rio de Janeiro	June 22-29	10	7
China—Hankow	May 11-25	20	14
China—Nanchang	May 4-18	3	3
China—Shanghai	May 18-June 1	5	among foreigners; 4 cases at S.S. Wharfedam
China—Tientsin	May 18-25	2	2
Ecuador—Guayaquil	June 8-15	1	1
France—Paris	June 11-18	1	1
Germany—Königsberg	June 8-15	1	1
Greece—Piræus	June 15-22	1	1
Italy—Genoa	June 13-20	34	1
Italy—Naples	June 13-20	1	1
Italy—Naples	June 22-29	2	2
Italy—Naples	June 18-25	3	3
Mexico—City of Mexico	June 1-8	7	7
Mexico—Monterrey	June 16-23	1	1
Russia—Moscow	June 8-15	12	2
Russia—Odessa	June 15-22	10	3
Russia—Riga	June 8-15	10	3
Russia—St. Petersburg	May 23-June 1	9	1
Straits Settlements—Penang	May 18-25	1	1
Turkey—Bagdad	May 18-25	1	Present
Turkey—Samsun	Apr. 15-May 30	1	17
India—Bombay	May 28-June 4	1	1
India—Calcutta	May 18-25	32	32

Yellow Fever—Foreign

Brazil—Para	June 8-22	3	3
Cuba—Santiago	July 1-8	1	removed from S.S. Puerto Rico, embarked at Habana
Cuba—Union de Reyes	July 2-9	1	1
Ecuador—Guayaquil	June 8-15	1	1
West Indies—Port of Spain	May 25-June 15	6	2

Cholera—Foreign

India—Bombay	May 28-June 4	1	1
India—Calcutta	May 18-25	46	46
India—Kashmir Province	May 20-27	1,447	782

Plague—Foreign

Africa—King William's Town	May 24-31	1	1
China—Hongkong	May 11-25	19	17
Egypt—Alexandria	June 6-13	2	1
Egypt—Assiut Province	June 6-13	7	7
Egypt—Behara Province	June 6-13	2	2
Egypt—Red Sea Province	June 6-13	1	1
Egypt—Suez Province	June 6-13	1	1
Egypt—Keneh Province	June 6-13	15	15
Egypt—Minieh Province	June 6-13	1	2
French Cochinchina—Saigon	May 21-28	1	Present
India—Bombay	May 28-June 4	49	49
India—Calcutta	May 18-25	13	13
India—Rangoon	May 18-25	43	43
Straits Settlements—Singapore	May 12-25	3	3

Public Health and Marine Hospital Service:

Official List of Changes of Station and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the week ending July 19, 1907.

BANKS, C. E., Surgeon. Granted an extension of leave of absence for one month, from June 20, 1907.

BROOKS, S. D., Surgeon. Directed to proceed to the sub ports of Los Angeles, for the purpose of inspecting vessels, when necessary, upon completion of which, to rejoin his station.

CASWORTHY, P. M., Surgeon. Granted leave of absence for two days, from July 9, 1907, under paragraph 186 of the Service Regulations.

CHAMBERLAIN, J. H., Passed Assistant Surgeon. Leave of absence granted for two months, from June 9, 1907, amended to read for thirteen days only.

CHAMBERLAIN, A. H., Assistant Surgeon General. Official leave of absence for twenty-two days, from July 10, 1907.

HUNT, REID, Chief, Division Hygienic Laboratory. Designated to represent the Bureau at the International Physiological Congress at Heidelberg, August 10 to 17, 1907.

MALONEY, JOHN, Passed Assistant Surgeon. Granted leave of absence for seven days, from July 8, 1907, under paragraph 186 of the Service Regulations.

ROBERTSON, JAMES, Physician. Granted leave of absence for thirty days, from July 10, 1907, under paragraph 186 of the Service Regulations.

Promotion

U. S. Navy. Promoted to lieutenant of the United States Navy.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending July 13, 1907:

DE LOFFRE, S. M., First Lieutenant and Assistant Surgeon. Will report in person on September 2, 1907, to Major R. G. Ebert, surgeon, president of the examining board, Manila, P. I., for examination for advancement.

EKWURZEL, G. M., Captain and Assistant Surgeon. Granted leave of absence for one month and twenty-five days.

EWING, C. B., Major and Surgeon. Relieved from duty in the Philippines Division, to take effect at such time as will enable him to comply with this order, and will proceed on the transport to sail from Manila about September 15, 1907, to San Francisco, Cal.; thence to Fort Oglethorpe, Ga., for duty.

HEYSINGER, J. D., First Lieutenant and Assistant Surgeon. Granted leave of absence for two months, with permission to apply for an extension of one month.

The following named assistant surgeons are relieved from duty in the Philippines Division; will proceed on the transport to sail from Manila about September 15, 1907, to San Francisco, Cal., and upon arrival will report by telegraph to the Adjutant General of the Army for further orders: Captain Park Howell, and First Lieutenants C. F. Craig, W. A. Wickline, H. L. Brown, H. H. Baily, and H. G. Humphreys.

Boards of medical officers as hereinafter constituted are appointed to meet July 29, 1907, at the places designated, for the purpose of conducting the preliminary examination of applicants for appointment in the Medical Department of the Army:

At the Army General Hospital, Washington Barracks, D. C., Captain W. D. Webb, assistant surgeon; First Lieutenant H. F. Pipes, assistant surgeon; First Lieutenant J. B. Huggins, assistant surgeon.

At Columbus Barracks, Ohio, Major H. I. Raymond, surgeon; Captain E. L. Ruffner, assistant surgeon; Captain R. F. Metcalfe, assistant surgeon.

At Jefferson Barracks, Mo., Major A. E. Bradley, surgeon; Captain J. C. Gregory, assistant surgeon; Captain W. L. Pyles, assistant surgeon.

At Fort Leavenworth, Kas., Major E. C. Carter, surgeon; Captain H. D. Bloombergh, assistant surgeon; Captain P. S. Halloran, assistant surgeon.

At Fort Jay, N. Y., Major Charles Richard, surgeon; Captain I. A. Shimer, assistant surgeon.

At Madison Barracks, N. Y., Major H. M. Hallock, surgeon.

At Fort Snelling, Minn., Captain H. S. Hansell, assistant surgeon.

At Fort Wright, Wash., Captain M. A. W. Shockley, assistant surgeon.

At Fort Sam Houston, Texas, First Lieutenant A. M. Whaley, assistant surgeon.

At Fort Logan, Colo., First Lieutenant G. H. Scott, assistant surgeon.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending July 13, 1907:

BAKER, M. C., Acting Assistant Surgeon. Detached from the *Franklin*, Navy Yard, Norfolk, Va., and ordered to Midway Islands.

BISHOP, L. W., Passed Assistant Surgeon. Detached from the *Iowa* and granted leave of absence for one month.

BROWN, H. L., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from April 12, 1907.

CASTO, D. H., Acting Assistant Surgeon. Ordered to the recruiting station, Indianapolis, Ind.

CHAPPELEAR, F. D., Acting Assistant Surgeon. Detached from the Naval Hospital, Pensacola, Fla., and ordered

DONELSON, M., Acting Assistant Surgeon. Ordered to the *Stringham*.

GARRISON, H. A., Assistant Surgeon. Ordered to the Naval Hospital, Newport, R. I.

GRAYSON, C. T., Assistant Surgeon. Ordered to duty at

the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

HEINER, R. G., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from December 26, 1906.

HOLCOMB, R. C., Surgeon. Commissioned a surgeon, from December 17, 1907.

HUFFMAN, O. V., Assistant Surgeon. Ordered to the Naval Hospital, Boston, Mass., for duty.

KENNEDY, J. T., Surgeon. Commissioned a surgeon, from May 7, 1907.

LUMSDEN, G. P., Medical Inspector. Detached from the Naval Recruiting Station, Indianapolis, Ind., and ordered to command the Naval Hospital, Pensacola, Fla.

MANCHESTER, J. D., Passed Assistant Surgeon. Detached from the Naval Hospital, Philadelphia, and ordered to the Naval Hospital, Pensacola, Fla.

MILLER, J. T., Assistant Surgeon. Ordered to the *Rhode Island*.

MINK, O. J., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from June 7, 1907.

MUNSON, F. M., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from April 5, 1906.

NASH, F. S., Surgeon. Detached from command of the Naval Hospital, Canacao, P. I., and ordered home to await orders.

RIXEY, P. M., Medical Director. Commissioned a medical director in the Navy, from May 7, 1907.

ROSE, M. E., Assistant Surgeon. Ordered to the Naval Hospital, New York, N. Y.

SELLERS, F. E., Assistant Surgeon. Detached from the *Cincinnati*, and ordered to the *Wilmington*.

TRIBLE, G. B., Assistant Surgeon. Ordered to the Naval Hospital, Norfolk, Va.

WALDNER, P. J., Pharmacist. Appointed a pharmacist from July 3, 1907.

WICKES, G. L., Assistant Surgeon. Detached from the *Wilmington* and ordered to the *Cincinnati*.

ZALESKY, W. J., Passed Assistant Surgeon. Detached from the *Stringham* and ordered home.

Births, Marriages, and Deaths.**Married.**

HUMPHREY—CLERICO.—In St. Louis, Missouri, on Tuesday, July 2nd, Dr. Joseph Harrison Humphrey and Miss Marie Clerico.

Died.

BARNAUD.—In Brockton, Massachusetts, on Monday, July 1st, Dr. Elie Barnaud, aged fifty-seven years.

BASSETT.—In Barre, Massachusetts, on Saturday, July 6th, Dr. Eugene A. Bassett, of Chicago, aged sixty-six years.

BROWN.—In Toronto, Canada, on Friday, June 14th, Dr. Charles P. Brown, aged thirty-five years.

CUNNION.—In Brooklyn, N. Y., on Friday, July 5th, Dr. Charles William Cunnion, aged thirty-four years.

FAIRCHILD.—In Boise, Idaho, on Friday, June 7th, Dr. C. Melvin Fairchild.

LEWIS.—In Toronto, Canada, on Wednesday, May 22nd, Dr. Frederick W. Lewis, aged fifty-two years.

McLAY.—In Alymer, Ontario, Canada, on Sunday, June 16th, Dr. P. W. McLay, aged sixty-two years.

McMILLAN.—In Pictou, Nova Scotia, on Wednesday, May 1st, Dr. John McMillan, aged seventy-three years.

ORONHYATEKHA.—In Deseronto, Ontario, Canada, on Sunday, July 7th, Dr. Acland Oronhyatekha, aged thirty-eight years.

PARMENTER.—In Vermontville, Michigan, on Thursday, July 4th, Dr. William Parmenter, aged eighty years.

ROSS.—In Dundas, Ontario, Canada, on Tuesday, May 21st, Dr. James Ross, aged fifty-three years.

SWEENEY.—In Chester, Pennsylvania, on Monday, July 8th, Dr. George A. Sweeney, aged thirty-three years.

WORLEY.—In Swatow, China, on Friday, July 5th, Dr. R. E. Worley.

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WHOLE No. 1495.

Original Communications.

TRANSFUSION, IN DOGS UPON WHICH BILATERAL NEPHRECTOMY HAS BEEN PERFORMED.

By GEORGE W. CRILE, M. D., and HERBERT P. COLE, M. D.,
Cleveland.

This experiment was undertaken to ascertain whether the life of a dog could be prolonged beyond its normal time after bilateral nephrectomy. In the five dogs upon which no transfusion was performed the longest duration of life was seventy-two hours, the shortest, forty-four. This compares favorably with the duration of life in the dogs operated upon by Virzou, his maximum survival being seventy-one hours. This author obtains a length of life of 109, 142, 146, and 164 hours' duration, in dogs which had received injections of serum from the renal vein. He concludes naturally that the serum acts favorably and is a vehicle of the internal secretion of the kidney. Chalin and Guinaid had one dog, however, that lived 124 hours, and Lavis had a dog that lived 141 hours, but there is no mention as to whether these dogs received any special treatment. Lavis mentions another dog that lived 162 hours and that received only injections of physiological salt solution. Lavis concludes that the variation in the survival of these animals depends upon a complex idiosyncrasy—the age of the dog, quantity of water absorbed, and the state of the digestive tract play the principal rôle in the survival. He also says that the animals that lived the longest time also received the greatest amount of fluid.

The dogs we have operated upon have all been apparently healthy, of various ages, various weights, and have not had any special routine treatment. They received water and milk once a day as they ordinarily would in the dog house. There appears to be no index as to the dog's survival according to age or weight.

All of these dogs were under ether anaesthesia for at least an hour, one dog being under ether anaesthesia for one hour and thirty minutes. Nearly all of these dogs showed symptoms of vomiting and weakness the day following the operation. These, however, are the only symptoms that could possibly be called uræmic symptoms.

Bilateral Nephrectomy with Transfusion.

Five dogs were operated upon. The same conditions of age, weight and feeding were observed in this series. All of these dogs were transfused at the forty-eighth hour after bilateral ne-

phrectomy, with the exception of one that was transfused at the seventy-second hour, three of the dogs being under ether one hour and fifty minutes, and one of them one hour and forty-five minutes.

A branch of the carotid artery was used in the donor, anastomosed by a cannula to the femoral vein of the donee. The donee was bled from a branch of the femoral vein or from the femoral artery. One dog was bled 100 c.c., two dogs 200 c.c. each, one 175 c.c., and one 150 c.c.

Length of Life After Transfusion.—In the dogs that were transfused at the forty-eighth hour one died forty-four hours after transfusion, two dogs lived eighteen hours, and another forty-two hours. The dog that was transfused at the seventy-second hour lived forty hours after transfusion, or 112 hours after nephrectomy. The dogs transfused at the forty-eighth hour lived, one ninety-two hours, after nephrectomy, two sixty-six hours, and one ninety hours. Comparing these survivals with those of other experimenters mentioned, it would seem that transfusion after this operation has no material effect on the length or duration of life.

Bilateral Nephrectomy Without Transfusion.

CASE I.—February 13, 1907. Male mongrel dog. Weight, 15 kilogrammes. Bilateral nephrectomy, posterior route under ether anaesthesia in one hour and fifteen minutes. Good recovery.

February 14, 1907. Vomited upon taking milk, forty-eight hours after operation. Quite weak, unable to walk steadily.

Died between fifty-two and sixty-six hours after operation, average fifty-nine hours.

Autopsy showed a clean wound, no evidence of healing. There had been subperitoneal bilateral hæmorrhage.

CASE II.—February 16, 1907. Male mongrel dog. Weight, 12 kilogrammes. Bilateral nephrectomy, posterior route under ether anaesthesia in one hour and twenty minutes. Good recovery.

February 18, 1907. Vomiting, listless, weak, increasing temperature.

Death, average fifty-nine hours.

Autopsy showed no evidence of incision. Peritoneum showed old subperitoneal hæmorrhage.

CASE III.—February 23, 1907. Male mongrel dog. Weight, 9.9 kilogrammes. Bilateral nephrectomy, posterior route under ether anaesthesia in one hour and thirty minutes. Hæmorrhage of 200 c.c. from left renal artery. Good recovery.

February 24, 1907. Good condition, no vomiting, no increase in temperature; walked quite steadily.

February 25, 1907. Sixty-eight hours after operation the dog exhibited marked twitching of muscles of legs. Vomited upon taking water.

Death in seventy-two hours. Died suddenly in beginning ether anaesthesia.

Autopsy showed clean wounds. No reunion of incision; peritonæum showed an old subperitoneal hæmorrhage.

CASE IV.—March 4, 1907. Male coach dog. Weight, 15 kilogrammes. Bilateral nephrectomy, posterior route, under ether anaesthesia, in one hour. Good recovery.

March 5, 1907. Vomiting fifty hours after operation. Death, average fifty-nine hours.

Autopsy showed clean wounds. No reunion of incision. Old subperitoneal hæmorrhage.

CASE V.—March 14, 1907. Male black and tan dog. Weight, 10 kilogrammes. Bilateral nephrectomy, posterior route, under ether anaesthesia, in one hour. Good recovery.

March 15, 1907. Dog in good condition.

March 16, 1907. Death, forty-four hours after operation. Dog in fair condition two hours before death.

Autopsy showed healthy wounds. No reunion of incision. Old bilateral subperitoneal hæmorrhage.

Bilateral Nephrectomy and Transfusion.

CASE I.—February 18, 1907. Male mongrel dog. Weight, 8.8 kilogrammes. Bilateral nephrectomy, posterior route, under ether anaesthesia, in one hour.

February 19, 1907. Sutures eaten out of left skin wound by suppuration.

February 20, 1907. Dog vomiting frequently, forty-eight hours after operation.

Transfusion forty-eight hours after operation under ether anaesthesia, in one hour and fifty minutes. Cannula method. Dog bled 100 c.c. Transfusion for ten minutes.

February 21, 1907. Dog very weak, listless, refuses nourishment.

February 22, 1907. Death forty-four hours after transfusion, ninety-two hours after nephrectomy.

Autopsy showed suppuration of left wound, with necrosis of right.

CASE II.—February 25, 1907. Male mongrel dog. Weight, 8 kilogrammes. Bilateral nephrectomy, posterior route, under ether anaesthesia, in one hour and fifteen minutes. Good recovery.

February 26, 1907. Dog in excellent condition.

February 27, 1907. Dog in fair condition, some twitching of muscles.

February 28, 1907. Twitching of legs. Vomiting on taking liquids.

Transfusion seventy-two hours after nephrectomy, under ether anaesthesia, in one hour and forty-five minutes. Cannula method. Bled 200 c.c. Transfusion for seven minutes.

March 1, 1907. Dog listless and weak. Vomited.

Death forty hours after transfusion, 112 hours after nephrectomy.

Autopsy showed necrosis of both back wounds.

CASE III.—March 7, 1907. Male black and tan dog. Weight, 13 kilogrammes. Bilateral nephrectomy, posterior route, under ether anaesthesia, in fifty minutes.

March 8, 1907. Fair condition, weak.

March 9, 1907. Dog very weak.

Transfusion forty-eight hours after nephrectomy, under ether anaesthesia, in one hour and forty-five minutes. Cannula method. Bled 200 c.c. Transfused for ten minutes.

March 10, 1907. Death eighteen hours after transfusion, sixty-six hours after nephrectomy.

Autopsy showed slight necrosis of both posterior wounds. Peritonæum was clear except for old hæmorrhages.

CASE IV.—March 11, 1907. Male coach dog. Weight, 12 kilogrammes. Bilateral nephrectomy, posterior route, under ether anaesthesia, in fifty minutes.

March 12, 1907. Dog weak, vomited on taking liquid.

March 13, 1907. Transfusion forty-eight hours after nephrectomy, under ether anaesthesia, in one hour and fifty minutes. Cannula method. Bled 175 c.c. Transfusion for seven minutes.

Death eighteen hours after transfusion, sixty-six hours after nephrectomy.

Autopsy showed the wound unhealed.

CASE V.—March 16, 1907. Female bull terrier. Weight, 9 kilogrammes. Bilateral nephrectomy, posterior route, under ether anaesthesia, in fifty minutes. Good recovery.

March 17, 1907. Weak.

March 18, 1907. Vomited; fair condition.

Transfusion forty-eight hours after nephrectomy, under ether anaesthesia, in one hour and fifty minutes. Cannula method. Bled 150 c.c. Transfusion for ten minutes.

March 19, 1907. Dog very weak, refuses nourishment.

Death forty-two hours after transfusion, ninety hours after nephrectomy.

Autopsy showed no healing of wounds, the peritonæum was clear.

At transfusion a branch of the carotid artery was used in the donor, anastomosed by cannula to femoral vein of donee. Donee bled from branch of femoral vein or artery.

275 PROSPECT STREET.

OPERATIONS FOR CLEFT PALATE AND THEIR RESULTS; ESPECIALLY IN RESPECT TO THE IMPROVEMENT OF SPEECH.

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An operation for a cleft palate is something like the holy state of matrimony in that it should be entered upon advisedly and only after careful consideration. It is like it also in respect that if at first we don't succeed we try, try again. One of my patients was operated upon under general anaesthesia eight times and another seven times. I may say that in neither instance did I do the operation myself. In fact, I have never been able to persuade my patients to submit to so many anesthetizations for the correction of a single deformity. When several operations are likely to be necessary the parents or patient should be so informed.

In the difficult adolescent cases I am inclined to think that the operation described by Dr. James F. McKernon may be the preferable one. A preliminary tracheotomy is done and the patient breathes through a tube during the operation and during the process of healing. The nasal and oropharyngeal cavities are packed, and the wound is treated antiseptically as after any other operation. The objection to this procedure, of course, is the fact that it adds to the cleft palate operation a second one of some importance and gravity, but this objection may be more than offset by the completeness and permanency of the closure of the cleft when the parts are kept comparatively clean and at rest during the process of repair.

In the technique of the cleft palate operation there is yet much to be desired, although it has had ample time for improvement. The operation for the resection of the nasal septum is younger by about 140 years, and yet its technique to-day easily excels that of the operation under discussion. This is probably due to the fact that the cleft palate operation goes for the most part to the general surgeon rather than to the oral and nasal surgeon and, therefore, too little interest is taken in it. The worst kind of bungling has been done in this delicate operation by men who report successful appendiceal operations by the hundreds and even thousands. The cleft palate operation should be done by those accustomed to oral and nasal surgery, for not only would they do better work, but they would devise more suitable instruments and appliances than we now have.

The anesthesia apparatus of Dr. Fillebrown, modified and improved by Dr. Mary Rupert, is a device which will probably be of value in the way of improved instrumentation and if it could have a syphon pump attached for the removal of mucus and blood from the oropharynx, similar to the so called saliva ejector employed by dentists, it would result in the saving of much time and trouble.

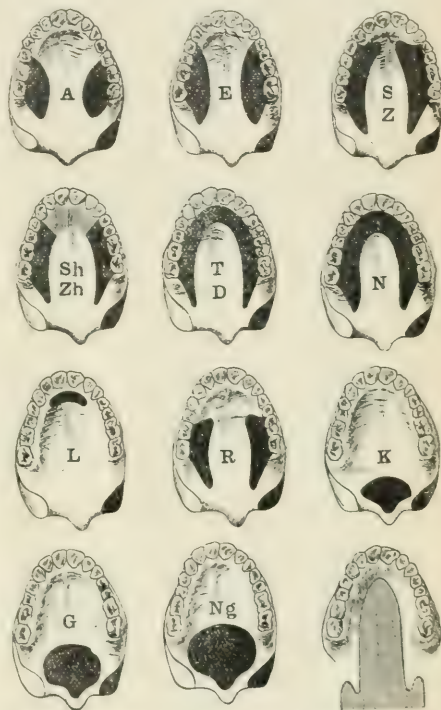
The operation is of sufficient importance also to require trained assistance, such as we find so necessary in other operations in the region of the respiratory and alimentary tracts. We must remember that it is not an easy operation, and that there are many little things which may happen to thwart our purposes. Before deciding upon the best procedure for any particular case it is well to consider whether any operation at all should be attempted. Those of us who have had experience in this work have doubtless operated in many instances when we have later wished we had withheld our hand, and when no kind of operation, however skilfully performed, would have succeeded in bringing about satisfactory results.

There are two reasons for the desirability of closing a palatal cleft. One is, the improvement of the general health of the patient, and the other, the improvement of the voice and speech. As to the improvement of the physical condition by the closure of the palatal cleft there can be no question. Nature did not intend that the oral and nasal cavities should be without a partition wall, else she would have supplied them with similar anatomical structures. The sensitive peripheral nerves of the nasal cavities render them a most unsuitable and uncomfortable passageway for the various kinds of food, and the nerve supply of the oral cavity renders it entirely unsatisfactory for respiratory purposes.

When the palate, which forms the partition wall between these two cavities, is cleft, much of the food and drink of the individual must of necessity pass through at least a portion of the nostrils, and that the most sensitive portion, namely, the region at the junction of the middle with the posterior third, and much of the inspired air must pass through a portion of the oral cavity without being warmed, moistened, and cleansed, by normal intranasal structures. As a result of these two factors there is invariably a marked catarrhal condition of the nostrils and pharynx, and this is generally a foetid catarrh

which vitiates both the air that is breathed and the food that is eaten. But deleterious as this may be, and is, upon the health and morale of the patient, the fact that he is branded for life by the peculiar character of his speech and its inefficiency as a natural means for the expression of any thoughts he may chance to have, is quite as great a factor in the prevention of normal physical and intellectual development.

The two reasons, therefore, for attempting to



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close a cleft palate, are first to improve the physical condition of the patient by giving to him a more nearly normal respiratory tract, and second to improve both his physical and mental condition by giving to him an approximately normal means for communication with his fellows, through the channels of oral expression. The second reason for the operation is even more important than the first because it affects the individual both mentally and physically.

My experience has been that the mere closure of a cleft palate in an adolescent or adult person does not, as a rule, improve the speech to any appreciable extent. I am aware that there are those who hold an opposite opinion, but in the cases that have been improved I think some outside assistance has always been rendered. Even the little help that may be given by an intelligent parent is fraught with good results in many instances, but the degree of success

that may be obtained is generally proportionate to the skill of the teacher and the ability of the patient for persistent and concentrated effort. It has been said that a faulty habit of speech must be supplanted by a correct one, but it is more than a habit. It is a deeply rooted neuromuscular disturbance or perversion that has arisen from an effort on the part of Nature to accommodate itself to faulty structural conditions, or, to make the statement more concrete, it has arisen from an effort on the part of the mech-

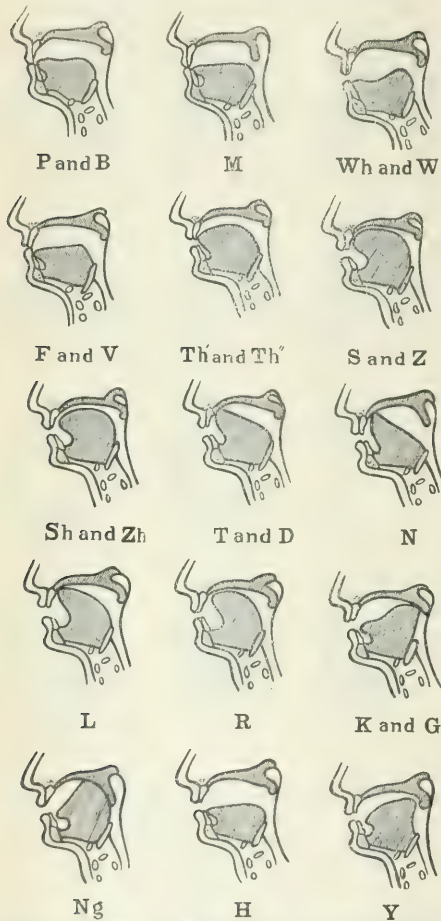
tones of the voice as well as to the conversion or moulding of voice into speech by the processes of so called articulation. The soft palate has a wide range of movement. Its function in vocalization is to assist in regulating the size and shape of certain important resonance chambers, and its function in articulation is to shut off the nasal from the oral cavity during the emission of the explosive and fricative sounds, and to form contacts with the tongue in the formation of the so called posterior linguopalatal sounds.

This will be better understood if we glance for a moment at the charts which accompany this paper. No. 1 contains the physiological alphabet or table of vowel and consonant sounds. It will be observed that the consonants are arranged in groups and named according to the particular organs of articulation employed in their formation. In Chart No. 2 we have a series of drawings of the palate, alveolar arch, and teeth, and the shaded portions represent the points of contact of the tongue during the emission of the sounds, represented by the letters or symbols accompanying them. I may say that these drawings show fairly accurately the exact points of contact of the tongue with the palate, for they are taken from Kingsley's palatograms, and I have only slightly modified them to make them accord with some results that I have obtained from similar studies and experiments. The last drawing on the chart is one showing a complete cleft of the palate.

If we compare the normal palate with the cleft palate in the drawings and glance at the points of tongue contacts we shall readily see exactly what consonant sounds must be faulty when the palate is cleft and these, of course, are the sounds which we hope to improve by our operation. But in addition to these there are other sounds that are defective when the palate is cleft, and they are the explosives and fricatives which require a complete shutting off of the nasal from the oral cavity. This is well shown by the drawings of some vertical sections of the organs of articulation in Chart No. 3, which drawings, of course, are merely diagrammatic. I would call the attention of the reader especially to the position of the soft palate shutting off the nasopharynx during the emission of the explosives and fricatives. By a comparison of the physiological alphabet with these drawings it will be seen that when the palate is cleft all the consonant sounds with two exceptions will be necessarily defective, and when the cleft extends through the alveolar arch and lip, all will be defective with no exception whatever.

In the absence of the normal palate after the first year, therefore, the patient tries to substitute for purposes of speech, certain other organs lower down in the throat, such as the epiglottis, the ary-epiglottic folds, and the ventricular bands, and in this process of substitution faulty musculatures are developed, including a faulty development of the nerve centres supplying them. This gives rise to the neuromuscular perversion to which reference has already been made and which, as I have said, is really more than a habit.

It must be remembered that we are dealing here with a psychical as well as a physical perversion, with a faulty development of the central as well as the peripheral mechanisms of speech, including the



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anisms of speech, central as well as peripheral, to accommodate themselves to developmental structural irregularities in certain important parts of these mechanisms. It is somewhat analogous to the effort on the part of the neuromuscular mechanisms of the heart to accommodate themselves to a faulty valve, but it is far more complicated, because of the volitional and other psychical faculties employed in the development of speech.

The palate is one of the most important organs of voice and speech. Its integrity is essential to the

receptive, the executive, and even the intellectual centers.

The correction of these conditions is by no means a simple procedure. The patient himself cannot accomplish it, because his central mechanisms are involved, and he cannot diagnosticate his own case. So accustomed has he grown to his speech that his ear has come to approve it, and he cannot discriminate between his faulty forms of speech and the correct ones. He has no ear for correct speech, just as some people have no ear for musical tones and have to learn them by a long and plodding process. Moreover, every day of faulty speech tends to increase these unfortunate psychophysical conditions and to lead the patient further and further away from normal speech. Hence it is that the fewer the days of faulty speech the better it is for the patient, and hence the importance of doing the operation, if possible, even before the developmental speech period or within the first year.

The only objection to an early operation is the fact that the young patient may be somewhat lacking in vitality, and it is well known that many children in whom the halves of the palate have not united are of a low physical grade.

In the adolescent or adult cleft palate patient, training will do more for the improvement of speech than will the operation. In other words, given a patient who can have the advantage of but one of the two procedures, I think I can give him better speech with training alone than you can give him with an operation alone. The reason for this is apparent when we consider the limitations of the operation. In the first place, the speech is defective in two important particulars, namely, in resonance and in articulation. The extent to which we can improve the resonance of the voice by the mere closure of the cleft is very slight, because, however successful may be the operation, the patient will have but limited control of a more or less tense velum and he will be unable, therefore, to regulate the size of the opening between the oropharynx and the nasopharynx. It is upon the regulation of the size of this opening, which is constantly changing during speech production, that normal resonance depends. When the opening is large, as in the cleft palate case, the nasal resonance predominates, and when it is small the nasal resonance is diminished.

As to the other particular in which the speech of the cleft palate case is defective, namely, so called articulation, our operation is of greater service because, as we have seen, the hard palate and velum are both essential to the normal tongue contacts of certain of the consonant sounds, and, of course, if the cleft extends through the alveolar arch and lip, nearly all the tongue contacts in the articulation of consonants will be faulty.

But not only are the tongue contacts important, but in the production of many of the consonants there is a damming up, so to speak, of the breath in the mouth and a slight explosive effort as the sound is emitted. When this takes place in the normal mouth the velum rises and shuts off completely the oral from the nasal cavities, and this is one of the things which the velum of a cleft palate cannot do and unfortunately cannot be made to do, else we should be able by means of the combined operation and training to give the patient absolutely normal

articulation. We can only approximate this result by uniting the velum in such a manner that it will be as large and loose as possible, with its muscles in their normal positions and relations, and then by giving the patient such exercises as will have a tendency to develop in these muscles their normal physiological functions.

Much depends, therefore, upon the way in which the operation is done. Only the other day I saw a case in which the palatoglossus muscle of one side was united to the palatopharyngeus muscle of the other side, and it was stretched across the middle

PHYSIOLOGICAL ALPHABET.

CONSONANTS.

	Voiceless oral.	Voiced oral.	Voiced nasal.	
Labials.	P. Wh.	B. W.	M.	Paul Brown made white wax.
Labio-dentals.	F.	V.		Full voice.
Linguo-dentals.	Th'	Th''		Think thou.
Anterior Linguo-palatals.	S. Sh. T.	Z. Zh. D. L. R.	N.	Some zealous sheep leisurely took down nine large rails.
Posterior Linguo-palatals.	K.	G.	Ng.	Can girls bring home yeast.
	H.	Y.		

VOWELS.

COALESCENTS.

ā ā le long	ō ō ld long	ar f ar eor f or e
ā ā t short	ō ō n short	ār f ār or f or
ā ā lms Italian	oo oo ze long	er h er eoor p oor
ā ā ll broad	oo l oo k short	ēr h ēr ūr p ūr r
ā ā sk intermediate	ī i t short	
ē ē ve long	ū ū p short	
ē ē lk short		

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line of the pharynx like a tight band, interfering with the normal vibrations of the voice and serving as a hindrance to the development of speech. When the muscles of an adolescent or adult patient with a cleft palate have been united in their normal positions and relations our work has only begun, because these muscles have become atrophied from disuse; they have no so called tonus and scarcely any power. In other words, they have lost their normal function and if left to themselves they would never regain it; and, by the way, it is this masterful inactivity of the palatal muscles after the operation that more than anything else gives to the speech of the cleft palate case its characteristic quality, and it is the restoration of the function of these muscles that does more than anything else to remove this disagreeable quality.

A good exercise after the operation is a vigorous gargling of the throat several times a day; and I am accustomed to try to teach my patients to acquire a voluntary control of the muscles of the palate, so that they may learn to contract and relax them at will. These exercises, together with the actual use of the palate in selected sounds of speech, will produce marvelous results if followed up in the regular and persistent manner. I have had patients carry

the work of speech improvement so far as to almost conceal the fact of any original palatal defect.

Conclusions.

1. An operation for the closure of a cleft palate should be done only when there is a fair likelihood of success.

2. It should be done only by those possessing special skill in nasopharyngeal and oral surgery.

3. When it is probable that several operations may be necessary the parents or patient should be so informed.

4. The operation should be done as early as possible.

5. In the difficult adolescent cases the operation after a preliminary tracheotomy may be preferable.

6. There are two reasons for attempting to close a cleft palate, namely, to improve the general health of the patient and to increase the efficiency of the faculty of speech.

7. The general health of the patient is benefited in two ways, namely, by improving the hygiene of the nasopharynx and the oral cavity and by improving the general morale of the patient.

8. The speech is improved by a course of psychophysical training, in which the patient is taught first to recognize normal speech and then to make the best use of his still imperfect organs in its production.

1627 WALNUT STREET.

SOME POINTS ON EAR, NOSE, AND THROAT CONDITIONS IN CHILDREN, OF INTEREST TO GENERAL PRACTITIONERS.*

BY CHARLES GRAEF, M. D.,

New York,

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In children, even more than in adults, the condition of the ears is closely related to the health of the nose and throat. The troubles which affect these organs in childhood, are largely influenced by the condition of the lymphoid tissue present in the mucous membrane lining the walls of the several cavities. The examination of these organs in children, therefore, necessarily includes, in every case, a careful study of the adenoid and tonsil growth present.

Every practitioner has no doubt observed that the average child is commonly more alarmed at the manoeuvres necessary to a full examination of these than of other parts of the body, and it is well, therefore, to spend a little extra time to first gain the young patient's confidence, as well as taking precaution during the examination to avoid giving pain in the use of the speculum and applicator, for it is both disagreeable and difficult to examine the ears and throat of a struggling and frightened child.

In examining the ears of children it is necessary to remember that the drum membrane is about as large at birth as in the adult, but the bony ring to which its margin is afterwards firmly attached being undeveloped, the membrane is looser and more oblique in direction than in older persons. The canal is shorter and straighter for similar reasons, being largely composed of cartilage in early life, and

instead of drawing the auricle upwards, backwards, and outwards, as one does to straighten the canal in examining an adult, it is better to draw the lobule of the ear somewhat downwards and backwards in the child. A small speculum is necessary, and care should be taken to first cleanse the canal of wax, which is otherwise likely to block the slender opening of the speculum and confuse the observer.

In children the inflammation of the drum tissues is often so intense and rapid that exfoliation of the outer layer of epithelium covering the drum head quickly occurs, and this white, opaque, layer of cells not infrequently covers a swollen, inflamed drum. It is then likely to be mistaken for the drumhead itself and thus leads the examiner to a wrong diagnosis. It is best to gently wipe off the surface of the drum membrane before making a final decision when acute otitis is suspected, even in cases where there is no appearance of inflammation at first glance.

The group of affections which we term "the diseases of childhood" and commonly accept as a matter of course, are all accompanied by acute rhinitis, and if severe, this catarrhal condition extends throughout the mucous membrane lining the ear drums, the Eustachian tubes, and the throat generally. I except from this the accessory sinuses of the nose which are responsible for so many of the acute and chronic catarrhal troubles met with in older persons, as these cavities have comparatively little development before the age of puberty.

Aside from bronchitis, and the occasional occurrence of pneumonia, the importance of the exanthemata in children is practically limited in the majority of cases to the ear conditions induced by them, and the practitioner's duty in all cases of this class of diseases is to keep close watch for the development of acute ear affections. In some cases, especially scarlet fever and measles, the intensity of the inflammation frequently leads to involvement of the ossicles as well as the mucous membrane, and in such event the case is likely to continue as a chronic otorrhœa after recovery from the illness, especially if treatment is neglected in the acute stage.

Except for the exanthemata and mechanical injuries, unhealthy adenoid growth is responsible for practically all cases of middle ear disease in children.

This hypertrophied lymphoid tissue lies in the nasopharynx, in close relation with the entrances to the Eustachian tubes, and provides numerous recesses for the harboring and growth of germ life. When abundant in quantity, it blocks up the posterior nares, interferes with proper nasal breathing and aeration of the ear drums, and usually gives evidence of its presence in the heavy, drooping, facial lines, the open mouth, and dull expression which are commonly recognized as the adenoid facies. In such cases large, unhealthy, tonsils are also generally present, but it is a mistake to suppose that a child cannot be troubled with adenoid growths unless hypertrophied tonsils or obstructed nasal breathing are in evidence.

A considerable percentage of children who suffer from repeated "colds" and attacks of earache owe this weakness to a pad of unhealthy adenoid tissue, insufficient in bulk to obstruct breathing under ordinary circumstances. I have several times made cultures from the recesses of such tissue, and had no

* Read at a meeting of the Bronx Medical Society, May, 1907.

difficulty in obtaining growths of the commoner infective flora. It is because of the presence of such germ life in the pharynx that many of these children take colds easily, a wetting of the feet, exposure to draughts, or digestive difficulties, furnishing the disturbance of circulation which permits the infective organisms to waken to activity. The passive congestion caused by the presence of such unhealthy tissue has a bad effect on the structures of the ear, even between the periods of acute inflammation. Attacks of earache in children unaccompanied by dulled hearing are suggestive of pain referred from inflammation of the throat, or unhealthy teeth, though middle ear affections limited to Shrapnell's membrane, are also likely to act in this way.

Premising these general facts, I will take up in brief detail the commoner and more important ear conditions met with in children.

Pain is the symptom which usually first draws attention to an acute otitis in young patients. If too young to tell of the earache, they give evidence of pain by constant, fretful, or shrill, crying, raising the hand to the inflamed ear, or by restless, rolling, movements of the head.

The pain is due to congestion and swelling of the membranes of the eardrum and tube, and to collection of fluid in their cavities. Inspection of the drum head shows instead of the flat, or slightly convex, translucent, white, membrane present in health, a reddening and bulging of this tissue which may be partial or complete, limited to the upper part known as Shrapnell's membrane, to the anterior or posterior quadrant at the lower part, about the handle of the malleus, or in more severe cases so general as to abolish all landmarks, and present an angry red mass pressing outwards in the bottom of the ear canal. This is accompanied by an elevation of temperature, generally of several degrees. Tenderness to pressure is not present unless the ear canal or mastoid is involved, though the pain and soreness suffered by the young patient may make him fear an examination, and give a lively imitation of acute sensitiveness to pressure.

The pain of middle ear disease in older children is often aggravated by such movements as sneezing, coughing, blowing the nose, etc. When the infection spreads to the mastoid in young patients, the soft tissues covering this bone frequently become edematous, and tenderness on pressure will be noted in many of them over most of this process, especially over the principal cell, the mastoid antrum, which is located at the upper part of the bone on a line just above the outer ear canal. In very young patients it is the only cell developed, as the lower part or tip of the process has little development for some years after birth. In inflammation of the outer ear, on the other hand, the tenderness is developed on pressure below and in front of this canal, and is increased by movements of the jaw.

The physician may be misled in a case developing mastoid involvement, by the fact that at times pain grows less instead of greater when this complication of middle ear infection sets in. In such cases careful note should be made of the temperature. Persistence of an elevation of temperature, in the face of an apparent betterment of the other ear symptoms, being strongly indicative of mastoid involvement. Pressure over the mastoid antrum will nearly always

elicit tenderness in this class of cases, and on these two signs a diagnosis of mastoiditis may be safely based. Bulging downwards of the deepest part of the upper wall of the ear canal is considered significant as a sign of mastoiditis, and in doubtful cases a blood count may be of much help in settling the question of operation.

The mistake is frequently made of waiting for spontaneous rupture of the drumhead to relieve the tension of acute middle ear disease, the interval of waiting being passed in efforts to ease the earache with warm oils, teas, or medication of other kinds. A mixture of sweet oil and laudanum is perhaps the favorite remedy. Such mixtures have little real worth, except for the warmth they bring to the part, and most of them do harm by fouling the canal, thus favoring the infective activity when the drumhead has ruptured. Eight or ten drops of pure glycerin, to each ounce of which four or five grains of carbolic acid have been added, is probably the most effective remedy that can be used in this way, and has the added advantage of being clean. A gauze wick, the inner third soaked in this mixture and applied to the drumhead, brings decided relief in the early stages of acute otitis in some cases, abstracting by osmosis some of the fluid from the drum cavity.

Of the directly sedative mixtures perhaps a combination of:

B	Atropine,	gr. 1;
	Morph. sulph.,	gr. 2;
	Cocaine sol., (10%),	dr. 1.

of which six to eight drops are dropped in the ear from a warmed teaspoon, is the most effective. Such mixture should be used with much care, if at all, if a perforation of the drum membrane is present.

The local abstraction of blood will often prove a very effective measure. One or more leeches applied to the tragus may, indeed, cut short the inflammation very quickly. Bleeding from the bites, after the leeches are removed, should be allowed to continue for some time. Warmth applied to the suffering ear by means of the rubber bag of hot water, or the lighter bags of flannel filled with heated salt are also very comforting and helpful. Cold applications, even when mastoid involvement is being combatted, are better avoided.

If these simpler measures, promptly employed, are ineffective after several hours trial, or in cases of marked severity, and when the physician is called too late to use such remedies with hope of allaying the inflammation without rupture of the drumhead, a free opening of this membrane should be made without delay.

The term *paracentesis* is a bad one to use in this connection, the punctured wound indicated by it and even yet sometimes depended upon in practice, having little or no therapeutic value. Here, as in cases of quinsy, sore throat, stab punctures should not be relied upon. A free incision is required to secure proper drainage. Such an incision not only cuts short the pain suffered by the patient and gives him the best hope of early cure with preservation of good hearing, since the free drainage established in this way is rarely cutered by spontaneous rupture, but above all greatly lessens the danger of involvement of the mastoid cells, with all that this implies.

The drainage of an ear abscess established, care should be taken to keep the discharge cleansed away.

and this is best done by syringing the ear with warm, sterilized water. This should be repeated as often as may be required by the amount of discharge, once in every two hours at the beginning being a fair rule. The frequency of the washings should decrease with the amount of discharge. Antiseptics may be used in the water if desired. Powders blown into the ear canal to stop a discharge are ill advised; they are likely to do more harm than good. Similarly it is unwise to put a plug of absorbent cotton in a discharging ear "to keep from taking cold," or "to absorb the discharge." There is no danger whatever of taking cold in a running ear, and so far from acting as an absorbent, the cotton dams the discharge in: the ear and favors the disease. Keep the canal free. A gauze wick properly put into the canal every four hours is an excellent drainage and cleansing agent, no syringe being necessary if this is used, but it requires a skilled attendant to place it, a fact which makes it unavailable in the average case. Hydrogen peroxide is a favorite remedy with many physicians. It is, however, an unsafe agent in suppurating ear cases unless the drainage from the drum is free, and unless assured of this fact it should not be used.

It is surprising how many persons have an idea that a running ear is a matter of little moment, or the still more mistaken belief that the discharge may be beneficial rather than otherwise, eliminating perhaps some poison from the system. Practitioners should make it a point to correct this dangerous fallacy whenever it is met, for it is the cause of much harm. As long as there is discharge from an ear there is disease present, and with it the constant danger that the disease may spread to the mastoid bone or brain. Aside from the damage to the hearing, the numerous cases requiring operation for such sequelæ fully prove the truth of the assertion that a running ear should always be kept under treatment until it is safely healed and dry.

The outer ear canal is the seat of several forms of trouble common in childhood. Impacted cerumen is found less often perhaps than in adults, but when present may cause marked symptoms in young patients. It is responsible for instance, at times, for an irritating, barking, cough whose origin may be difficult to locate if this fact is forgotten. I saw some time since, in the practice of Dr. W. A. Goodall, a very interesting little patient with marked brain symptoms. A lethargy deepening almost to coma, from which she could scarcely be aroused, and which for twenty-four hours was a source of much anxiety. Yet this cleared up completely within a few minutes after the removal of an exceedingly firm, and large, plug of impacted cerumen from each ear. Cases of reflex symptoms, such as, vomiting, facial paralysis, excessive salivary secretion, hemicrania, etc., have also been reported as due to impacted cerumen. An eczema of the skin lining the canal is common in ill nourished, strumous, children, in whom phlyctenular eye disease is likely to be present also.

Furuncles occur here too. They are nearly always multiple and cause the patient much pain, which is aggravated by moving the outer ear. They often close the lumen of the canal and cause deafness for the time being. They are easily recognized by inspection. Furuncles may be due to infection of the hair follicles in the outer part of the canal by

irritating discharge from a middle ear abscess, or from scratching, to relieve the itching due to eczema, with an infected finger-nail or other agent. Furuncles in the canal are frequently made tedious and painful by the use of home remedies, oils, etc. Nothing but free incision will cut short the painful progress of these infections.

Foreign bodies in the outer ear canal are seen more often in children than in adults. It is well to remember that such things do no immediate harm unless of very irregular form, or of an irritating nature. Nearly always they can be safely removed by syringing with warm water. If this plan does not succeed after fair trial, it may be necessary to give a general anæsthetic to permit removal, for few children will hold still while such work is being done, and the most skillful hand is likely to do serious damage in such cases. It is always necessary, of course, to first make sure, by actual inspection, that a foreign body is present, for excited relatives are prone to be confused over such an accident. No one should ever mistake the shining, normal, drum-head for such a body, and yet it is worth noting that this mistake has been made with disastrous results.

Insects get in the ear canal at times and cause great terror and pain, if they reach the drum membrane, by moving feet or wings on this sensitive part. They may be quickly killed by drops of chloroform if this is at hand, or floated off the drumhead by filling the canal with some bland oil or warm water, after which a washing of the canal with a syringe should be done.

Blood coming from the ear, in the absence of recent injury severe enough to cause fracture at this part, means the presence of granulation tissue and chronic disease.

The Nose and Throat.

Children's noses are badly adapted to the demands of modern conditions of living. The large vestibule of the adult provided with hairs to act as a protection from dust and other gross impurities in the air, and to modify the force and direction of the in-breathed air current, is not developed in young children. Infants in fact have nasal passages opening almost in line with the face. This is probably a provision of nature to enable them to breathe better while being nursed. The direct exposure to the outer world, of the internal nasal tissues, however, renders them more liable to irritation through rapid changes in temperature, moisture, etc., in the air, such as are of every day experience, especially in city life.

It is quite possible that the very general use among infants of the rubber contrivance known as a comforter is having a bad effect in causing adenoid growth. The constant sucking of such an object is believed by able observers to result in deformity of the nasal and pharyngeal spaces by causing a partial vacuum which nature seeks to fill by deforming the walls, or by an extra supply of soft tissue.

Hypertrophied tonsils are easily seen by reflected light and the use of a tongue depressor. If adenoids are present they may be indicated by the facial appearance I have spoken of, and the history of mouth breathing, snoring at night, etc. A retracted upper lip and a granular condition of the

back wall of the pharynx are less constant signs, but when present generally indicate adenoid growth. A chain of small glands in the posterior triangles of the neck are practically always to be felt in young patients with unhealthy adenoids. A high, narrow, palate is found in many of these patients, but this is even more likely to indicate a narrow, badly developed nose. Such children are not uncommonly mouth breathers even when no adenoid growth is present, and may remain so when such as is found has been cleanly removed.

It is a waste of time to try to see adenoids with a postnasal mirror in young children. If there is any doubt about their presence, it can be best resolved by feeling with the index finger of the right hand. This is passed up behind the palate into the nasopharynx, care being taken not to gag the child so that the examiner may not be bitten. This can be done quite without pain to the child.

Not a few of the children who suffer with repeated attacks of spasmodic croup are much benefited by removal of this sort of growth, the congestion caused by the unhealthy upper throat being responsible for the relaxed condition of the mucosa of the larynx. The belief is steadily gaining ground that these tissues are among the chief avenues, and in many cases the particular channel, by which rheumatic poison finds access to the system. It is certainly a fact of frequent demonstration that children inclined to rheumatism become much less susceptible after unhealthy tonsils and adenoids have been removed.

Foreign bodies in the nasal passages of children are found, as a rule, in the middle meatus, and if hidden to view can be safely felt for with a clean probe. This, when used gently, can be safely introduced into the nose at any time. Such bodies cannot be syringed out, however, as in the ear, a forceps with which they can be grasped being necessary instead.

1076 BOSTON ROAD.

A NEW OPERATION FOR THE EXTIRPATION OF VARICOSE VEINS OF THE LEG.

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Veins of the body chiefly prone to varicosity are those of the hæmorrhoidal or of the spermatic plexus and the veins of the lower limb. Varicose veins of the spermatic or hæmorrhoidal plexus are readily treated by ligation, or by a more or less complete excision, but as for the veins of the leg the area involved is so extensive, the anastomoses so free, and the other factors so prejudicial that the problem of surgical treatment is a more difficult one, and the passing years have left a trail of obsolete operations.

The cause of varicose veins is pressure acting upon imperfect or damaged venous walls. The blood returns from the foot and leg through two sets of vessels, the superficial or subcutaneous veins and the deep intermuscular or intramuscular veins. The bulk of the blood carried by superficial veins is finally discharged into the internal saphenous, a vein originating in front of the internal malleolus and running up the inner side of the leg to finally

pass through the saphenous opening to empty into the femoral vein. In its course the internal saphenous vein receives tributaries from nearly all the superficial veins of the leg, and to some extent also from the deep veins. Close to the points of entrance of the various branches valves are placed, which support the column of blood. These valves are of extreme importance, for without them the tributary veins of the lower leg would be constantly subjected, while a person is in the erect posture, to the pressure of a column of blood four or more feet in height plus the added and variable pressures resulting from muscular contraction, increases in intraabdominal tension, and venous obstruction. By reason of the numerous valves the blood column in the veins of the leg is normally supported in short segments, and direct pressure upon the veins by muscular contraction aids in forcing the blood to a higher level, where it is maintained by the valvular closure. To valvular incompetence, therefore, the result of over distension or disease of the walls or valves of the veins, may be ascribed many of the clinical symptoms of varicose veins. In certain persons there is apparently an inherited weakness predisposing to dilatation. Again after many infections such as typhoid, and after childbirth, and after traumatism, forms of phlebitis frequently thrombotic and occasionally suppurative in nature occur. Moreover, there are certain chronic types of inflammation of veins analogous to the changes in arteriosclerosis. Any of these types of inflammation may weaken the walls of the involved veins and leave an impress upon the valves. Unusual increases in back pressure tending to dilatation occur from pregnancy, intraabdominal tumors, and also certain diseases of the liver, lungs, and heart.

As the deeper veins of the leg are protected from traumatism, receive support from adjacent muscles, and are less frequently involved by the severe forms of phlebitis than the superficial veins, it is not difficult to understand the preponderance of varicose involvement of the internal saphenous vein and its radicles. As a result of the varicosity the blood may flow more readily toward the periphery than toward the heart, as is shown by Trendelenberg's phenomena. To demonstrate this the leg is elevated and the veins emptied by stroking; pressure is then made below the saphenous opening and the leg lowered; the varicose veins are observed to fill slowly from below; but as soon as pressure from above is released, if the valves are incompetent, the blood rushes down from above and quickly distends the vessels. When the valves are incompetent, as shown by this test, the column of blood is supported by the superficial venous radicles and capillaries, and there may result the vicious circle also described by Trendelenberg, in which the blood is forced back from the superficial veins through the collateral branches into the popliteal and other deeper veins, to later pass in part through other collateral branches back into the external veins. As a result of the increased pressure, venous stagnation, and reversed currents, the nutrition of the lower leg is impaired, the small veins and capillaries dilate, and small hæmorrhages occur in the skin with resulting pigmentation. Eczematous affections of the skin appear, there is a tendency to recurrent attacks of phlebitis

and venous thrombosis, and chronic ulcers frequently develop, especially upon the inner surface of the lower third of the leg. The muscular atrophy and relaxation of ligaments may be sufficiently marked to cause pes planus or other deformities of the foot.

Subjectively the patient suffers from rheumatoid pains and a sense of weakness in the foot and leg. Unless there be marked disease of the deep veins these patients may be relieved by operative measures that throw out of the venous system the large superficial veins. Trendelenberg advised the ligation of the internal saphenous just below the saphenous opening. As the effect of this operation may be negated by back flow through collateral branches, and as the secondary thrombosis in the saphenous is at times troublesome, operations have been devised to more effectively block the superficial venous circulation as by multiple ligations, by excision of segments of the larger veins, and by Schede's method of circumcising the leg down to the depth of the



FIG. 1. Extractor for removing varicose veins of the leg introduced; *a*, upper end of extractor projecting from vein; *b*, artery forceps upon proximal end of divided vein; *c*, lower bulb of extractor in vein; *d*, dressing over leg ulcer; *e*, ligatures fastening distal portion of vein to shaft of instrument.

muscular aponeurosis at the junction of the middle and upper thirds of the leg. Any of these methods may fail through the establishment of venous anastomosis. Schede's method is frequently valuable. We have observed, however, the reestablishment of the circulation of large veins through the scar, and a few cases have been reported in which disagreeable anesthesias, paresthesias, or even ischæmia of the foot leading to gangrene followed the operation. To minimize these dangers Powell has modified Schede's method by using an interrupted instead of a continuous circumcission of the leg, the intervening bridges of undivided skin tending to prevent serious interference with the circulation of the foot. Methods treating varicose veins of the leg by subcutaneous occlusion, chemical injection, and the application of the actual cautery are now obsolete.

The most promising of the operations advocated are those aiming to extirpate the venous trunks involved. At first this was accomplished by the raising of large flaps of skin, or by long incisions over the affected veins. This was supplemented by extirpation through multiple short incisions along the course of the vein, and C. H. Mayo finally advised an ingenious method in which the internal

saphenous vein is exposed through a small incision below the saphenous opening, doubly ligated, divided, and an instrument shaped like a dull ring curette slipped over the vein. This instrument is pushed down along the vein tearing it free from adjacent tissues and venous branches. When four to eight inches of the vein have thus been freed, the ring of the instrument is pressed against the skin, a second incision made through which the loosened portion of the vein is withdrawn, and the instrument rethreaded upon the vein at the second incision to continue the process of freeing the vessel. In this way, by several small incisions, the internal saphenous vein may be freed and removed. Occasionally the vein subcutaneously ruptures during the procedure. In such a case it is necessary to expose the vein by incision over an undetached portion of the vein, to divide the vessel and to continue the efforts at separation in both directions from this new point. In our own experience the method is valuable, but fragile, very tortuous or adherent vessels often embarrass the operator. We were therefore led to try Kellar's method, which consists in passing a stout thread through the vein by means of a probe or twisted wire, tying it firmly to one of the divided ends after slitting the side of the vein for a short distance, and then making traction upon the other end of the thread, causing the vein to be turned inside out, in which condition it is finally pulled through one of the two incisions. Unfortunately the vein often tears in two before the inversion has proceeded very far, the vein being especially prone to break where the thread has been tied. We have, therefore, finally devised a procedure by means of which almost the entire saphenous vein may be removed through two small incisions, and in which brittleness or disease of the walls of the vein offers little bar to its complete extirpation. Moreover, the method is one of the simplest and most expeditious of any thus far devised; twenty or twenty-five inches of vein may be cleanly extirpated in from three to ten minutes.

Technique.—Spinal anæsthesia by means of stovaine or tropacocaine hydrochlorate has been employed in nearly all of our cases. At first an ordinary *bougie à boule*, size 17 or 18 French, was employed to extirpate the veins, but to expedite the phlebectomy and reduce the number of incisions required, we have devised a special extractor resembling a very long, double ended *bougie à boule*. The shaft, 26 inches long, consists of flexible copper or brass of the same stock as that used for making uterine probes. The bulbous tips should be of the acorn pattern, the smaller being 16 French and the larger 24 French in size. The entire leg is aseptized and any ulcerating surface covered by an aseptic occlusive dressing. A line is taken from a point one half inch internal to the centre of Poupart's ligament running to the posterior margin of the inner condyle of the femur. Across this line, about 2.5 inches below Poupart's ligament, a transverse incision, one inch in length, is made through the skin and subcutaneous fat down to the muscular sheath. The index finger is then inserted to the bottom of the wound, slid backward for a short distance close to the muscular sheath and then hooked inward and forward away from the muscle,

when it at once catches the thick resistant cord of the saphenous vein, which is lifted into the wound and at once clamped above by a hæmostat. This manœuvre enables the vein to be exposed within a few seconds even in an obese patient. The vein is now incised below the hæmostat, and the hæmorrhage at once controlled by entering the smaller bulb of the extractor into the lumen. The instrument is now carefully passed down the vein until it meets with an obstruction that cannot be overcome. The size and shape of the acorn tip of the instrument enables the extractor to slip through valves which would catch a smaller instrument. At times the instrument readily passes to the ankle; again it is arrested in the middle or upper third of the leg. The upper end of the vein where it surrounds the sheath of the extractor is now isolated for a short distance and tied firmly to the shaft of the instrument by a strong silk ligature. This controls all oozing from the open vein. The vein is now ligated above and divided below the hæmostat, and the stump dropped. The lower end of the instrument is now located. A half inch incision on the bulb exposes the vessel, the vein is separated from surrounding tissues for a short distance and clamped below; the bulbous expansion of the extractor is exposed, grasped and firm downward traction made upon the instrument. This traction pulls the vein loose from its surroundings, tears off the venous branches an

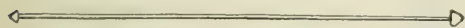


FIG. 2.—Author's vein extractor.

inch or more from the main trunk, and causes the wall of the vein to be massed or pleated in small compass just below the upper bulbous expansion of the instrument. In much less time than the description requires the extractor is pulled from the lower incision with a fusiform mass of vein closely packed against the upper bulb of the instrument. There is little chance of any portion of the vein that encircles the instrument being left behind. As a rule the hæmorrhage from the tract of the excised vein is too slight to be considered. In any case it is satisfactorily controlled as by a pressure bandage.

To avoid infection in certain cases where the lower incision has to be made in close proximity to an ulcerated surface we select an extractor of appropriate length, which is introduced and buried through the upper wound, the skin being sutured and protected by an occlusive dressing before the lower incision and extraction of the vein is attempted. If a *bougie à boule* is used the instrument is, of course, entered and the vein withdrawn through the same incision, a second incision being made to divide the vein and fasten the distal end below the bulb of the bougie. It is obvious that the segment of vein removed cannot be longer than the shaft of the instrument, and with a *bougie à boule* there is also a tendency for the vein to be turned inside out in the extraction. Although this method by inversion is simpler and more satisfactory than that by Mayo's or Kellar's method there is a possibility of the wall of the vein parting under the traction. We therefore prefer the use of the special extractor. The instrument may be passed from below upward instead of from above downward, the

extraction being made through either the upper or lower wound as is more convenient. After removal of the main trunk of the internal saphenous the procedure may be repeated upon any remaining large veins. A transient thrombosis of the remaining superficial veins about the ankle usually follows the operation. Along the tract of the excised vein there is usually but little secondary swelling or tenderness, although often some discoloration of the skin. As a rule the patient may be out of bed by the tenth day. Most striking is the effect upon very chronic varicose leg ulcers, which usually heal within a few weeks after the operation. If, however, the varicosity is not limited to a few large superficial trunks, but the skin shows a plexus of dilated veins and a tendency to diffuse oedema, then the operation as described above is often not sufficient; the ulcers partially or completely heal, but show a tendency to break down again. In these cases the extirpation of the main venous trunks should be supplemented by an interrupted circumcision of the leg (Powell's method or Schede's operation), the incision being so planned as to divide the more vascular areas of skin.

Dr. William A. Steel, who has been actively associated in the development of the method for extracting veins, has carefully studied the after history of many of our patients following operation, and has found that relapses are rare after the combined operation. This is well illustrated in the following brief summary of the histories of some of our patients. For many of these histories I am indebted to Dr. Steel.

Illustrating the Partial Relapse at Times Following Schede's Operation.

CASE I.—Mrs. A. L. A bilateral Schede operation was performed for diffuse varicosities and superficial varicose ulcer about ankle. Improvement was marked. Two years later there was regeneration of the veins through the scar with tendency to varicosity and ulceration about ankle, but the condition was improved by rest in bed and bandages.

Illustrating the Type of Varicosity Curable by Saphenous Excision Alone.

CASE II.—Mr. J. W., age thirty-five. Varicosities chiefly affected saphenous veins with tendency to recurrent ulceration of many years' standing. Extirpation of internal saphenous veins was followed by rapid healing of ulcer. Eight months later she remained well.

CASE III.—M. S., female, thirty-three years, a mill girl, had had varicose veins six years, and varicose ulcer two years (recurrent). The varicosity was principally of internal and external saphenous veins. Extirpation of internal and external saphenous veins was performed, and patient left hospital in eight days. She remained well nine months after operation.

Illustrating the Type of Case in Which Extirpation of Saphenous Alone Is Insufficient and in Which the Combined Operation Should Be Done.

CASE IV.—F. E., male, fifty-five years, a wetter, had suffered from varicose veins for thirty years, and from ulcer for eleven years. There was a general varicosity of superficial veins, marked in internal saphenous. Extirpation of internal saphenous improved the condition, but ulcer remained unhealed eight and one half months after operation.

CASE V.—M. M., thirty-eight years, with hæmorrhoids, had had varicose veins for twenty years, and ulcer for

two years. There was general varicosity of the superficial veins. Extirpation of internal saphenous improved the condition, but a relapse occurred. Unimproved and ulcer remained eight months after operation.

CASE VI.—A. M., male, fifty years, elevator builder. He had general varicosities of superficial veins of seven years' standing and varicose ulcer for one year. Extirpation of internal saphenous vein and Powell operation were performed and patient left hospital in eight days, remaining well ten months after operation.

Illustrating Results After the Combined Operation.

CASE VII.—S. L., male, forty-eight years, carpenter; had suffered from varicose veins for twenty years and from varicose ulcers for eleven years; there were general varicosities of superficial veins. Extirpation of external saphenous vein and Powell operation were performed, and the patient left the hospital in nine days. He remained well nine months after the operation.

CASE VIII.—A. M., female, fifty-six years, housework. There were general varicosities with marked internal saphenous involvement. The varicose veins had existed for twenty-five years, ulcer of both legs twelve years. Extirpation of saphenous veins and Powell operation relieved the patient, who continued well six months after operation.

CASE IX.—M. H., female, fifty years, housework. She had had general varicosities for twelve years, swelling and oedema of the legs, but no ulcers. Extirpation of saphenous veins and Powell operation relieved the patient, who remained so three months after the operation.

CASE X.—A. E., female, fifty-six years, housework. Patient suffered from diabetes and general varicosities with oedema for eighteen years. Extirpation of the internal saphenous and the Powell operation left the patient well two and one half months after operation.

CASE XI.—R. R., female, thirty-six years, weaver. Patient had general varicosities, especially of the internal saphenous, and leg ulcer for five years; often extirpation of the internal saphenous and the Powell operation were performed, and she remained well two months after operation.

3302 NORTH BROAD STREET.

THE RELATION BETWEEN THE PHYSIOLOGICAL ACTION OF IONS AND THEIR PHYSICO-CHEMICAL PROPERTIES.

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(Continued from page 119.)

VIII. The relation between atomic volume and physiological action.

According to Mathews,⁴⁴ there is a relation between the atomic volume⁴⁵ of a metallic element and its physiological action. That the relation is not an obvious one is recognized by Mathews. He says:⁴⁶

"Table VII (a table of the metallic elements arranged according to their atomic volumes) shows that absolute atomic volume is not an important factor in determining poisonous action, as mercury has an atomic volume greater than magnesium. If we take the specific gravity of equivalent portions of the elements (i. e., the specific gravity of an element divided by its valence), we obtain a much closer parallelism, but one in which the relation is not perfect."

Mathews, *loc. cit.* p. 311, Table.

"There is a positive relation of an element to the atomic weight divided by the valence, or to the density of the element in the solid form." *ibid.* *Elements of Physical Chemistry*, p. 28, New York, 1905.

Mathews, *loc. cit.* p. 312.

This being the case, Mathews deduced a more accurate relationship between poisonous action, atomic weight, and atomic volume. He says:⁴⁸

"A more accurate relationship between poisonous action, atomic weight, and atomic volume is the following: *The poisonous action of any metal varies directly with its equivalent weight and inversely with its atomic volume.* This may be seen from Table VIII," etc.

TABLE VIII.—EQUIVALENT WEIGHTS DIVIDED BY ATOMIC VOLUMES.

Element.	Equivalent weight, atomic volume.	Element.	Equivalent weight, atomic volume.
Li	7/12	Mn	3.8
K	39/45	Fe	3.9
Ca	20/25	Cu	4.2
Mg	6/7	Ni	4.3
Na	1	Co	4.3
Sr	48.5/35	Cd	4.4
Rb	1.5	Pb	5.8
Al	9/11	Au	6.5
Ba	1.8	Hg	6.8
Cs	1.87	Ag	10.8

EQUIVALENT SPECIFIC GRAVITIES OF THE METALLIC ELEMENTS.

Element.	Specific gravity, valence.	Element.	Specific gravity, valence.
Li	0.59	Mn	8.00
K	0.87	Fe	7.84
Ca	1.58	Cu	8.9
Mg	1.75	Ni	8.9
Na	0.97	Cd	8.6
Sr	2.5	Cu	8.94
Rb	1.52	Pb	11.25
Al	2.65	Au	19.26
Ba	3.75	Hg	13.6
Cs	1.85	Ag	19.5

If the figures in the table of equivalent specific gravities be compared with those in Mathews' Table VIII, it will be seen at once that for any element $\frac{\text{specific gravity}}{\text{valence}}$ is numerically equal to

$\frac{\text{equivalent weight}}{\text{atomic volume}}$. Why this should be true is obvious from the following: $\frac{\text{atomic weight}}{\text{atomic weight}} = \frac{\text{atomic weight}}{\text{atomic weight}}$
 $\frac{\text{specific gravity}}{\text{valence}} = \frac{\text{atomic weight}}{\text{atomic weight}} \times \frac{\text{valence}}{\text{valence}}$
 Therefore $\frac{\text{equivalent weight}}{\text{atomic volume}} = \frac{\text{atomic weight}}{\text{atomic weight}} \times \frac{\text{valence}}{\text{valence}} = \frac{\text{specific gravity}}{\text{specific gravity}}$

$\frac{\text{specific gravity}}{\text{valence}} = \frac{\text{equivalent weight}}{\text{atomic volume}}$

According to Mathews, the series of figures obtained by taking the specific gravities of equivalent portions of the elements, shows no close relation between this quotient, i. e., $\frac{\text{specific gravity}}{\text{valence}}$, and poi-

sonous action; many exceptions occur. But the series of figures in Table VIII, obtained by dividing the equivalent weights of the metallic elements by their corresponding atomic volumes, brings out a more accurate relationship between poisonous action, atomic weight and atomic volume. Since the two fractions are numerically equal, the two series of figures are identical, and a series of figures which is rejected on p. 312, because of the many exceptions, appears on the next page under a different heading, as Table VIII, and here it shows a more accurate relationship between poisonous action and atomic weights, etc.

Since Mathews' conclusion that this relation ex-

⁴⁴ *ibid.* our own.

⁴⁵ Mathews, *loc. cit.* p. 312.

⁴⁶ Mathews, *loc. cit.* p. 313.

ists is based upon these figures, it is evident that the figures as given by Mathews (on pp. 312 and 313) do not prove the relation.

IX. The nature of colloidal solutions.

Substances like gelatin, egg albumin, glycogen, etc., are called colloids. When such substances in small amounts are dissolved in water, the colloidal solution so obtained is much more viscous than the solvent. The contents of the typical cell are partly in such a condition of colloidal solution. The typical cell mass consists mainly of a colloidal solution of proteins and other nonelectrolytes in water.

The observations of Zsigmondy,⁵⁰ Raehlman,⁵¹ and other investigators have shown that colloidal solutions are suspensions containing particles of various sizes, and not true solutions in the ordinary sense of the word.⁵² A colloidal solution of glycogen contains very small particles of glycogen in suspension—none of it is dissolved. The suspended particles in colloidal solutions (or suspensions) are very small; they vary in diameter between 5 mikromikra and 1 mikron.⁵³ Though sometimes much heavier than water, these particles remain in suspension indefinitely. The permanent suspensibility of colloidal particles is due to their association with an electric charge. The charges on the particles cause the particles to repel one another, thus preventing or retarding sedimentation. "The most direct evidence of this electrification is furnished by the migration of the colloidal particles through the liquid (water) under the influence of an applied electromotive force—a phenomenon that was first extensively studied by Picton and Linder in 1897."⁵⁴ Colloidal solutions may be conveniently divided into two classes.

"As types of these I would draw your attention to aqueous solutions of gelatin and of colloidal arsenious sulphide. The former class possesses a much greater viscosity than that of water, the latter does not appreciably differ from it in this respect. The former gelatinizes upon cooling or upon evaporation, and passes again into solution upon heating or addition of the solvent; the latter does not gelatinize upon cooling, and if gelatinized by other means, it does not redissolve upon heating. The former is not coagulated by the addition of salts (unless in excessive amount), the latter immediately gives an abundant precipitate. We have therefore to distinguish the viscous, gelatinizing, colloidal mixtures, not coagulated by salts, from the non-viscous, nongelatinizing, but readily coagulable mixtures. The former class I shall designate colloidal solutions, the latter colloidal suspensions."⁵⁵

Zsigmondy⁵⁶ classifies colloidal solutions according to the sizes of the suspended particles. In this classification, a colloidal solution is called a colloidal solution when the diameters of the suspended particles are less than 0.1 mikron; when the particles are larger than this, the colloidal solution is called a suspension. Zsigmondy subdivides the colloidal solutions into two classes, the reversible hydrosols (cognate with Noyes's colloidal solutions) and the irreversible hydrosols (cognate with Noyes's suspensions). Various dyestuffs, glycogen, albumin,

and soluble starch, when dissolved in water form reversible hydrosols (Zsigmondy) or colloidal solutions (Noyes); metals (finely divided gold, silver, platinum, etc.), metallic oxides, and sulfids, when dissolved in water form irreversible hydrosols (Zsigmondy) or suspensions (Noyes).

In general, nonelectrolytes do not coagulate (or precipitate) colloids in solution or suspension.⁵⁷ Colloidal suspensions are much more readily precipitated by electrolytes than are colloidal solutions. "A very large quantity of any salt may, by reason of its osmotic or dehydrating action, cause a precipitation of the colloid, but this effect is quite distinct from the coagulation of colloidal suspensions, which is produced by a relatively small quantity of a salt, and by a quantity varying greatly with the valence of its ions."⁵⁸

It is said that many physical changes take place in a colloidal solution on the addition of an electrolyte, even when the amount added is insufficient to cause coagulation. The colloidal particles are enlarged by aggregation, viscosity is altered, etc.⁵⁹ That this enlargement of colloidal particles by aggregation (and consequent diminution of particle surface area) does not always take place, even when the amount of electrolyte added is sufficient to precipitate the colloid, is shown by the following observation by Whitney and Blake.⁶⁰ "So also when quartz particles, which retained the optical properties of massive quartz, were precipitated by the addition of an electrolyte, no aggregation could be detected under the microscope, showing that the settling was not due to a condensation of the colloidal substance."

It has been shown by Hardy⁶¹ that colloidal particles are precipitated only by oppositely charged ions, e. g., when a suspension of silicic acid is precipitated by the addition of aluminum sulphate, the negatively charged particles of silicic acid are precipitated by the positively charged aluminum ions, the associated negatively charged SO_4 ions are not involved.

According to the later theories of Loeb, Mathews, Lillie, and others, the electrically charged ions, coming in contact with electrically charged colloidal particles in living protoplasm, alter the electrical condition of these particles. This change is accompanied by certain physical changes, to be described presently. As to the location of the electric charge on the colloidal particle, and of the opposite charge, and the way in which the ionic charge alters the electrical state of the colloidal particle, little is definitely known in spite of most careful research by several investigators.

X. The precipitation of colloids by electrolytes.

How does an ion effect the precipitation of an oppositely charged colloidal particle?

In any liquid mass the molecules near the surface are attracted to the center more strongly than the

⁵⁰ Rodighiero, cited from Rillmann, *Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften*, vol. pt. 2a, p. 1469, Vienna, November 12, 1902.

⁵¹ Noyes, *loc. cit.*, p. 87, foot-note.

⁵² Harned, *loc. cit.*, p. 10, and *Proceedings*, III, p. 79, Washington, 1904. Moore and Parken, *Transactions of the Physical Society*, vol. 234, 1902, Manchester Road, Manchester, England, II, p. 41, 1906.

⁵³ Whitney and Blake, *Transactions of the American Chemical Society*, XXX, p. 1184, October, 1908.

⁵⁴ Hardy, *Proceedings of the Royal Society, London*, XXX, p. 115, 1909.

⁵⁵ Zsigmondy, *Zeitschrift für Elektrolyse und Kolloidchemie*, 1906, 1907.

⁵⁶ Raehlman, *Verhandlungen des Vereins für Naturwissenschaft*, p. 190, 1904.

⁵⁷ For the differences between true and colloidal solutions see Zsigmondy, *loc. cit.*, p. 10. Rodighiero, *ibidem*, p. 1469, 1902.

⁵⁸ Zsigmondy, *loc. cit.*, p. 22, Table I.

⁵⁹ Zsigmondy, *Journal of the American Chemical Society*, XXVII, p. 97, 1905.

⁶⁰ Noyes, *loc. cit.*, p. 88.

⁶¹ Zsigmondy, *loc. cit.*, p. 16.

molecules nearer the centre. The surface of the liquid is in this way caused to contract to a minimum and exert a pressure on the interior. There seems to be a force called surface tension acting on the surface of a liquid, causing the surface to act like a thin, tight membrane, which tends to contract. The magnitude of this force acting on any liquid surface depends, not alone upon the nature of the liquid, but also upon the nature of the surrounding medium. The surface tension of a liquid in contact with air differs from the surface tension of the same liquid in contact with another gas or with another liquid. The surface tension between two media varies with the nature of the media, their temperature and the potential difference between them. Helmholtz⁶² has shown that this force is greatest when the potential difference is zero.

Hardy⁶³ has observed that the potential difference between colloidal particles in suspension and the surrounding medium (water) can be altered by the addition of an electrolyte, and that colloidal suspensions are most easily precipitated when this potential difference is zero. From these observations by Helmholtz and Hardy, Bredig⁶⁴ concludes that the precipitation is due to a capillary electric surface diminution.

The surface of a colloidal particle is charged; the water surface in contact with the particle is oppositely charged; there is a difference of potential. This charged layer at the surface of contact of two media is called a Helmholtz double layer. The surface tension between the water and colloid is increased when this potential difference is decreased. According to Bredig's theory, when an electrolyte is added to a colloidal solution or suspension, the charge on the surface of a particle is neutralized by an opposite charge on one of the ions; the charge in the water surrounding the particle is neutralized by the other ions; the potential difference between colloid and water is thus diminished, and the surface tension on the colloidal particles is increased, these contract, and flocculation follows. According to Billitzer,⁶⁵ the larger charges on the ions attract several colloidal particles which carry smaller charges, until the ionic charge is neutralized. In the meantime, the aggregate has reached the critical magnitude, and gravity causes sedimentation.

Billitzer⁶⁶ offers the following objections to Bredig's theory: The addition of a nonelectrolyte may largely affect the potential difference, while in some cases addition of an electrolyte is without effect. Very often electrolytes cause coagulation, without the change in potential difference; sometimes this is increased. The correctness of Helmholtz's deduction that maximum surface tension is exactly coincident with zero potential difference is questioned by Nernst and other investigators.⁶⁷ According to

Billitzer, it is doubtful whether the difference of potential between a colloidal particle and the surrounding medium is due to an electrical double layer;⁶⁸ the electrical double layer theory is an unnecessary one, and the observed phenomena can be otherwise explained. Other objections to Bredig's theory of a too technical character to be mentioned here are to be found in the original paper by Billitzer. Quincke,⁶⁹ after a long series of investigations on the surface tension between colloids and their surrounding media, finds Bredig's theory unacceptable.

The precipitation of a colloid by an electrolyte is not as simple a reaction as Bredig's theory implies. Arsenious sulphide in colloidal suspension is negatively charged. When to such a suspension barium chloride is added, the positive barium ion neutralizes the negative charge associated with the arsenious sulfide; the latter coagulates and carries down the barium with it. The coagulated colloid carries down the oppositely charged ion.⁷⁰ One half of the Helmholtz double layer is in this way removed from the scene of action. The positive charges on the other part of the layer, i. e., the charges on the surface of the water in contact with the particle, are neutralized by the negatively charged chlorine ions. The coagulation, according to Bredig, is a purely physical phenomenon in which changes in electrical conditions cause changes in surface tension. That chemical as well as physical changes may take place is indicated by Billitzer,⁷¹ for in the above mentioned coagulation no free chlorine is liberated; hydrochloric acid in very small quantities is present instead. The charge on the surface of a colloidal particle, according to Bredig, is under ordinary conditions accompanied by an opposite charge in the water near this surface, the two concentric surface charges constituting a Helmholtz double layer. Billitzer⁷² says, referring to Bredig's theory: "All these difficulties disappear if we assume that the two charged layers are not associated (unless torn asunder by a current), but that like electrolytes, these two layers exist separately, in equilibrium, like ions in solution."

XI. The locations of the electric charges associated with colloidal particles.

The location of the charges about a colloidal particle is uncertain. "It should be noticed that these hypotheses do not differ as to the charge on the colloidal particle itself, the existence of which is, in fact, experimentally demonstrated, but only as to the location of the accompanying charge of opposite sign, namely, as to whether it is in the water itself, or in ordinary ions dissolved in it."⁷³ To know the location of this opposite charge is desirable, firstly, because of its relation to the changes in surface tension described by Bredig, and, secondly, because Mathews assumes the truth of Bredig's theory in his explanations of the nature of chemical and electrical stimulation,⁷⁴ and of the cause of protoplasmic movements,⁷⁵ when such movements are induced by

⁶² Billitzer, *loc. cit.*, cxli, pt. 2a, p. 1106, 1903.

⁶³ Quincke, *Drüsen's Annalen der Physik*, ix, p. 1033, 1902.

⁶⁴ Bredig and Linder, *Journal of the Chemical Society*, lxvii, p. 432, 1896.

⁶⁵ Billitzer, *loc. cit.*, cxli, pt. 2a, p. 1426.

⁶⁶ Billitzer, *loc. cit.*, p. 1419.

⁶⁷ Noyer, *loc. cit.*, p. 90.

⁶⁸ Mathews, *American Journal of Physiology*, xiv, p. 208, 1905.

⁶⁹ Mathews, *Ibid.*, x, p. 317, 1904.

⁷⁰ Billitzer, *loc. cit.*, p. 1419.

⁷¹ Quincke, *Annalen der Physik*, lxxviii, p. 230, 1882.

⁷² Billitzer, *loc. cit.*, p. 1419.

⁷³ Noyer, *loc. cit.*, p. 90.

⁷⁴ Mathews, *American Journal of Physiology*, xiv, p. 208, 1905.

⁷⁵ Mathews, *Ibid.*, x, p. 317, 1904.

the action of an electrolyte on colloidal protoplasmic particles.

"In regard to the cause and the character of the electrification two assumptions deserve consideration: One is that it is simply an example of contact electricity, the colloid particle assuming a charge of one sign and the surrounding water one of the other. . . . The other assumption accounts for these facts. According to it the phenomenon is a simple case of ionization, the character of which may be best illustrated by specific examples. Thus, each aggregate (colloidal particle) of ferric hydroxide molecules may dissociate into one or more ordinary hydroxyl ions and a residual positively charged colloidal particle, and each aggregate of silicic or stannic acid molecules into one or more hydrogen ions and a residual negatively charged colloidal particle. To explain the behavior of neutral substances like gold or quartz by this hypothesis, it is necessary to supplement it by the assumption that in these cases, it is the water or other electrolyte combined with or adsorbed by the colloidal particles which undergo ionization. It seems not impossible that there may be truth in each of these hypotheses, contact electrification occurring in the case of the coarser suspensions, and ionization in the case of those which approximate more nearly to colloidal solutions."⁷⁶

The adsorption and ionization of water by colloidal platinum is mentioned by Billitzer.⁷⁷ Colloidal suspensions of gold, of great purity, and practically free from electrolytes, have been prepared by Whitney and Blake.⁷⁸ As to the location of the charges, "—since the particles (gold) are negatively charged, chlorine ions are probably directly attached to them, while hydrogen ions remain in the neighborhood to maintain the electrical neutrality of the solution."⁷⁹ (The particles referred to were prepared by the reduction of gold chloride.) Hardy⁸⁰ has observed that an albumin suspension migrates with the current toward the cathode in an acid liquid, and against the current toward the anode in an alkaline liquid. It seems quite possible that this may be due to the association of the albumin particles with hydrogen ions in acid, and with hydroxyl ions in alkaline liquids; the suspended particles migrating with the associated ions. Hardy⁸¹ determined the migration velocity of globulin and found it to be equal to that of the calcium ion, one of many other observations furnishing evidence in favor of the view that the charge associated with a colloidal particle might not, in some cases at least, be located on the surface of the particle, but on an associated ion. The conclusion that the charges on colloidal particles are probably due to associated ions was reached by Whitney and Blake,⁸² who found that the rate of migration of colloidal gold, platinum, silver, prussian blue, ferric hydrate, and quartz, is approximately that of the univalent ions of neutral inorganic salts.

While hypotheses do not differ as to the charge on the colloidal particle itself, they evidently do differ as to the cause of this charge and the location of the charge of opposite sign. Some kinds of colloidal particles probably are not surrounded by a

Helmholtz double layer; they carry a charge which may be due to their own ionization⁸³ or an associated ion.⁸⁴ How can the coagulation of such colloidal solutions or suspensions be explained by Bredig's theory that changes in the surface tension on the surface of a colloidal particle are caused by changes in the potential difference between the particle and the water?

Of peculiar interest is the conclusion arrived at by Pauli⁸⁵ that acids, alkalis, and acid or alkaline salts when added to solutions of dialyzed, electrolyte free blood serum impart an electric charge to the colloidal particles in suspension, but neutral salts, such as the chlorides of sodium, calcium or barium, when added to similar solutions of blood serum, do not impart electric charges to the suspended particles. Pauli arrived at this conclusion from the following observation: If an electric current be passed through a solution of blood serum to which some acid or alkali has been added, a difference in the concentration of nitrogenous substances around the cathode and anode can be detected, after the current has passed through for six hours. From this Pauli concludes that the difference in concentration is due to the migration of the colloids from one electrode toward the other, the colloidal particles having been enabled to migrate by the electric charges imparted to them by the added electrolyte. But if to a similarly dialyzed solution of blood serum, a neutral salt be added, and a current passed through under practically the same conditions as before, for the same length of time, etc., no difference in nitrogen concentration can be detected at the electrodes. From this Pauli concludes that the colloidal particles did not migrate under these conditions and that the particles did not migrate because the neutral salts do not impart electric charges to the particles. If we assume that the charge associated with a colloidal particle is due to a charge on an associated ion, Pauli's results may be interpreted in another way. As the following figures show, the migration velocities of the hydrogen and hydroxyl ions are much greater than those of any other; under uniform conditions of temperature, current strength, etc. The migration velocity of any colloid will be dependent, partly at least, upon the migration velocity of the associated ion.

Ionic velocities in centimetres per second, per volt per centimetre,⁸⁶ in very dilute aqueous solutions:

K ⁺	67	10.5	Cl ⁻	70	10.5
NH ⁺	45	"	Li ⁺	70	"
Li ⁺	36	"	NO ₃ ⁻	65	"
NH ₄ ⁺	67	"	CH ₃ COO ⁻	158	"
H ⁺	360	"	CH ₃ COO ⁻	36	"
Ag ⁺	58	"	CH ₃ COO ⁻	33	"

Let us assume that neutral salts, sodium chlorid, for instance, when added to colloidal solutions, do impart electric charges to the colloidal particles, an assumption that is entirely in harmony with the results and conclusions of many investigators. The migration velocity of a colloid in a solution containing a mineral acid would naturally tend to be much greater than the migration velocity of the same colloid in a solution containing sodium chlorid, and under comparable conditions. For in the first case the colloidal particle is being attracted along by the

⁷⁶ See also, *ibid.*, p. 90.

⁷⁷ Billitzer, *Ann. Chem. Phys.*, **xxv**, pt. 29, p. 1427.

⁷⁸ Whitney and Blake, *Journal of the American Chemical Society*, **xv**, 1, p. 175, 1904.

⁷⁹ Whitney and Blake, *ibid.*, p. 177.

⁸⁰ Hardy, *Proceedings of the Royal Society, London*, **lxvi**, p. 111, 1900.

⁸¹ Hardy, *Ann. Chem. Phys.*, **xxv**, pt. 28, 1900.

⁸² Whitney and Blake, *loc. cit.*, p. 138.

⁸³ See also, *ibid.*, p. 90.

⁸⁴ Whitney and Blake, *loc. cit.*, p. 135; Billitzer, *loc. cit.*, p. 1427.

⁸⁵ Pauli, *Hofmeister's Beiträge*, **xv**, p. 1, 1906.

⁸⁶ Whitney, *loc. cit.*, p. 713; Cambridge, 1902.

swiftest of all ions, hydrogen, while in the second case, the sodium (calcium, barium) ion, moving only one sixth as fast as the hydrogen ion, drags the colloidal particle along much more slowly.

Pauli determined the amounts of nitrogen in 20 cubic centimetre portions of serum solution taken from the solutions near the cathode and anode, after the passage of a current for six hours. The total nitrogen in this volume of solution was usually equivalent to 7 to 9 c.c. of m/4 hydrochloric acid. The Kjeldahl method was used in these determinations. In serum solutions containing an acid or an alkali, the differences between the concentrations of nitrogen in the liquids near the electrodes was (for 20 c.c. of liquid) equivalent to 1.60 c.c. (or less) of m/4 hydrochloric acid. In similar serum solutions containing a neutral salt, the differences were 0.15 c.c. (or less) of m/4 hydrochloric acid. The electric current was passed through all these solutions for the same length of time, six hours.

Evidently, the migration in solutions containing neutral salts was slower than in those containing an acid or an alkali, i. e., the migration velocity was greatest in solutions containing the swiftest ions, and vice versa. From this Pauli concludes that neutral salts do not impart electric charges to colloidal particles, but none of the results obtained in this (Pauli's) investigation is out of harmony with the idea that neutral salts when added to colloidal solutions do impart electric charges to the colloidal particles (by the association of an ion with a colloidal particle, or in some other manner not yet definitely known) and the slower migration of colloids in neutral salt solutions might be explained by the lesser velocity of the neutral salt ions, as compared with those of hydrogen and hydroxyl.⁸⁷

Substances which can be obtained in colloidal solution or suspension are so different in character that one or more of the hypotheses as to the location and nature of the charges may be true for some of them. But the application of the general principle of the relation between surface tension and potential difference to such a large number of substances, which are so different physically and chemically, is obviously difficult.

The results obtained by Palmaer⁸⁸ constitute strong evidence for the existence of an electrical double layer around a mercury globule immersed in a solution containing mercury ions. Consider the mode of formation of the electrical double layer. If a plate of metal (zinc, for instance) be dipped into water, a very small quantity of the metal (ions) will go into solution, carrying positive charges of electricity with them, and leaving the plate negatively charged. The positive ions will be attracted to the plate, forming a Helmholtz double layer, a charged metal surface surrounded by an oppositely charged layer of ions. The solution tension (or pressure) of the metal tends to send more ions into solution, while the electrostatic attraction between the components of the double layer is in opposition to this.

"If mercury is brought in contact with dilute sulfuric

acid a small portion of oxide which is always present upon the surface dissolves, so that practically we have a dilute solution of sulfate of mercury in contact with the mercury. The electrolytic solution pressure of mercury is very small,—so small, in fact, that the ions of mercury present in the solution are precipitated to a very slight extent upon the electrode. These positive ions cause the mercury to become positive against its solution, and so the negative ions of the solution are attracted to the mercury, forming a Helmholtz double layer upon it. The bubble of mercury will now assume its largest surface, since the ions in the layer repel one another and become separated as far as possible. This flattening of the surface works against the surface tension of the mercury. If now to this bubble of mercury negative electricity is supplied, its positive charge will decrease. By this the number of negative ions attracted by it will decrease, so that the surface tension will become greater than the repelling influence of the negative ions, and the surface will become more spherical. If we continue to supply negative electricity to the bubble, we shall finally neutralize all the positive charge on it. The layer of ions will then go back into the liquid and the surface tension will reach its maximum, and the potential difference between electrode and liquid will be reduced to zero. If now more negative electricity is supplied to the bubble, it will become charged negatively and attract positive ions to it, and the bubble will again flatten, i. e., the surface tension is again overcome. The important point for us, however, is that the potential difference is equal to zero for the maximum surface tension."⁸⁹

From this description of the double layer, it is evident that when the mercury globule is positively charged, the double layer consists of a layer of positively charged mercury ions on the surface of the globule, near which is a layer of negatively charged ions (SO_4 ions in this case). When the globule is connected by a wire with the electrolyte solution above it, a current flows from the solution through the wire to the globule until the potential difference is zero and the ions in the layer have either gone back into the solution or have given up their charges to the globule and become atoms again. If to the mercury globule negative electricity be supplied (by opening the circuit and connecting it with a cell) it will become negatively charged, i. e., a layer of negatively charged (SO_4) ions will be deposited upon the surface of the globule, while near the negatively charged layer will be a layer of positively charged mercury ions, driven up from the mercury surface.⁹⁰ In reversing the potential difference, the double layer has been reversed. Could these changes take place in a colloidal solution of albumin, for example?

"Since one can take a hydrosol in which the particles are electronegative and, by the addition of free acid, decrease their negativity, and ultimately make them electropositive, it is clear that there exists some point at which the particles and the fluid in which they are immersed are isoelectric."⁹¹ The reversal of the polarity of a colloidal particle, and its precipitation at the isoelectric point are explained by Bredig⁹² in terms of the before described relation between potential difference and surface tension. But the conditions existing near the surface of a

⁸⁷ According to Hardy (*Journal of Physiology*, xlvii, p. 226, 1907), the small size of the majority of globulin particles suspended in a neutral salt solution (sodium chloride for example) must be connected on some way that both anions and cations are concerned in the electric charges upon them.

⁸⁸ Palmaer, *Zeitschrift für physikalische Chemie*, xxv, p. 266, 1898; xlviii, p. 277, 1900.

⁸⁹ Morgan, *The Elements of Physical Chemistry*, p. 285, 2d ed., New York, 1902. The foregoing paragraph is omitted from the third edition of this book.

⁹⁰ Whetham, *Ann. Rev. Sci.*, p. 286.

⁹¹ Hardy, *Proceedings of the Royal Society*, London, lxi, p. 112, 1900.

⁹² Bredig, *Organische Fermente*, p. 15, Leipzig, 1901.

globule of mercury immersed in a solution of one of its salts probably are not exactly the same as those existing near the surface of a colloidal particle. The Helmholtz double layer surrounding the mercury globule probably contains many ions; the observed variations in potential difference and surface tension being due to variations in the numbers of ions present in the layer and the force with which these ions repel one another. If colloidal particles in solution were surrounded by any kind of a layer containing large numbers of ions, such colloidal particles should conduct the electric current. The fact that colloidal particles⁹³ in solution do not conduct the current to an appreciable extent, indicates that a single particle is probably associated with very few ions. "We find, therefore, a theoretical explanation of the otherwise remarkable fact that the association of colloidal particles with ions does not greatly retard their rate of migration, a fact which seems to indicate that the electrical double sheet existing around a single charged particle may be only that due to a single ion associated with it."⁹⁴ Obviously such a layer would not meet the requirements of Bredig's theory.

The conditions under which the surface of a mercury globule may be made to undergo the capillary electric changes just described are so different from the conditions existing in living protoplasm, that an assumption in favor of the existence of an electrical double layer around a colloidal protoplasmic particle is not yet warranted.

XII. The physical condition of a colloidal particle.

A colloidal particle in solution or suspension is either a minute droplet of liquor (more or less viscous) or a solid particle.

Kholodny⁹⁵ showed that the density of silver in colloidal solution is equal to that of the metal in the massive state. Zsigmondy⁹⁶ assumes this to be true for gold. "A density of the gold particles greater than one would be necessary to account for the falling of gold solutions into pure water, as noted on page 1365. . . . So also, when quartz particles which retained the optical properties of massive quartz . . . etc."⁹⁷ These results indicate that some colloidal suspensions contain solid particles, whose surfaces, like the surface of any solid mass, cannot easily be altered.

One of the principal differences between colloidal solutions and suspensions is that the particles in the latter are easily coagulated by the addition of salts, the particles in the former are not coagulated unless the amount of salts added be excessive. "Gerade die feinsten Zerteilungen der Metalle sind zuweilen die empfindlichsten und koagulieren besonders leicht."⁹⁸ "Das grösste Bestreben dieser winzigen Metallteilchen ist, sich zu grösseren Komplexen zu vereinigen, und es genügen geringfügige Ursachen aller Art, um diese Vereinigung herbeizuführen."⁹⁹

In general, those substances which under ordinary circumstances are compact or heavy solids are, when in colloidal solution or suspension, most susceptible to the coagulating influence of electrolytes. These

are the irreversible hydrosols of Zsigmondy,¹⁰⁰ and under this heading are included colloidal metals, oxides, sulphides, etc. "Man sieht, dass rechts auch diejenigen Hydrosole stehen, die sich durch besondere Empfindlichkeit gegen Elektrolytzusätze auszeichnen. Dies liegt aber nicht daran dass kolloidale Metalle (und Sulfide, etc.) den Suspensionen näher stehen als die reversiblen, z. B., Glykogen, Eiweiss, etc., wie manchmal behauptet wurde, sondern daran, dass sie freiwillig dem stabilsten Zustand, nämlich dem des festen, kompakten Körpers (des Metalls, Sulfide, oder Oxyds) zustreben; dieses Bestreben dokumentiert sich ebensowohl beim Eintrocknen wie beim Zusatz von Elektrolyten, der Elektrolytzusatz beschleunigt diesen in Allgemeinen von selbst verlaufenden Vorgang."¹⁰¹

The coagulation of a colloidal suspension is probably effected by the charges on the ions, and an electrical change precedes the coagulation, but do the capillary electric changes described by Bredig take place?

The amount of energy required to change the surface tension between two fluid media is small, when compared with the amount required to alter the surface of a solid particle of colloidal silver or quartz. The minute energy transformations, taking place in the Helmholtz double layer,¹⁰² are probably too small to appreciably effect a solid surface. Moreover, surface tension, by definition, is a condition existing at the surface of contact of a liquid with a gas, another liquid, or a solid. Neither solids nor gases themselves have surface tensions.¹⁰³ This being the case, how can the coagulation of a colloidal suspension containing solid particles be explained by the theory that changes in surface tension take place when electrolytes are added? It could be assumed that a colloidal particle of metal is a large aggregate of much smaller, freely moving particles, constituting a fluid particle similar to a minute droplet of water. We know of no experimental evidence which would indicate that this might be true in any case. According to the ultramicroscopical researches of Zsigmondy,¹⁰⁴ the dimensions of gold particles in certain colloidal solutions of this metal, approach those of crystalloid molecules very closely.

Are there colloidal solutions or suspensions which contain liquid or viscous colloidal particles? According to the theory of Bredig these should be even more susceptible to the coagulating influence of electrolytes than those solutions containing solid particles, i. e., particles which are here considered solid because their densities in the massive and colloidal conditions are the same. We have just seen that the most easily coagulable colloids are those which we have most reasons to believe exist as solid particles in suspension. The explanation of the precipitation of such particles by electrolytes in terms of a theory involving capillary electric surface changes is obviously difficult. Such a theory would be more useful in the consideration of solutions containing liquid

⁹³ Zsigmondy, *loc. cit.*, p. 22.

⁹⁴ Zsigmondy, *loc. cit.*, p. 22.

⁹⁵ Kholodny, *Physikalische Annalen*, cxlix, pp. 555, 557, 1873.

⁹⁶ Whittow and Blake, *loc. cit.*, p. 1385.

⁹⁷ Whittow and Blake, *loc. cit.*, p. 1385.

⁹⁸ Kholodny, *Chemisches Centralblatt*, i, p. 634, 1904.

⁹⁹ Zsigmondy, *Zur Erkenntnis der Kolloide*, pp. 93, 136, Jena, 1905.

¹⁰⁰ Whittow and Blake, *loc. cit.*, p. 1384.

¹⁰¹ Zsigmondy, *loc. cit.*, p. 23.

¹⁰² Zsigmondy, *Ibid.*, p. 137.

¹⁰³ Exactly the term surface tension is here used in a singular sense.

¹⁰⁴ Zsigmondy, *loc. cit.*, p. 135.

or semiliquid particles, whose surfaces can be contracted by the increase in surface tension caused by the addition of electrolytes. One would naturally turn from the usually denser particles present in irreversible hydrosols to the probably softer particles present in reversible hydrosols, i. e., colloidal solutions of albumins, soluble starch, glycogen, gelatin, dyestuffs, molybdic, and tungstic acids,¹⁰⁸ etc., which probably approach the liquid or soft condition more nearly than the denser particles referred to in the preceding.

But these colloidal solutions or reversible hydrosols are not so easily affected by electrolytes as colloidal suspensions or irreversible hydrosols. "Die meisten reversiblen Kolloide sind unempfindlich gegen geringfügige Elektrolytzusätze, z. B. Molybdän-säure, Wolframsäure, Gummi, Eiweiss, Gelatine; sie werden durch diese Zusätze nicht gefällt oder erleiden reversible Fällung die nach Entfernung des Fällungsmittels wieder rückgängig gemacht werden kann."¹⁰⁸ This condition is just the reverse of what the surface tension theory would lead one to expect.

NIII. Summary.

1. Nonelectrolytes as well as electrolytes may be physiologically active. That every chemical reaction occurs between ions and that molecules cannot take place in them directly has not yet been proved. Therefore, Mathews's attempt to explain the toxicity of such nonelectrolytes as chloroform, amyl nitrite, etc., by assuming that they slowly dissociate, yielding small quantities of extremely toxic ions, is seemingly due to a preconceived idea that all chemical reactions are necessarily ionic. Many nonelectrolytes can slowly decompose, yielding dissociable (or ionizable) compounds. Mathews does not note the difference between the ionization of an electrolyte in solution, and the slow decomposition of a nonelectrolyte into electrolytes.

2. Certain supposed relations between the physiological action and the physicochemical properties of ions have not yet been proved. Mathews's idea of the relation of atomic volume to physiological action is certainly incorrect, and at the time of this writing, the experimental evidence does not indicate that the relation, in its present or in a closely allied form, is a probable one.

3. If we assume that an ion exerts its physiological effect in the manner described by Mathews, the solution tension of the ion is a factor influencing its physiological effect. This relation between solution tension and physiological effect is a natural sequence of the assumption that it is the ion and not the atom or molecule which is physiologically active, and obviously this relation cannot be used to prove the original assumption. Moreover, this same relation, if it occurs, might exist even if after it should be proved that the atom and not the ion is the active agent in physiological action.

4. The importance of the chemical composition of an ion as a factor determining its physiological effect is underestimated by some investigators.

5. Mathews's theory of the nature of the physiological action of ions contains elements of uncertainty in so far as it involves assumptions regarding

the possible reactions between an ion and a colloidal particle, and about the ultimate constitution of ions and colloidal particles, which are not yet justified, because of the incompleteness of present day knowledge of these states of matter. The introduction of Bredig's surface tension theory as a means of accounting for the viscosity changes or incipient coagulation of colloids by electrolytes, or the use of these changes as a means of explaining the physiological effect of an ion on a colloidal particle, is hazardous. Whether changes in surface tension induced by electrolytes play any rôle in the coagulation of colloids is questioned by many. Alterations of the surface of a protoplasmic particle can often be just as well explained by changes in osmotic pressure within and without the particle, and, moreover, such changes can be effected by nonelectrolytes as well as by electrolytes.

This work was undertaken at the suggestion of Dr. William J. Gies, to whom the writer is glad to acknowledge his indebtedness for timely advice and many valuable suggestions.

PHAGOCYTOSIS, ETC., IN SPUTUM, AS A MEASURE OF RESISTANCE IN TUBERCULOSIS.*

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This investigation was undertaken to ascertain whether or not the intracellular position of tubercle bacilli in the sputum, the presence of disintegrated forms, clumps of parallels, or variation in acid resistance, gave any evidence of the resistance of the patient.

I. Value of the Evidence from Sputum.

The extensively tuberculous lung at autopsy frequently shows all grades of lesions from the fresh tubercle to the old cavity. Since sputum may arise from most of these sources, singly or collectively, the sputum consequently varies much. As Dr. Trudeau suggested to me, the sputum may be coming from an old cavity, while the real active lesion which is causing symptoms may be in the other lung or in another part of the same lung. Theobald Smith suggests that the lungs are the favorite seat of the tubercle bacillus because they afford an easy exit from the body and the easy perpetuation of its species. This would mean that tubercle bacilli in sputum were simply on their way out of the body much as the plasmodium malarie goes out from the mosquito to seek a new host, and this supposition would rather minimize the importance of the sputum in prognosis.

On the other hand, the main fight against tuberculosis is supposedly largely local. Fauconet and others found in tuberculous peritonitis, etc., a local lymphocytosis, and a general polynucleosis, this is suggestive that sputum might possibly afford different evidence of immunity from the blood in tuberculosis. The sputum immediately from the seat of battle should have a story to disclose. It is true that the fight is probably often a long time over in the immediate source, before the sputum is raised, but it should show some vestiges of the battle. The life of a leucocyte is stated to be only ten days, so

* A preliminary report of this work read before the Franklin County Medical Society, June, 1906.

any observation based on phagocytosis probably has to do with fairly recent events. Of course sections of the lung show what has occurred, but only one observation can be made, and the resistance of the individual is too delicate a mechanism to be comprehended so briefly. The sputum affords repeated observations.

II. *Phagocytosis in the Sputum.*

In doing routine sputum examinations one occasionally observes specimens that present so many tubercle bacilli inside the leucocytes that they might easily be mistaken for preparations in opsonin work. In some specimens some of the leucocytes contain as many as eight tubercle bacilli. The inclusion of so many bacilli is hardly insignificant. To interpret their meaning is a difficult problem: e. g., the diplococcus intracellularis is inside the cells in the spinal fluid of meningitis, and the gonococcus is inside the cells in the urethral discharge. These inclosures of bacteria would seem to give no indication as to immunity. The normal habitat for these organisms may be inside the cells; this is not so with tubercle bacilli.

Phagocytosis plays an important rôle in tuberculosis. (Wright, Baldwin, Hektoen, and others.) Theobald Smith opposes this view. Carles says examination of the efficiency of the leucocytes should rank with examination of urine, etc.

Cohnheim injected carmine granules into the dorsal lymph sac of a frog and then provoked a corneal suppuration. He found the leucocytes in the cornea laden with carmine granules. Thus the leucocytes rush to different parts of the body where there is inflammation.

W. L. Brown injected carmine granules into the foot of the unio, and in twenty-four hours found leucocytes that had englobed the carmine wandering through the membrane of the gills. De Bruyne also observed in molluscs the leucocytes passing out through the gills laden with histological residues, etc. Stohr found that tonsils and Peyer's patches were sites of constant outwandering.

Metchnikoff believes that the tonsils give off many leucocytes, and that these account for the comparative immunity of the buccal cavity. Outwandering leucocytes might account for the comparative immunity of the larynx and the other upper air passages. I have not yet made special observations on the sputum of patients with tuberculous larynx.

If phagocytosis outside the tissues, that is in cavities or in bronchi, did occur we should find the leucocytes active, and the tubercle bacilli opsonified or opsonin present.

Löwenstein tested the ability of the pus cells from the sputum to phagocyte in vitro by homogenizing with shot a fresh sputum, adding tubercle bacilli and serum, and incubating. Sputa were taken from patients with open and closed tuberculosis, and patients undergoing various kinds of treatment. In none was there phagocytosis. He states that the mucus and saliva probably interfered with the movement of the leucocytes, and with the complete homogeneous mixing of the bacilli. There might be very little mucus in cavities.

Are the tubercle bacilli in the sputum opsonified? The author added washed leucocytes from the blood to the mechanically homogenized sputum and found no phagocytosis. After the addition of serum,

however, phagocytosis did occur, thus showing that the sputum lacked in opsonin. Two such tests were made; in each the sputum used was a mixture of the sputa from six patients. This point will be studied further.

Ross says that A. E. Wright tested for opsonin in the fluid expressed from sputum and found it absent.

Löwenstein observed that the intracellular tubercle bacilli in sputum showed signs of disintegration. I failed to find this. Markl and others have observed the disintegration of tubercle bacilli englobed when injected intraperitoneally.

This phagocytosis work is based on 412 observations on 109 patients made by the author during the past two years. Cases with only one observation, except with the cocci and dust (?) particles, were excluded from the statistics.

Ordinary smears were stained usually with Gabbet's method. Phagocytosis by any of the cells present was looked for. Löwenstein observed tubercle bacilli englobed by endothelial cells, but less frequently than by polynuclear. Phagocytosis by endothelial cells was very rare in my slides. At least ten representative fields were searched. Thus the counting of one hundred to two hundred cells, as is done in opsonin work, was not approximated.

Since phagocytes and bacilli must be present for phagocytosis, no observations were made on specimens showing no intact cells or showing less than about one tubercle bacillus to the field. Since Nichols found in sections of the lung tubercle bacilli inside the cells it is quite reasonable to believe that many tubercle bacilli extracellular in the sputum were intracellular before the cells became disintegrated.

a. *Frequency of Phagocytosis.*—Of eighty cases, in sixty-six (82 per cent.) phagocytosis was present at some time. When our phagocytic index (see below) was applied phagocytosis was present in forty-one (59 per cent.) out of seventy cases.

b. *Phagocytosis and Prognosis.*—Decisions as to improvement or nonimprovement were copied, with few exceptions, from the sanatorium records, where they had been made by Dr. Brown. "Early" equals history of one year or less; while "Chronic" equals history of more than one year.

Of forty-one early cases, where patients improved, thirty-five (85 per cent.) showed phagocytosis; of fifteen early cases, where patients did not improve, twelve (80 per cent.) showed phagocytosis; of twenty chronic cases, where patients improved, sixteen (64 per cent.) showed phagocytosis; of four chronic cases, where patients did not improve, three (75 per cent.) showed phagocytosis. Thus, of sixty-one patients who improved 83 per cent. showed phagocytosis, of nineteen patients who did not improve 79 per cent. showed phagocytosis.

According to this, phagocytosis points but doubtfully to a good prognosis.

This comparison, showing 83 per cent. vs. 79 per cent., is based on every observation without regard to the intensity or persistence of phagocytosis. It is impossible to measure phagocytosis in the sputum, as is done in opsonin work, because all the leucocytes may not have come into contact with bacilli. I adapted the terms (a) slight, up to about 10 per cent. of all tubercle bacilli present intracel-

lular); (b) moderate (about 10 to 40 per cent.); (c) pronounced (about 40 to 65 per cent.). The highest percentage actually counted was 65 per cent. Some cases showed only slight. This would be present almost continually. Other cases would show moderate or pronounced only once, and zero in a number of other observations.

To allow for variation of intensity a value of 1 was given to slight cases, 4 to the moderate, and 8 to the pronounced, as representing approximately the relative average degrees of intensity. To allow for persistency, the intensities observed in each case were added together and divided by the number of observations. This gives the measure sought a kind of phagocytic index. As any index which was below 0.5 was classed as zero, a number of cases showing occasional slight phagocytosis were classed as showing no phagocytosis.

Our Phagocytic Index.....	0	1	2	3	4	5	8	Total.
Improved patients.....	20	15	11	0	4	1	1	52
Unimproved patients.....	9	4	2	0	1	2	0	18

Of twenty-nine patients, with no phagocytosis, twenty (69 per cent.) improved. Of forty-one patients, with phagocytosis, thirty-two (78 per cent.) improved. Of thirteen patients, with index, 2, eleven (85 per cent.) improved.

The number of cases with the higher indices was too small for use.

This evidence would be fairer if there were a larger proportion of unimproved patients. According to this classification the proportions are 78 per cent. vs. 69 per cent., instead of 83 per cent. vs. 79 per cent. above. The difference is still too small to permit of practical prognosis.

Löwenstein about six months ago, in an interesting article, stated:

1. In about 10 per cent. of cases of manifest tuberculosis, the tubercle bacilli are inside the 1 to 3 nucleated leucocytes.

2. The intracellular position occurs: (a) in pronounced chronic cases; (b) in early cases, which point to a cure.

3. The intracellular position often indicates the early disappearance of the tubercle bacilli from the sputum.

1. This statement is based on fifty-six cases out of five hundred. In thirty-nine out of the fifty-six cases, only one observation to the case was made. As will be seen later, these thirty-nine cases should have been discarded. On the remaining seventeen cases, only forty-one observations were made. The author does not say how many observations were made on the remainder of the five hundred cases. My high percentage was probably due to making repeated observations on the same patient, and to the fact that the smears were made within an hour or two after expectoration. Frequently a patient's sputum would show phagocytosis once, and not again in a number of observations. If sputa are allowed to stand, the cells disintegrate, and thus phagocytosis cannot be observed.

As to phagocytosis in early vs. chronic cases, 84 per cent. of my early cases and 79 per cent. of the chronic cases showed phagocytosis, slightly more frequently in early cases.

The sputum of one case with history of eighteen years, and another with a history of seventeen years,

showed marked phagocytosis. However, in the former case, only one observation was made.

As to phagocytosis in early cases with good prognosis, my figures show:

Of forty-one early cases where patients did well, thirty-six (85 per cent.) showed phagocytosis. Of fifteen early cases where patients did poorly, twelve (80 per cent.) showed phagocytosis.

This appears slightly in favor of good prognosis. I may have classified early and chronic differently from Löwenstein.

As to conclusion 3: In my figures—

Of sixty-three cases with phagocytosis fourteen (22 per cent.) lost tubercle bacilli. Of twenty-one cases with no phagocytosis seven (33 per cent.) lost tubercle bacilli.

Thus a larger proportion of cases without phagocytosis lost their tubercle bacilli than those with it.

c. *Phagocytosis and Tuberculin Treatment.*—If phagocytosis is of value in prognosis, we might expect tuberculin reactions and treatment to cause variations. Löwenstein gave up the idea that tuberculin treatment is much correlated with phagocytosis. Denys says that phagocytosis occurs in the latter part of treatment with B. F. Our cases included B. F., T. O., B. E., and a modified T. C., and the cases would have been too few, if divided according to tuberculin.

Of 179 observations on patients not taking tuberculin, 101 (56 per cent.) showed phagocytosis.

Of 157 observations on persons not taking tuberculin who had phagocytosis at some time, in 101 (64 per cent.) it was present.

Of 141 observations on patients taking tuberculin, 40 (28 per cent.) observations showed phagocytosis.

Of eighty-seven observations on tuberculin patients, who had phagocytosis at some time, forty (46 per cent.) observations showed phagocytosis.

Thus the percentage of occurrences of phagocytosis in tuberculin cases was much fewer and much less constant than in non-tuberculin cases.

Comparing tuberculin and nontuberculin cases by means of our phagocytic index:

Of forty-two tuberculin patients eighteen (43 per cent.) showed phagocytosis. Of twenty-nine nontuberculin patients twenty-four (83 per cent.) showed phagocytosis.

Thus a much larger proportion of the nontuberculin patients showed phagocytosis. Statistics were made to ascertain whether patients showing phagocytosis before tuberculin treatment lost their phagocytosis after taking the treatment. The numbers were too small.

d. *Phagocytosis during Tuberculin Reactions.*—In seventeen tuberculin reactions, smears were made daily for three to seven days after the beginning of the reaction, to see if negative and positive phases occurred, as seen in the blood. In two cases the phases were apparently present. These might be explained by the frequent variations present in most cases. One case was most interesting:

CASE.—Patient was admitted April 19, 1906. His temperature from April 19th to June 29th was 100° to 102° F. He began B. F. on June 18th. Phagocytosis was absent in monthly observations till October 17th, after four months tuberculin treatment. From then till last observation, December 31st, phagocytosis was gen-

erally marked. Tuberculin was continued without intermission until the patient's discharge in January. From December 15th to 31st observations were taken almost daily. Patient had reaction on December 12th to 0.005 gm. B. F.

December 15, 1906, phagocytosis 0.

December 16, 1906, phagocytosis 30 per cent.; tubercle bacilli intracellular.

December 17, 1906, phagocytosis 30 per cent.; tubercle bacilli intracellular.

December 18, 1906, phagocytosis 0; at 8 p. m. patient received 0.002 B. F.

December 19, 1906, phagocytosis 20 per cent.

December 20, 1906, phagocytosis 40 per cent.

December 21, 1906, 7.30 a. m., phagocytosis 30 per cent.; at 8 p. m. patient received 0.003 B. F.; 7.45 a. m., phagocytosis 30 per cent.; 8.00 a. m., phagocytosis 20 per cent.

December 22, 1906, 7.30 a. m., phagocytosis 10 per cent.; 7.45 a. m., phagocytosis 40 per cent.; 8.00 a. m., phagocytosis 30 per cent. Slight redness at site of injection.

December 23, 1906, phagocytosis 65 per cent.

December 25, 1906, phagocytosis 0.

December 27, 1906, phagocytosis 40 per cent.

December 28, 1906, phagocytosis 10 per cent.; patient received 0.004 B. F. at 8 p. m.

December 30, 1906, phagocytosis 30 per cent.

December 31, 1906, phagocytosis 40 per cent.

Thus after reaction December 12, 1906, and after 0.002, negative and positive phases were apparently present. However, since no observations were taken December 13th and 14th, the first negative phase should be discarded.

After the slight reaction at site of injection December 22, 1906, there were no phases. Then on December 25, 1906, phagocytes 0, without a dose of tuberculin. There was no observation the day after a dose of 0.004 B. F. A number of such cases giving similar phases would lead to the presumption that sputum examinations might be equal to the opsonin test.

e. Phagocytosis during Important Symptoms.—In twenty-three cases observations were made during important symptoms: i. e., pleurisy, hæmoptysis, fever, etc. In seven, symptoms did not affect phagocytosis; in eight, phagocytosis was present or increased; in eight, phagocytosis was absent or decreased. Thus, there seemed no connection between phagocytosis and important symptoms. These observations were not made frequently enough during and before and after the symptoms to be of much value.

f. Is Phagocytosis Specific?—In thirty-three non-febrile patients showing secondary organisms phagocytosis of secondary organisms was looked for. It was present in ten (30 per cent.). In five of these ten tubercle bacilli were present, but in none was there phagocytosis of tubercle bacilli. In almost all the cases the intracellular cocci were inside endothelial cells. The number of cases was too small for any deductions about specificity. Then too, in most cases there was only one observation.

In twelve patients phagocytosis of dust (?) by endothelial cells and polynuclears was noted. In four tubercle bacilli were present, in two of which tubercle bacilli were intracellular. In three cocci were present, in one of which cocci were intracellular. In none were all three intracellular. Whenever dust (?) was present, some was always inside the cells. The number of cases was too small for any deductions about specificity. Here, too, in most cases there was only one observation.

g. Malignancy of Phagocytosis.—Mallory asserts that the ulcerations in typhoid are caused by the phagocytes becoming malignant and eating valuable body cells. Could such malignant phagocytosis account for the formation of lung cavities? No sections were made, but in sixteen specimens from five patients with cavities (?) and from cavities in three cadavers, I failed to note any evidence of it in the sputum.

h. Variability of Phagocytosis.—It is interesting to note variations in sputum taken every fifteen minutes, as was done for three times on two successive days. One day showed 30, 30, 20 per cent. intracellular; the next day 10, 40, 50 per cent. The latter was a striking variation in a half hour. Daily and monthly observations showed far more striking variations: e. g., 5 per cent., 40 per cent., 0, 0, 0, etc. Then, too, the variations are interesting in the following autopsies:

i. Phagocytosis Observed at Autopsy:

AUTOPSY I.—July 28, 1906. M. C. Chronic case, patient died after several weeks with pneumothorax. Specimens all from lung on side of pneumothorax. Gaffky's scale and phagocytosis were recorded for each smear.

1. Young tubercle; no bacteria. 2. Beginning caseation; no bacteria. 3. Cavity thin walled, size 1 cm., filled with cheese; vi, no cells intact. 4. Cavity (active); vii. Phagocytosis pronounced, up to eight tubercle bacilli inside one cell. 5. Another cavity (active); iv, phagocytosis moderate. 6. Caseous mass; no bacteria. 8. Quiescent cavity; viii, phagocytosis pronounced, up to five tubercle bacilli inside one cell. 9. Another quiescent cavity; vi, phagocytosis pronounced, up to five tubercle bacilli inside one cell.

All specimens where intact cells and tubercle bacilli were present showed moderate or pronounced phagocytosis. Is this phagocytosis preagonal? In none of the autopsy cases had observations on phagocytosis in the sputum been taken before death.

AUTOPSY II.—April 15, 1907. R. H. B. Old chronic case. Patient worked as painter, and in good condition till large hæmoptysis set in a few days before death. All the lesions appeared old. 1. Caseous nodule; viii, no phagocytosis. 2. Pus focus; v, no phagocytosis. 3. Blood from large cavity; iii, no phagocytosis. 4. Liquid pus from several tubercles; v, no phagocytosis. 5. Quiescent cavity (no secretion); v, no phagocytosis. Phagocytosis was absent in every specimen.

AUTOPSY III.—April 24, 1907. T. N. Far advanced case, history of three or four years. Patient has a slight rise of temperature and much dyspnoea a few weeks before death. Right lung was a mere fibrous shell, while the left was extensively tuberculous. 1. Pus focus; iii, no phagocytosis. Very few cells intact. 2. Shell of lung, (a) scraping from wall; viii, very slight phagocytosis; (b) scraping from another part; iii, most of tubercle bacilli intracellular. 4. Cavity with cheese, 0. 5. Cavity size 6 cm., wall 2 mm.; iii, no phagocytosis. 6. Cavity with pus; v, slight phagocytosis. 7. Cheesy focus; ix, no cells intact. 8. Cavity without secretion; iv, slight phagocytosis. 9. Cavity with cheese size 4 cm.; v, moderate phagocytosis. The phagocytosis varied from zero to moderate.

III. Evidence Concerning Growth of the Tubercle Bacilli.

The great point of interest here is not whether the bacilli are virulent or whether the body resistance is high, but whether the balance of power be-

tween the bacillus present and the body resistance present is in favor of the bacillus or the patient. A very virulent bacillus may do little damage in a highly resistant patient and vice versa. If the bacilli are growing, it seems fair to assume that the bacilli are uppermost. Tubercle bacilli probably do not grow much in sputum. The growth would be either in the tissues or on the ulcerating surface of cavities.

Growth in cavities has been presumed by A. Coppen Jones. My experience with three autopsies also gave this impression. It is an open question, however, whether or not the bacilli could grow in cavities without being influenced by the body fluids, as many bacteria apparently do in the buccal cavity. The persistence of tubercle bacilli in sputum is no evidence of growth; it may indicate a gradual removal from some old focus.

a. *Clumps of Parallels*.—Tubercle bacilli are supposed to multiply by longitudinal fission. Clumps of parallels are believed to indicate growth. Parallels have been observed in tubercle bacilli growing on the heart valves and on the inner surface of the thoracic duct. Clumps of parallels were not observed in tissues by A. Coppen Jones.

Of fifty-four cases showing parallels forty patients (74 per cent.) improved. Of nineteen cases not showing parallels fifteen patients (79 per cent.) improved.

This presence of parallels in the sputum probably is of little value in prognosis, but suggests an unfavorable course.

b. *Variations in Depth of Stain*.—Marmorek alleges that old tubercle bacilli retain the stain more strongly than the young.

Of fifty-two cases showing variation in depth of stain thirty-seven patients (71 per cent.) improved. Of eleven cases not showing variation in depth of stain nine patients (82 per cent.) improved.

This would tend to show that variation of stain pointed to an unfavorable prognosis.

In a series of sixteen specimens where both points were observed, variation in stain and clumps of parallels were present together in fourteen cases. In one case one was present; in the other case neither was present. Thus there is almost absolute correlation between the two. This should be expected if both are evidences of growth.

c. *Disintegrated Tubercle Bacilli*.—If the bacilli are all dead, as possibly evidenced by their disintegration, then the balance would seem in the patient's favor.

Of forty-one cases with disintegrated tubercle bacilli thirty-two patients (78 per cent.) improved. Of twenty-five cases without disintegrated tubercle bacilli eighteen patients (72 per cent.) improved.

From this the appearance of disintegration in tubercle bacilli appears to be of little value in prognosis, but suggests a more favorable condition of the patient.

The *splittersputa* (fragments of tubercle bacilli) asserted by Spangler and confirmed by Pottenger to be found in sputum in the absence of intact tubercle bacilli, would also seem to be evidences of the balance in the patient's favor, if splitter represent a disintegration form rather than a developmental. Of fifty-two cases in my series, four (8 per cent.) patients showed *splittersputa*. In all four, intact

tubercle bacilli were found. In all fifty-two cases intact tubercle bacilli had at some time been found.

I wish to express my thanks to Dr. Trudeau and Dr. Baldwin for many helpful facts, to Dr. Brown for his helpfulness in the work, and to Mr. E. G. Pope, who kindly computed the statistics.

Conclusions.

1. Fifty-nine per cent. of the cases showed phagocytosis when our phagocytic index was applied. Eighty-two per cent. of the cases showed phagocytosis when all cases showing phagocytosis at any time were included.

2. Phagocytosis in ordinary sputum examination seems of little practical value in prognosis. In large groups of cases certain features may be observed: e. g., phagocytosis was much less in my tuberculin cases.

3. From three autopsies and from the variation observed, whether of sputum taken at intervals of minutes or months, it would seem that a specimen from the homogenized daily output is necessary for much accuracy.

4. Tuberculin reactions failed to produce positive and negative phases.

5. Phagocytosis seemed not to vary with the presence of bad symptoms.

6. Phagocytosis in sputum deserves a more extended study, especially since the rôle of phagocytosis in general is still undetermined.

7. Disintegrated tubercle bacilli, parallels, variation in staining, all seem to be of no practical use in prognosis. This is in harmony with the literature.

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ADIRONDACK COTTAGE SANATORIUM.

CONSANGUINITY: A FACTOR IN IMMUNITY TO SCARLET FEVER.*

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Several years ago when making visits to contagious disease cases in the tenements of the lower east side, in official capacity, I became impressed with the fact that with scarlet fever occurring in

* Read before the Society of Medical Inspectors of the City of New York, May 7, 1907.

these uniformly large families, it was the rule, nevertheless, to have no secondary cases develop. It was the regular thing to visit an apartment where a family of eight to ten persons huddled in two rooms, eating in one and retiring to the other to sleep; where sanitary conditions were wretched; where isolation varied from bad to worse; where the convalescent from scarlet fever frequently furnished sport for the other children in the pursuit of peeling off the dead epidermis from the hands and feet; and to find here that, despite all this, a secondary case seldom appeared.

This evidence of low degree of scarlet contagion, when considered in relation to members of the same family, differed so markedly from the estimates placed by various authors of the contagiousness of the disease in relation to children in general, that I decided to tabulate a certain number of cases to see what figures I should obtain. In the following cases, which occurred in a middle west side district, the sanitary conditions were but a slight improvement over those encountered on the east side, so that the results I tabulated are quite as convincing:

Family.	Disease.	Number of children below and ten years.	Number sick.	Number of who had scarlet fever before.	Isolation.	Beginning of secondary case.
I....M.	Scarlet fever.	6	1	0	Poor.	.....
II....J.	"	4	1	1	Bad.	.....
III....C.	"	2	1	0	Bad.	.....
IV....K.	"	1	1	0	Poor.	.....
V....R.	"	1	1	0	Poor.	.....
VI....O.	"	1	1	1	Poor.	.....
VII....O.	"	1	1	1	Bad.	.....
VIII....R.	"	12	2	0	Bad.	Three days after first.
IX....M.	"	2	2	0	Poor.	One week after first.
X....K.	"	12	1	0	Bad.	.....
XI....G.	"	1	1	0	Bad.	.....
XII....S.	"	1	1	0	Fair.	.....
XIII....M.	"	12	2	0	Bad.	One week after first.
XIV....G.	"	3	1	0	Fair.	.....
XV....M.	"	1	1	0	Fair.	.....
XVI....M.	"	1	1	1	Poor.	.....
XVII....S.	"	1	1	0	Bad.	.....
XVIII....R.	"	1	1	1	Bad.	.....
XIX....S.	"	1	1	0	Fair.	.....
XX....R.	"	1	1	0	Poor.	.....
XXI....B.	"	2	2	1	Bad.	10 days after first.
XXII....G.	"	4	1	0	Fair.	.....
XXIII....T.	"	3	1	2	Poor.	.....
XXIV....M.	"	1	1	1	Poor.	.....
XXV....A.	"	2	1	0	Poor.	.....

Thus we have, omitting the children who had scarlet fever previously, thirty-nine children exposed in twenty-five families. And we find that four secondary cases developed. This means that the percentage of contagiousness of scarlet fever among members of the same family, as derived from the original cases, reaches only the low figure of 10 per cent. In contrast to this Holt says that about 50 per cent. of all children exposed to scarlet fever are attacked with the disease; Koplik states the same figure; and Carr places it as high as 56 per cent.

There is another fact which was observed in connection with Cases IV, V, and VI of my table, which also points to the comparative immunity of persons in a family to the poison of scarlet fever developed in another member. These three cases occurred in families in the same tenement house succeeding each other at intervals of about one week. Now, with the questionable rigidity of isolation which it is our misfortune to have to combat, it seems probable that these cases were derived successively from each

other. Yet in each of two of these families there was another child who had not previously had scarlet fever and who did not contract it at this time.

Then, again, the occurrences in two other families not tabulated in this series serves to emphasize the same point:

Family	Disease	Number of Persons	Person Sick	Persons Sick Before	Isolation	Secondary Cases
J	Scarlet Fever	1 Child, 7 Adults Family, 2 Adult Domestic	Child	1 Adult of Family	Good	2 Domestic
D	Scarlet Fever	2 Adults Family, 2 Adult Domestic	1 Adult of Family	0	Excellent	2 Domestic

In each of these two cases we see an adult of the same family as the sick person escaping infection while in each the two strangers exposed contracted the disease; and it is reasonable to assume that the domestics were less exposed than the members of the family.

Finally, I wish to state that, realizing that a larger number of cases would render my conclusion more convincing, I present the preceding series temporarily, intending to add a considerably larger number as soon as collected.

Since writing the above I have received from several colleagues data of cases of scarlet fever coming under their observation, with the following results:

Dr. Thomas A. Martin reports sixty-five nonimmune children exposed in thirty-three families, with seven secondary cases developing. Isolation, in general, poor.

Dr. William E. Weber reports sixteen nonimmune children exposed in eleven families, with two secondary cases developing. Isolation, in general, fair.

Dr. Otto A. Jahn reports twenty-two nonimmune children exposed in twelve families, with three secondary cases developing. Isolation varying from poor to fair.

This makes a total of 103 children exposed to the contagion of scarlet fever through a member of the same family, with twelve (or eleven plus per cent.) of secondary cases developing. And combining these figures with those given above, namely, four secondary cases among thirty-nine children exposed, a grand total is obtained of 142 children exposed, with sixteen secondary cases developing, or eleven plus per cent.

31 WEST ONE HUNDRED AND TWENTY-FOURTH STREET.

The Medical Corps of the Navy.—The medical corps of the navy has not been able to get enough surgeons to meet the needs of the service. Admiral Rixey, the surgeon general, has undertaken to give temporary appointments as "acting assistant surgeons" to the young men who will pass a satisfactory preliminary examination and come to Washington for instruction. They will receive six months' special training at the Naval Medical School and Hospital, or at the Mare Island Naval Hospital. At the end of that course they will receive appointments as assistant surgeons, with an annual salary of \$1,700, supplemented by allowances of \$432 and mileage—\$800.

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXIV.—How do you treat influenza? (Closed July 15, 1907.)

LXV.—How do you prevent contraction in the scars of burns? (Answers due not later than August 15, 1907.)

LXVI.—How do you make an early diagnosis of pregnancy? (Answers due not later than September 16, 1907.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXIII has been awarded to Dr. Julius J. Valentine, of New York, whose article appears below.

PRIZE QUESTION NO. LXIII.

THE TREATMENT OF GONORRHEAL EPIDIDYMITIS.

By JULIUS J. VALENTINE, M. D.,
New York.

It is instructive to note that no patient treated by irrigations for gonorrhea acquires epididymitis unless the epididymis is involved when he presents himself for the first examination. The development of epididymitis is then exceptional, as shown by the office and dispensary records of my chiefs, Professor Ferdinand C. Valentine and Professor Terry M. Townsend.

Galvanism.—Galvanism yields brilliant results in the inception of this complication. Pain is promptly arrested and the swelling soon recedes. The current is applied at the first séance by means of a flat electrode, curved to fit the scrotum of the affected side, using the negative with two milliampères for two minutes, while another (e. g., 8 x 10) flat electrode is under the patient's buttocks. The next day the positive is applied to the scrotum with three milliampères for three minutes. In this manner the direction of the current is changed each day, its force increased one milliampère and the séance lengthened one minute. This is continued until all pain and increase of swelling are arrested. Thenceforward the intervals between treatments are gradually extended, at first by one day, later by two days.

Local Applications.—It is well to dress the scrotum with a slight modification of the ointment introduced by Professor Leopold Casper, of Berlin. It consists of: Ichthyol, 2.5 parts; guaiacol, 5.0 parts; mercurial ointment, 10.0 parts; petrolatum and wool fat, aa, p. æ. ad. 30.0 parts. This ointment is thickly spread upon four layers of gauze cut of a size to completely cover the scrotum containing

the inflamed epididymis; over the gauze a layer of cotton is placed; this is enveloped with a sheet of oiled silk, and all firmly compressed with a strong suspensory bandage, selected to thoroughly compress the scrotum and hold it immovable against the ascending pubic rami.

Painting the scrotum with silver nitrate, tincture of iodine, guaiacol, etc., have been discarded because of the unnecessary suffering they produce, and little, if any, benefit they yield.

Ice applications, still recommended in some textbooks, are not used, because in all patients appearing in the records mentioned before with a sloughed epididymis or testicle, ice had been locally employed. It is true that in many instances this deplorable result did not follow the use of ice; still the invariable fact, what I cited, is sufficient to justify abstaining from its use.

Poulticing.—The time honored flaxseed and tobacco poultice still has its place, when the scrotum is extensively involved in the inflammation, as shown by intense reddening and such hyperæsthesia, as to prevent manipulation of any kind. This poultice consists of equal parts of ground flaxseed and common smoking tobacco, boiled together to the thickness of porridge. The mixture is spread upon a layer of gauze two inches larger in all directions than needed to cover the affected scrotum. Enough of the poultice to cover the scrotum about a quarter of an inch thick is smoothly spread upon the gauze, leaving a margin of gauze two inches wide free at all sides. Another piece of gauze is put upon the poultice, and the free margins of the former (bottom) gauze are folded over the latter to form a frame therefor. The poultice so made is wrapped about the affected scrotum as hot as can be borne. The whole mass is then placed upon a board, such as the lid of a large cigar box, from whose long margin a semicircle has been cut, so that the board can rest upon the thighs, snugly holding up the entire scrotum to prevent all tension of the spermatic cords.

As soon as a poultice has begun to cool slightly, another is prepared to take its place. The exchange must be made as rapidly as possible to prevent the change of temperature which would result from delay. When the patient's sleeping time arrives, the poultice may be replaced by the Casper ointment described before.

Lead and Opium.—In some cases of hyperacute epididymitis, heat is not borne and even increases the sufferings. Then the ordinary lead and opium (U. S. P.) renders excellent service. It is applied at room temperature on several layers of gauze or linen, and quickly changed as often as it begins to grow warm. The scrotum is supported by a board in the same manner as described for poulticing.

Strapping the Testicle.—When inflammation of the epididymis has not extended to the cord or involves only its lower third, Fricke's strapping is the most effective method of treatment. Pain is instantly stopped and swelling promptly reduced. The objections thereto are the apparent brutality of its application, which is exceedingly painful and the need of clipping off all the scrotal hairs, which quickly grow into the adhesive straps and render their removal exquisitely painful. My chief, Pro-

fessor Valentine, years ago overcame the latter objection by not clipping the scrotal hairs, but covering them with a layer of gauze before applying the straps. The first objection, however, remains, yet the patients obtain such instant relief that they gladly submit to subsequent strappings. The technique of this method of treatment is too extensive to permit its description in a short paper. It has been fully described in *The Irrigation Treatment of Gonorrhœa, Its Complications and Sequela*.

Acupuncture.—When tense œdema accompanies epididymitis, or when local hyperæmia is very great, relief and aid to treatment are readily obtained by numerous slight punctures into the superficial layers of the scrotum.

171 WEST SEVENTY-FIRST STREET.

Dr. Faxton E. Gardner, of New York, remarks:

In the treatment of gonorrhœal epididymitis we must aim at two results: To relieve the generally very severe pain, and, at the same time, curtail as much as possible the inflammatory process, so as to reduce to the unavoidable minimum the subsequent sclerosis which might possibly impair the functions of the organ.

Both indications are best met by absolute rest in bed, with an ice bag on the scrotum and the groin, a piece of thick flannel being placed between the ice bag and the skin; this, to avoid the unpleasant local effects of too violent a refrigeration on the thin and delicate integument of the region. The local treatment of the urethritis is discontinued temporarily; the internal administration of balsamics may be kept on. A teaspoonful of Rochelle or Epsom salt in half a glass of water every morning keeps the bowels open, and avoids the passage of too hard feces through the rectum. This is important because the prostate, just as well as the epididymis, needs absolute rest. If pain in the rectum is severe, we may give every night an enema of one or one and a half ounces of lukewarm water, to which are added 10 minims of tincture of opium. The diet is mainly a fluid diet; it is better to avoid meat. Of course, coffee, spices, pepper, vinegar, sauces, and pickles are strictly forbidden. Milk, water with a teaspoonful of milk sugar dissolved in each tumblerful, or very weak tea, are the best drinks.

Internally the following prescription is given in teaspoonful doses every hour:

℞	Tinct. pulsatillæ,	℥ xxx;
	Tinct. hyoscyami,	ʒi.
	Infus. tritici repentis,	ʒiv.
	Potassii bicarbonatis,	ʒiii.
M.		

The infusion of tritici repens may be replaced, with equally good results, by an infusion of corn silk.

This treatment will be followed, in most cases, by a rapid subsidence of the symptoms, provided it is applied soon after the onset of the inflammation. We have recently seen several cases in which all symptoms disappeared in an interval of from two to four days.

Some writers boast that in twenty years they have not requested a single patient with gonorrhœal epididymitis to go to bed. We believe it is decidedly better always to request such patients to go to bed

during the early stages of the disease; if, for any reason they refuse to do so, then we may resort to the so called ambulatory treatment. The latter meets better the economical requirements of a great majority of patients; it certainly relieves wonderfully the pain, but it cannot insure that perfect rest which we deem so essential in the treatment of all inflammatory processes, and why should not the same general principles govern the treatment of acute inflammation of the epididymis that are of undisputed importance in the treatment of inflammations of other organs?

The keystone of the ambulatory treatment is guaiacol: it is applied locally on the scrotum: either 10 or 15 drops of the pure drug, or a larger quantity of a 50 per cent. solution in sweet oil; or even 25 per cent. or 10 per cent. solutions, if the skin is very thin and tender; with the latter weak dilutions, it is good to apply the solution twice at an interval of fifteen or thirty minutes. The application is followed by a burning sensation, lasting of from ten minutes to half an hour, according to the strength of the solution. Then the pain disappears; after applying the solution we cover the scrotum with a large piece of oiled silk; a thick layer of absorbent cotton is placed on top, and the whole is held in place by a large suspensory, which we push forward from the perineum toward the scrotum so as to have the testicles pushed upwards and firmly held in place. In most cases one application of guaiacol suffices. With the stronger solution and the pure drug, the epidermis peels off a few days later.

Methyl salicylate, one part in three parts wool-fat or petrolatum, may be used in place of guaiacol, but seems a little inferior in relieving the pain.

In the subacute stage a 10 per cent. ichthylol ointment is applied once daily, covered with cotton, and a good suspensory bandage holds the testicles as high as possible. When all pain has disappeared, strapping with a piece of rubber tissue and strips of adhesive plaster is resorted to; the pressure, always moderate, is increased a little every day.

As soon as the acute symptoms have subsided we resume the local treatment of the urethritis and the prostatitis.

Only seldom is a correctly treated epididymitis accompanied by pus formation. This requires incision; we must not be afraid of destroying by the latter the continuity of the tubular formation which constitutes the epididymis; the function would be suppressed just as completely by the sclerosis which would be the most favorable mode of spontaneous cure we could expect; besides, a surgical anastomosis may reestablish the continuity of the severed epididymis.

Unfortunately the autogenous serum, which would cure rapidly gonorrhœa, prevent complications, and, if declared, cure them quickly and safely, has not yet gone beyond the experimental stage.

Dr. Horace C. Matthews, of Fairville, N. Y., writes:

Having made a positive diagnosis of gonorrhœal epididymitis, the patient should be at once put to bed in a large well ventilated, well lighted apartment and the surroundings made as cheerful as possible. My experience has taught me that this class

of cases is quite liable to be more or less depressed mentally.

The testicle should be supported so that there may be no dragging on the cord. A pillow between the thighs answers the purpose in a way. A broad piece of strapping passed from one groin to the other also makes a good support. Another nice method of support is to take a piece of square cloth of sufficient size, fold it in a triangular shape, sew a piece of broad tape to the long side, and apply.

The patient having been made comfortable, my next step is to select and employ those therapeutical measures which, in my opinion, will be of the most service. If the patient is seen early, i. e., in the acute stage, and is young and vigorous and otherwise healthy, cold is, by all odds, the best local application. It will be found necessary to employ cold in the vast majority of cases. Finely crushed ice may be applied by means of an ice bag or condom, or even cold cloths. Personally, however, I always use the coil, which consists simply of a coil of rubber tubing wound about the scrotum through which iced water circulates. If, on the other hand, the patient is old or cachectic, it may be found to be more advisable to employ heat. In this event, spongiopiline wrung out of very hot water, applied and covered with oil silk, makes a very neat application. I sometimes use hot applications of fine cut chewing tobacco or flaxseed meal, but the spongiopiline is far superior. Ordinary flannel cloths, wrung out of hot water, may be used. If cold applications are used, they should be continued until the pain is relieved, unless the patient complains of discomfort, when they may be stopped for a time and again resumed.

The bowels should be attended to from the first. My plan is to give one drachm of Epsom salt, combined with one quarter grain of tartar emetic, dissolved in half a glass of hot water, every four hours until the bowels move freely.

The diet should be liquid and unstimulating. In a very short time, however, the diet may be augmented by semisolid; nutritious substances.

All urethral medication and instrumentation should be discontinued while treating the epididymitis.

Sometimes the relief of the pain is not such an easy matter as one might think. There are two procedures, not yet mentioned, which in my hands, have proved very satisfactory on numerous occasions. The first consists in making several punctures into the epididymis with a well sized needle or very finely pointed, sharp knife. Blood and serum follow the punctures with great relief of the pain. The second procedure is to cover the testicle with a thick layer of equal parts of the extract of belladonna and glycerin, and over this to apply very hot fomentations. The fomentations should be changed every hour, the belladonna and glycerin every twenty-four hours.

This treatment usually relieves the pain and congestion in from forty-eight to seventy-two hours so that the patient might be allowed to sit up, if he would wear a well fitting suspensory. It is much better for him, however, to remain in bed for a week or ten days, and along about the fourth or fifth day begin to massage the epididymis gently with ung.

belladonnæ, morning and night. If there is induration and enlargement of the epididymis the unguentum hydrargyri may be used with good effect. Potassium iodide and such like preparations, given by the mouth, have seemed to me to have a bad effect on the gonorrhœa, and I do not now employ them.

During the course of the epididymitis, the gonorrhœal discharge is very apt to disappear, to return again, however, as the epididymitis improves. To my mind this is not a metastasis, but is simply an evidence of the diverting effect of the epididymitis.

In conclusion, gonorrhœal epididymitis does not occur until about the third or fourth week of the gonorrhœa. If we have had charge of the case prior to that time, let us pause and ponder well as to whether any sin of omission or commission on our part has been responsible for the occurrence of this complication.

(To be concluded.)

Therapeutical Notes.

Liniment for Subacute Rheumatic Arthritis.

R	Chloroformi,	℥ss;
	Olei gaultheriæ,	℥ss;
	Olei terebinthinæ, rect.,	℥ssiss;
	Aquæ ammoniæ fortis,	℥ssiss;
	Spiritus camphoræ,	q. s. ad ℥viii.
M.	Signa. Shake well and apply to the painful joints with friction, three times a day.	

Hydrogen Dioxide in Cholera Infantum.—Novikow prescribes a teaspoonful every two hours of the following mixture:

R	Solution of hydrogen dioxide, .....	.60 grammes;
	Water, .....	.850 grammes;
	Simple syrup,	15.0 grammes.
M.		

Treatment of Laryngeal Phthisis.—In ulcers of the larynx attending phthisis, the *Journal de médecine de Paris*, February 3, 1907, recommends the following formula. In order to soothe the pain, apply this mixture directly to the larynx:

R	Extract of opium, }	.ââ 0.05 gramme;
	Extract of belladonna, }	
	Distilled cherry laurel water,	20.0 grammes.
M.		

Insufflations of morphine may be made twice a day, containing one eighth of a grain (7 milligrammes) of morphine mixed with starch. The dose may be gradually increased to half a grain (3 centigrammes), or a solution of one grain in an ounce of water may be used with the atomizer, as suggested by Moore. To facilitate cicatrization, insufflations by means of a tube or powder blower may be employed of:

R	Acetate of lead,	2.0 grammes;
	Morphine hydrochloride,	0.2 gramme;
	Sugar of milk,	10.0 grammes.
M.		

The mucous membrane should first be sprayed with a solution of potassium chlorate or of sodium bicarbonate. Cauterization of the ulcers may be performed with silver nitrate, or the galvanocautery (of which the action is very rapid), or it may be done with tincture of iodine. The following preparation may be used:

R. Iodine,	0.3 gramme;
Potassium iodide,	3.0 grammes;
Glycerin,	10.0 grammes.

M.

If suppuration is abundant, Villate's solution may be substituted. (This is the same as *mistura adstringens et escharotica* of the *National Formulary*.) As an application to the inflamed mucous membrane, iodoform in suspension in glycerin is much more acceptable to the patient than the insufflations of a dry powder. If œdema sets in and renders asphyxia imminent, tracheotomy should be unhesitatingly performed. The aliméntation of these patients should be carefully watched. If deglutition is very painful, the parts may be rendered insensitive by cocaine, so that food may be swallowed, or the feeding may be done through an œsophageal tube. Lactic acid is used to bring about the cicatrization of tuberculous ulcers. Solutions of 10 to 80 per cent. are employed, or the acid may be used in its pure state.

Thyroid Extract in Hay Fever.—Pottier briefly reported to the Société médicale de l'Elysée (*Journal de médecine de Paris*, April 7, 1907) the notes of three cases of hay fever in which he had given thyroid extract. In the first case, medication was begun rather late, and after the patient had gone to the seashore, so the favorable result may have been only a coincidence. It was that of a young girl of eighteen years, who was cured after she had taken twenty-four cachets of thyroid extract (each containing gr. $\frac{1}{2}$, or 10 centigrammes). The second was that of a man of seventy, who had been a victim to hay fever for thirty years. Of late years he had developed, in addition, chronic bronchitis, emphysema, and arteriosclerosis. In this case, the results obtained from thyroid extract were suppression of sneezing spells and of the nasal reflex, also the disturbances of the nasal mucosa; but the difficulty of breathing, caused by bronchitis and emphysema, was not suppressed. In this case treatment was interrupted by eye trouble, hemorrhages into the vitreous, and cataract (due to the arteriosclerosis). The third case, a man of thirty-four years, had had attacks of hay fever for seventeen to eighteen years; they usually began about the first of May and lasted until the end of summer. Local treatment to the nose was without result. The treatment began when the disease was in full blast. On the first three days he took one capsule containing 0.10 gramme of extract. On the next two days, treatment was suspended; but on the next four days he took two capsules daily. Improvement in the symptoms was observed on the second day. For the succeeding fifteen or twenty days, he took sometimes one dose, sometimes two doses, daily. Seventy-two capsules were taken in all during the course of the summer. The patient reported that "for the first time, although the summer of 1906 was particularly hot and long, he had not suffered at all even from the dust, in the sunshine, in automobile, or in a carriage, and he attributed this unexpected cure to the treatment." His attacks previously for sixteen years had come on regularly every summer, and continued in spite of previous

Treatment of Gastroptosis.—Lockwood in *Medical Record*, July 20, 1907, gives the following rest cure in a permanent stage of atony. The patient must be put to bed and under the care of an intelligent, tactful, sympathetic nurse. The family, friends, and mail ought to be excluded. The day is arranged on about the following schedule: 7.45 a. m.—Tidy, wash hands and face, then teeth, change umschlag. 8.15 a. m.—Breakfast. 8.30-9.00 a. m.—Rest. 9.30 a. m.—Massage (stroking). 9.45 a. m.—Irrigation. 10.45 a. m.—Warm bath, spinal douche, make bed. 11.30 a. m.—Kumyss, crackers. 11.45 a. m.—Rest. 1.00 p. m.—Lunch. 2.00 p. m.—Rest (alone). 4.00 p. m.—Abdominal massage (stroking, and circling, and electricity). 4.30 p. m.—Sandwich, etc. 6.00 p. m.—Drip sheet (alcohol rub). 7.00 p. m.—Dinner. 8.15 p. m.—Massage (general). 9.15 p. m.—Wash hands, make bed. 9.30 p. m.—Kumyss, crackers, clean teeth. 9.45 p. m.—Lights out.

The hot bath and spinal douche consists in immersion, temperature 105°, for five minutes, followed by a cold spinal douche, 10 seconds. The hot applications must be moist, and may be applied either by hot flannels, spongiopiline, or a moist flannel covered with an electric pad. The whole application to be tightly applied by an abdominal binder; such applications to be changed every two hours in the day and once in the night. The diet is conducted on about these lines: For breakfast—Cacao, cereal, with cream and sugar; minced meat on toast, or soft boiled eggs; roll, butter, marmalade. 11 o'clock—Russell's emulsion. 1 o'clock—Fish, or chicken, or bird; two vegetables; a farinaceous dessert (corn-starch, farina, or rice pudding). 4 o'clock—Either the remains of the farinaceous pudding, or junket, or malted milk. 7 o'clock—Like the meal of 1 o'clock. 9 o'clock—The meal like the 4 o'clock. Throughout the day cream (16 per cent. to one pint) is to be given. Liquids at meals are to be restricted. No fruit or red meats are to be allowed. If the bowels are constipated, the nurse is directed to massage the descending colon ten minutes three times a day, and to use intestinal irrigations by a to-and-fro current, not introducing more than a pint at a time, just as one would wash the stomach. The custom of giving two or three quarts of water at a time is to be deplored. As regards medicine, it is best to start with small doses of bromide, a drug indispensable in the treatment of these cases. He frequently employs the following prescription:

R. Chloralid hydratis, .....	.5i.
Sod. bromidi, .....	.5iiss.
Aq. chlorid formi, .....	.5v.
Spts. anisi,	qtt. vi.

M. Sig.: Teaspoonful in water, after meals, three times a day.

After the first ten days substitute for this prescription tincture of physostigma in 10 or 15 minim doses, substituting it for the bromide solution, first after breakfast and then in a few days after supper, so that the patient takes physostigma after breakfast and supper, the bromide after the midday meal and at night. Toward the close of four weeks, three doses of physostigma are given, and but one dose of the bromide, this at night.

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SUDANOPHILIA AND SUPPURATION.

In 1906 M. Cesaris-Demel described a special modification of the white cells of the circulating blood which he thought was characteristic of suppuration. This change consisted in the presence of minute drops of some fatty substance in the protoplasm, which fat reacted to best advantage by means of a staining mixture of Sudan III and brilliant cresyl blue. The presence of brilliant red staining fatty droplets is evidence, according to Cesaris-Demel, of a type of degenerative leucocyte, indicative of suppuration in some portion of the body, or indicates that actual pus leucocytes are present in the blood.

These findings have received a certain amount of confirmation by a number of observers, among whom is M. F. de Marchis (*Clinica moderna*, March 13th), who has more recently reported on this sudanophilous reaction in a study of 119 patients suffering from a great variety of suppurative lesions in different parts of the body. In over ten per cent. of his cases, in which a positive diagnosis was to be made clinically—boils, osteomyelitis, purulent pleurisy, etc.—the reaction was found in every instance.

In otitis the presence of the sudanophilous particles enabled the author to make a positive diagnosis of mastoid and intracranial abscess. In two patients suffering from perinephritic abscess and in one with suppurative pyelonephritis difficult of diagnosis by other methods the Sudan reaction proved positive and surgical intervention established the correctness of the blood findings.

In a number of minor suppurations, such as generalized boils, the suppurative reaction was entirely lacking, and this was also the case for encysted collections such as may be observed in salpingitis and in pelvic abscesses of long standing.

In pneumonia some interesting findings are reported by de Marchis. During the evolution of the process the reaction of the leucocytes to Sudan III is negative, but as soon as resolution begins the fatty particles appear in great number and disappear only when practically all the abnormal respiratory sounds cease.

This reaction promises to be of considerable diagnostic value and further investigation will show its limitations and defects. M. de Marchis has shown that it may be present after extensive fractures, and in some instances after a meal excessively fatty or even after an experimental injection of a quantity of sterilized oil. As to the interpretation, Cesaris-Demel has already assumed that the fatty leucocytes represent phagocytic activity on the part of these corpuscles, while de Marchis is inclined to believe them to be in themselves developmental pus corpuscles. Experimental evidence is required to establish the origin of these cells or their inclusions; in fact, such evidence is rapidly accumulating, but up to the present time the results are not sufficiently classified to permit of generalization.

LEUCOCYTE COUNTING FROM STAINED SMEARS.

One of the drawbacks to the systematic study of the blood of groups of patients is the fact that the counting of the cells in the whole blood has to be done at once or shortly after the dilution is made. A number of observers have suggested methods of estimating the number of leucocytes and even of the erythrocytes in a cubic millimetre of blood from stained smears, in order to obviate this difficulty. Among these methods those of Einhorn and Laporte, and Strong and Seligman, are the best known. Larrabee (*Journal of Medical Research*, May, 1907) has compared these methods with the method of counting with a freshly made dilution in the Thoma pipette. He finds that the time spent in standardizing the microscope with the Thoma blood counting chamber is not sufficiently compensated for by the time saved in making the leucocyte count from the stained smear. Furthermore, he found that the average error in counting from smears as compared with counting with the pipette dilution was thirty per cent.; average plus error, thirty-six per cent.; average minus error, twenty-six per cent. It seems justifiable, then, to conclude that the method of estimating the leucocytes by the examination of stained smears is too uncertain to make its universal adop-

tion at all likely or advisable. An experienced worker, as is well known, can often make a satisfactory diagnosis of the presence or absence of leucocytosis merely by looking over a stained film.

THE "METASTASES" IN ECZEMA.

The question of "metastases" arising in eczema, and particularly that of the fatal occurrences in children following the cure of a more or less extensive eczema, have often been considered, but never answered. Maille has taken up the matter in his recent thesis entitled *La Mort rapide dans l'eczéma chez l'enfant*. The cases of rapid, if not sudden, death in nursing babies afflicted with eczema are frequent, and Martial has observed two instances, while Dupeyrac, in his thesis, relates a large number. Maille has particularly reported those cases which have been followed by autopsy, in order to find a pathogenic explanation, and the facts that he has collected have led him to admit three classes of cases, to which three theories may be attached. In the first class he includes eczema followed by lesions of impetigo, in which death was merely the result of a septicæmia whose ætiological agent penetrated into the organism through the preexisting cutaneous lesions. This is Hutinel's theory, one which is based on numerous clinical and bacteriological data, and it may be considered as very plausible.

In the second class are recorded the autopsies of eczematous children who have died suddenly and presented all the symptoms of a lymphatic condition. Paltauf applies the mechanical theory to these cases and believes that death is due to compression of either the vagus, the phrenic, the recurrent, or the sympathetic nerve by an hypertrophied thymus, a theory difficult to understand and for that matter greatly questioned and one to which the facts obtained lend no evident confirmation.

Lastly, in the third class are included instances of eczema having an internal origin and in which death can be explained by Bouchard's theory of toxæmia. Here one is dealing with a tardy nutrition, having as a consequence an incomplete oxidation of food taken and the production of materials incompletely elaborated. As oxidation does not reach its ultimate stage and the urea stops at an intermediary phase, the result is that the ingested matters remain in the state of uric acid, leucine, creatin, xanthin, etc., all of which are nondialyzable and very toxic products. These toxic substances especially attack the kidneys and the skin and cause death by renal changes, and Maille quotes on this point Brouardel's phrase: "Death from the kidney is by far the most frequent of all instances of sudden death."

On the strength of this latter theory Maille endeavors to explain all the cases of rapid death in

eczema, no matter what clinical differences they may present, in some characterized by respiratory or cardiac symptoms, in others by digestive or nervous phenomena. One point of resemblance is to be found in all cases of death from this cause, namely, the processes are comparable to those encountered in uræmia and sometimes in grave icterus. On the other hand, in the majority of cases recorded by the author, an autopsy has shown that the liver and kidney are frequently increased in size and in a state of congestion when they are not the seat of fatty degeneration. Microscopical examination has constantly shown that the hepatic lesions are of long standing, while the renal lesions, either of recent or of old date, are absolutely similar in every respect to those discovered in uræmia or grave icterus. The cutaneous lesion would appear to be merely the final stage of an hepatic and renal insufficiency, and this writer ends by attributing an all important part to digestive autointoxication in the ultimate accidents and preparatory lesions. One is usually dealing with a slowly developing toxæmia in subjects predisposed by their heredity, and their hepatic heredity particularly.

A "FINGER PHENOMENON" IN HEMIPLEGIA.

Some years ago Strümpell described, under the name of the "tibialis phenomenon," an elevation of the inner border of the foot, with inward rotation of the sole, occurring when a person affected with hemiplegia attempted to flex the leg on the thigh. This is due to contraction of the tibialis anticus, and it is occasionally seen on the sound side. Dr. A. Souques (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, July 4th) expresses the opinion that Strümpell's phenomenon is analogous to one which he has himself recently observed, which he calls the "phenomenon of the interossei," or the "finger phenomenon," both being dependent on a disturbance of the pyramidal tract.

Souques's phenomenon is not present in complete hemiplegia; there must be some ability to raise the arm voluntarily, though in some instances passive elevation of the paralyzed limb evokes an approach to it. When the patient raises the arm, the fingers of the corresponding hand are involuntarily extended and separated. They slowly resume their former condition as the arm is allowed to drop. The extension affects particularly the first two phalanges, and the separation of the fingers is sometimes suggestive of the opening of a fan. The higher the patient is able to raise his arm the more likely is the phenomenon to occur. The author has observed it in nineteen out of twenty-seven cases of hemiplegia taken at random. In three cases, curiously enough, the finger movements were reversed; the

fingers were approximated and flexed. The phenomenon does not always affect all the fingers, but may be limited even to one of them. Exceptionally, and in a minor degree, it is observed on the sound side. It is attributed to contraction of the interosseous muscles of the hand, though perhaps the lumbricales take some part in its production.

DYSTOCIA DUE TO A VESICAL CALCULUS.

It must be very rare for a stone in the bladder to prove an impediment to delivery. A remarkable instance, however, is related by Dr. Wagner (*Zeitschrift für Geburtshilfe und Gynäkologie*, lix, 2; *Berliner klinische Wochenschrift*, June 3rd). The woman came into the clinic because, in spite of strong and persistent pains, parturition did not advance. An impediment was found in a hard mass situated between the child's head and the symphysis pubis. This was at first taken to be a pelvic exostosis, as has often happened before. But the introduction of a sound soon established the diagnosis, and under anæsthesia it was found practicable to place the stone in such a position that the child, already dead, was extracted by version. Such a procedure, it appears from the literature of the subject, gives the best results for the mother, though colpocystotomy affords an excellent substitute when it is practicable. The warning is given that in cases of encapsulated stone *accouchement forcé* should not be resorted to.

INTESTINAL INVAGINATION IN INFANTS.

Professor E. Kirmisson recently called the attention of the French Academy of Medicine (*Revue de thérapeutique médico-chirurgicale*, July 1st) to the remission of French physicians in the matter of calling for surgical assistance early in cases of intussusception in infants. He declares that it is on this account that the French results are less favorable than the English. To show the necessity of prompt operative intervention, he cites statistics showing a mortality of fourteen per cent. after operations within twelve hours, of thirty-nine per cent. after those within twenty-four hours, of thirty-six per cent. after those within thirty-six hours, of thirty-seven per cent. after those at the end of two days, of fifty-four per cent. after those at the end of three days, and of seventy-eight per cent. after those at the end of four days. He grants that reduction of the invagination occasionally follows the use of an anæsthetic, large enemata, and inversion of the body, but he insists that when these measures do not at once prove efficient laparotomy should be resorted to without delay.

Of course an early diagnosis must be made, but this is not generally difficult. Invagination is the

commonest form of intestinal occlusion in young children, and it may almost be taken for granted that it is present when the child passes blood by the anus and at the same time shows signs of violent colic and intestinal obstruction. As in cases of strangulated hernia, we must never leave such a patient until the obstruction has been overcome.

VENEREAL DISEASES AMONG SAILORS.

Everybody knows that the ways of sailors are peculiar. From the moral point of view, seafaring men as a class are probably no worse and no better at bottom than other men. Their hard life, however, with the shabby treatment which they too often receive, leads them to fall readily into the toils of the prostitute. As a result they are very commonly afflicted with venereal disease. Unless such disease is accompanied by some painful complication, such as epididymitis, a suppurating bubo, or cystitis, or unless phagedæna threatens them with serious mutilation, they are apt to ignore the seriousness of their trouble. In the majority of instances they receive no adequate medical treatment, and the period of ready communicability of their ailment is allowed to run along almost indefinitely, to the great danger of the community.

In these days of serious effort to limit the spread of venereal infection it seems as if some special measures ought to be taken to care for sailors who are in a condition to promote such dissemination. These considerations have so impressed Dr. William T. Jenkins, formerly health officer of the port of New York, that he has recently called public attention to the necessity, as he thinks it to be, of establishing in large maritime towns special institutions for the treatment of sailors with acute venereal disease. To show the magnitude of the danger, Dr. Jenkins reminds us that about a million sailors make the port of New York annually, and he is convinced that ten per cent. of them have venereal disease in a readily communicable form. The details of such a plan as Dr. Jenkins seems to have in mind would have to be worked out carefully, but it cannot be doubted that something of the sort ought to be attempted.

A CASE OF INOCULATED CANCER.

Zurhelle (*Archiv für Gynäkologie*, lxxxi, 2; *Berliner klinische Wochenschrift*, June 24th) records the case of a woman from whom a carcinoma of the cervix uteri had been removed according to Worth-eim's method. At first her progress was satisfactory, but in three months after the operation she observed a nodule in the skin of the abdomen at the upper end of the scar, and it rapidly increased in size. In its removal the peritonæum was opened,

and the absence of metastases was ascertained. Microscopical examination of the excised nodule showed that its structure was identical with that of the cervical carcinoma. The author infers that the secondary growth must have been implanted at the time of the first operation, and he questions if in such cases the abdominal wound should not be protected by means of Küstner's rubber shield.

News Items.

Change of Address.—Dr. Rudolph Berendsohn, to 946 Seventy-third Street, Brooklyn, N. Y.

The Medical Department of the University of Manila will be opened in September. It is purposed to devote special attention to tropical medicine.

Charitable Bequests.—By the will of Patrick McNulty, The Little Sisters of the Poor, Philadelphia, receive \$1,000. By the will of Mary Lynch, The Little Sisters of the Poor and St. Joseph's Industrial Home for Homeless Boys, Philadelphia, become residuary legatees.

The Outbreak of Typhoid Fever in the State Hospital for the Insane of New Jersey is considered to be due to neglect of fundamental sanitary principles on the part of the officers of the institution. So far there have been twenty-five cases with four deaths.

The Starling-Ohio Medical College is the name under which will be known the Ohio Medical University and the Starling Medical College, final legal steps for the merger of these institutions having been completed on July 15, 1907.

The Richmond, Va., Academy of Medicine and Surgery.—The programme for a meeting of this academy, held on Tuesday evening, July 23rd, included the following titles: Whooping cough, by Dr. St. George T. Grinnan; Differential Diagnosis of the Eruptive Contagious Diseases, by Dr. William J. West.

Personal.—Dr. Stephen H. Watts, resident surgeon of the Johns Hopkins Hospital, and Dr. Harvey B. Stone, assistant resident surgeon, have been appointed to the staff of the Medical Department of the University of Virginia, Charlottesville. Dr. Watts will fill the position of professor of surgery, while Dr. Stone will be his first assistant.

A Vaccination Round-up on Shipboard.—According to the daily press, on July 12th a case of smallpox was discovered among the second cabin passengers of one of the North German Lloyd steamships from Mediterranean ports, with a total of 1,371 passengers for New York. The ship's surgeon, Dr. H. Lieber, accomplished, in three days, the task of vaccinating the entire list of passengers.

Philadelphia Personals.—Dr. William R. Nicholson has been elected professor of gynecology in the Philadelphia Polyclinic and College for Graduates in Medicine.

Mr. Wallace Hatch, of Washington, D. C., has been elected secretary to the Pennsylvania Society for the Prevention of Tuberculosis.

Dr. Mazzyk P. Ravenel will be the representative of the United States Government at the fourteenth International Congress of Hygiene and Demography, to be held in August at Berlin. Dr. Ravenel has been elected professor of bacteriology in the University of Wisconsin.

The Health of Pittsburgh.—During the week ending July 12th, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chicken-pox, 6 cases; measles, 10 deaths; typhoid fever, no cases; no deaths; scarlet fever, 14 cases; 2 deaths; diphtheria, 8 cases; 2 deaths; measles, 15 cases; 2 deaths; whooping cough, 17 cases; 7 deaths; pulmonary tuberculosis, no cases; no deaths. The superintendent of the bureau is having trouble in convincing owners of property that their premises are unsanitary after such reports are made to his office. He has, consequently, appointed a photographer, who will submit views of the conditions in the premises reported as a menace to the health of the community.

The Ocmulgee, Ga., Medical Association.—The programme for a meeting of this association, held at Eastman,

on Tuesday, July 16th, included the following titles: Alcohol as a Cause of Disease, Dr. N. P. Jelks, Hawkinsville; Clinic, open to the profession; Keratosis Tonsillar, Dr. C. H. Peete, Macon; Typhoid Fever, Dr. W. A. Mathews, Hawkinsville; A Peculiar Burn, Extent, Treatment, and Results, Dr. C. J. Clark, Chaucey; Local Use of Sulphate of Magnesium in Treatment of Rheumatism, Dr. R. P. Islar, Waycross; The Venereal Peril, Dr. H. McHatton, Macon; An Ounce of Prevention Worth More Than a Pound of Cure, Dr. J. M. Christian, Hazlehurst, Ga.; Report of Case of Subcutaneous Emphysema Complicating Whooping Cough, Dr. J. B. Clark, Eastman.

The American Medical Editors' Association.—The thirty-ninth annual meeting of this association was held at Atlantic City, N. J., on June 3, 1907. The membership of the association was increased by the election of sixty-four new members. There were read fourteen papers on the general subjects of journals and journalism, past, present, and future. A committee of publicity was appointed, whose duty it will be to see that the medical profession, through the medical press, is promptly informed concerning matters of general interest. The election of officers resulted as follows: President, Dr. C. F. Taylor, Philadelphia, Pa., editor of the *Medical World*; vice-presidents, Dr. Kenneth W. Millican, St. Louis, editor *St. Louis Medical Review*, and Dr. H. E. Lewis, New York, managing editor of the *International Journal of Surgery*; secretary and treasurer, Dr. J. MacDonald, Jr., managing editor of the *American Journal of Surgery*.

The Road to Health.—A correspondent who signs himself "Valetudinarian" writes thus to the *Sun*: "Having been under the care of doctors lately, I am told that if I wish to keep in good health I must follow these instructions.

'Eat only a light breakfast'; also, 'Breakfast should be the best meal of the day.'

'Run or walk two miles before breakfast'; also, 'Never attempt to do anything on an empty stomach.'

'Take a cold bath the first thing in the morning'; also, 'Remember the shock to the system of suddenly entering heat or cold is very injurious.'

'Never use a pillow'; also, 'The most refreshing sleep is obtained when the head is elevated.'

'Do not get into the habit of sleeping in the day time'; also, 'Always take a nap in the afternoon.'

'Eat only at meal times'; also, 'Eat whenever you feel hungry.'

'Get up at 5 o'clock every morning'; also, 'Sleep until thoroughly rested, no matter how late it is.'

"When doctors disagree—oh, but what's the use?"

Heat Prostrations in Philadelphia.—On the 18th of July the Elks of America held a street parade in Philadelphia, as the crowning feature of their annual convention, which began on the 15th. It was estimated that 25,000 members of the organization were in the procession, and an innumerable crowd gathered to witness the pageant. On that day the official thermometer registered a maximum of 90° at 2 p. m., and the relative humidity, which was 79° at 8 a. m., reached 82° at 8 p. m. It is not to be wondered at than many in the crowd succumbed to the heat. The newspapers allege that 3,000 persons were overcome, an undoubtedly exaggerated estimate. The record of cases treated at the hospitals was 514, the largest numbers being 217 at St. Joseph's, 110 at the Hahnemann, 50 at the Jefferson, and 42 at the Howard. So far as known none of the cases were fatal and the majority of them were not of the type characterized by high temperatures. In such a time any one who feels at all faint is put down as being a heat case. But after deducting all cases due to overeating, and particularly to overdrinking of beer and other alcohols, the fact remains that there were a great many cases of heat prostration on the day in question. Undoubtedly this day's experience will start a train of pathological manifestations, which will reach their logical termination at some time in the future, so that the injury to health of such a meddling with natural conditions can never be determined.

The Fifth District Medical Society of the Medical Association of Georgia held a meeting at Douglasville, on Tuesday, July 16th, under the presidency of Dr. J. C. Olmsted, of Atlanta. The programme arranged for the meeting included the following titles: The Importance of a More Careful Diagnosis by the General Practitioner, Dr.

G. H. Turner, Douglasville; Use of Wire Splint for Fractures, Dr. T. R. Whitley, Douglasville; The Treatment of Arthritis Deformans, Dr. Michael Hoke, Atlanta; The Treatment of Typhoid Fever, Dr. J. B. Baird, Atlanta; Report on Two Cases of Double Thigh Amputation and Treatment of Shock from Such Injuries, Dr. Thomas H. Hancock, Atlanta; The Treatment of Meningitis, Dr. R. T. Dorsey, Atlanta; How the Registration of Nurses Would Benefit the Nurse and Physician, as Well as the Public, Mrs. A. C. Hartridge, president, Association of Nurses of Georgia, Atlanta; Inebriety: Its Classifications and Different Forms, Dr. Willis B. Parks, Atlanta; The Treatment of Empyema, Dr. C. Pelham Ward, Atlanta; Surgical Treatment of Puerperal Infection, Dr. George H. Noble, Atlanta; Toxic Arthritis in Children Simulating Tuberculous Diseases, Dr. C. R. Andrews, Atlanta; My Experience with Treatment of Floating Kidney, Dr. J. McFadden Gaston, Atlanta; Infantile Remittent Fever, Known Also as Infantile Typhoid or Worm Fever of Infants, Dr. S. W. Everett, Almon; Nephropexia and Renal Decapsulation; Indications, Limitations, and Technique, Dr. R. R. Kime, Atlanta; Treatment of Pneumonia, Dr. C. M. Curtis, College Park; What Class of Applicants Should Not Be Admitted Into Life Insurance Companies, Dr. W. S. Kendrick, Atlanta; Exhibition of Animals After Removal of Cerebellum and Remarks on Function of Cerebellum, Dr. Stewart R. Roberts, Atlanta; Surgery of the Upper Abdomen in the Mayo Clinic, Dr. E. G. Jones, Atlanta; Simplification of the Anatomy of the Peritoneum, Dr. W. B. Armstrong, Atlanta; Should the Appendix be Removed in all Cases Where the Abdomen is Opened for Other Causes, Dr. L. C. Fischer, Atlanta; Appendicitis in Childhood, Dr. Marion McH. Hull, Atlanta; Exhibition of the Heart Valves, Dr. Claude Smith, Atlanta; Erection From Dry Urethritis, Dr. James L. Long, Monroe. The following officers were elected for the ensuing year: President, Dr. T. R. Whitley, Douglasville; vice-president, Dr. E. G. Jones, Atlanta; secretary and treasurer, Dr. J. Ross Simpson, Atlanta.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending July 20, 1907:

	July 20. Cases.	Deaths.	July 13. Cases.	Deaths.
Typhoid fever.....	54	9	49	12
Shallitox.....	14	0	14	0
Varicella.....	14	0	37	0
Measles.....	414	24	514	29
Scarlet fever.....	233	14	271	15
Whooping cough.....	32	6	35	5
Diphtheria.....	304	29	361	31
Tuberculosis pulmonalis.....	308	152	413	170
Cerebrospinal meningitis.....	13	12	16	9
Totals.....	1,400	246	1,699	271

The Mortality of Baltimore.—The decrease in the number of typhoid fever cases from last year in Baltimore continues. The report of the Health Department for the week ending July 20th showed 13 cases of typhoid, against 30 cases for the same period last year. The report shows a total of 228 deaths, as compared with 246 the corresponding week of last year, 281 in 1905, and 250 in 1904. The annual death rate in a thousand of population was: Whole, 19.71; white, 17.73; colored, 32.36. The principal causes of death were: Typhoid fever, 3; consumption, 24; cancer, 8; apoplexy, 7; organic heart diseases, 8; bronchitis, 2; pneumonia, 6; diarrhoea (under two years of age), 57; Bright's disease, 13; congenital debility, 18; old age, 3; suicides, 1; homicides, 2; accidents, etc., 17. The nativity of the decedents was: United States, whites, 138; foreign, 25; colored, 50; unknown, 6. Nine deaths occurred at Bayview Asylum, 30 in hospitals, and 15 in other institutions. The following number of cases of infectious diseases was reported, as compared with the corresponding week of last

	1906.	1907.
Diphtheria.....	14	1
Scarlet fever.....	11	3
Typhoid fever.....	30	13
Measles.....	5	15
Whooping cough.....	0	3
W. pneumonia.....	4	2
C. pneumonia.....	2	1
Tuberculosis.....	21	5

The Mortality of New Jersey.—According to the official report of the New Jersey State Bureau of Vital Statistics the total number of certificates of deaths received by the

board for the month ending June 15, 1907, was 2,705, a decrease from the previous month of 283, and a decrease from the average of the preceding eleven months (2,928) of 223. The deaths under one year of age numbered 434; over one year and under five years of age, 225; sixty years of age and over, 779. Pulmonary tuberculosis caused 345 deaths, the number for the preceding month having been 359, and the average for the past eleven months being 303. Diseases of the nervous system (360) show a considerable decrease as a cause of death compared with the average (385) for the period mentioned. Pneumonia (264) shows a slight increase over the average (255). The greatest mortality from this disease during the past year occurred in the months of February, March, and April, the average of these months having been 435. During the months of August, September, October, and November, the average number of deaths recorded from pneumonia was 116, showing the very marked influence upon the prevalence and fatality of this affection which is exerted by seasonal conditions. The following table shows the number of certificates of death received in the State Bureau of Vital Statistics during the month ending June 15, 1907, and also the number of deaths reported from certain selected diseases compared with the average for the previous eleven months:

	June, 1907	Average for eleven previous months.
Causes of death.		
Typhoid fever.....	30	35
Measles.....	22	10
Scarlet fever.....	24	14
Whooping cough.....	13	29
Diphtheria and croup.....	60	55
Malaria fever.....	3	3
Tuberculosis of lungs.....	345	303
Tuberculosis of other organs.....	6	47
Cancer.....	114	115
Cerebrospinal meningitis.....	30	25
Diseases of nervous system.....	360	385
Diseases of circulatory system.....	325	294
Diseases of respiratory system.....		
Pneumonia and bronchitis (excepted).....	173	176
Pneumonia.....	264	255
Infantile diarrhoea.....	41	167
Diseases of digestive system (infantile diarrhoea excepted).....	161	189
Bright's disease.....	204	185
Suicide.....	37	27
All other causes.....	433	582

Statement of Mortality of Chicago for the Week Ending July 13, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates compiled on United States Census Bureau's figures of midyear populations—2,107,620 for 1907, 2,049,185 for 1906:

	July 13, 1907.	July 6, 1907.	July 14, 1906.
Total deaths, all causes.....	183	136	408
Annual death rate in 1,000.....	11.95	11.28	12.67
Sexes.....			
Males.....	278	243	298
Females.....	205	203	200
Ages.....			
Under 1 year of age.....	92	99	123
Between 1 and 5 years of age.....	49	50	44
Between 5 and 20 years of age.....	40	38	39
Between 20 and 60 years of age.....	221	181	201
Over 60 years of age.....	81	68	91
Important causes.....			
Apoplexy.....	9	9	11
Bright's disease.....	32	28	36
Bronchitis.....	4	11	10
Consumption.....	52	53	58
Cancer.....	24	21	18
Convulsions.....	8	4	9
Diphtheria.....	5	5	8
Heart disease.....	36	42	40
Influenza.....	0	1	0
Intestinal diseases, acute.....	30	27	68
Measles.....	4	7	1
Nervous diseases.....	21	17	26
Pneumonia.....	57	54	33
Scarlet fever.....	13	10	5
Suicide.....	8	1	0
Sunstroke.....	1	1	0
Typhoid fever.....	2	0	0
Typhoid fever.....	5	5	31
Whooping cough.....	31	30	2
All other causes.....	128	123	132

For the first thirteen days of the current month the 939 deaths from all causes reported to the Bureau of Vital Statistics represent an annual rate of only 11.61 in every thousand of a population estimated by the United States Census Bureau at 2,107,620, which, if maintained during the remainder of the month, will make July, 1907, the most healthful month on record.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

July 13, 1907.

1. The Science and Art of Medicine in Some of Their Aspects, By FREDERICK C. SHATTUCK.
2. Medical Teaching at Harvard and the Opportunity it Offers the Young Graduate for Medical Training, By HENRY A. CHRISTIAN.
3. The Medical and Surgical Aspects of Perforating Typhoid Ulcers, By RICHARD H. HARTE.
4. Perforating Typhoid Ulcers, By FREDERICK C. SHATTUCK.
5. Mistaken Diagnosis in Cases of Typhoid Perforation, By C. L. SCUDDER.
6. Perforating Typhoid Ulcers, By FARRAR COBB.
7. The So Called "Ochsner Muscle" of the Duodenum, By WALTER M. BOOTHBY.

3, 4. **The Medical Aspects of Perforating Typhoid Ulcers.**—Harte remarks that perforation of the bowel in typhoid fever is a much more common condition than is generally supposed, being responsible for about one death in every three cases. The most common time of perforation is between the fourteenth and twenty-first days of the disease and occurs in all grades of severity, from the ambulatory to the hæmorrhagic type, and does not seem to be any more common in the hæmorrhagic than in the milder types of the disease. The ileum is the most frequent site of perforation, in the majority of instances the perforation occurring within twelve to eighteen inches of the ileocecal valve. The next most frequent sites of perforation are the appendix and the cæcum. Pain of some kind is present in 75 per cent. of all cases. In 50 per cent. of the cases the onset is sudden and severe and of increasing intensity, localizing itself to a special zone. In 20 per cent. of the cases the pain is of slow onset, not localized, with general distribution. In some cases no pain is complained of and the usual symptoms of perforation are absent. Tenderness and rigidity are present to a certain extent in all cases. When perforation is suspected the temperature should be taken every hour, as it is only in this way that definite conclusions can be drawn with regard to any marked variation in this symptom. Distention is a late symptom of perforation, usually not making its appearance until some hours after the perforation has occurred. The obliteration of the liver dullness is not regarded as a reliable sign of perforation. The study of the leucocytes is of little aid, although occasionally their increase may make us more positive of the diagnosis. The differential count is of no practical value. Nature may occasionally close one or more perforations, but the only rational procedure where perforation occurs is surgical intervention. No case is so desperate for an attempt, as it has not infrequently been noted that the mild cases succumb and the more desperate ones recover.—Professor Shattuck states that perforation is the gravest complication of typhoid fever. Fortunately it is rare. Of 2,047 cases of typhoid treated in the Massachusetts General Hospital in the past ten years, it has been known to have occurred in 30, or in 1.4 per cent. of the cases. It is most liable to occur in the third week, but may occur at any time after the middle of the second. It may occur in the first or second relapse, the primary attack or attacks having run a favorable course. There is no relation between the severity of the case and the liability to perforation. The duties of the physician with regard to perforation in typhoid are four-fold: (1) He must know the symptoms suggestive of its occurrence; (2) he must be on the watch for them; (3) he must see that the nurse or attendant knows and is alive to them, in order that he be sent for at the earliest threatening moment; (4) he must not delay calling in a surgical colleague. Sudden abdominal pain, accompanied

or soon followed by spasm, and later by tenderness, probably, but not necessarily, localized, coming on at or after the middle of the second week, are symptoms not to be lightly regarded. Vomiting may or may not occur. Rapidly increasing leucocytosis is highly confirmatory, but we must remember that operation has proved the existence of perforation and peritonitis without increase in the white count. Here, as in other diagnostic problems, it is the association of symptoms and signs—the whole picture—which counts rather than any one symptom or sign. Rapidly increasing distention in connection with the above indications suggests that peritonitis is general.

7. **The So-called "Ochsner Muscle" of the Duodenum.**—Boothby has examined twenty-five intestines. In none could he demonstrate macroscopically the existence of any sphincter muscle, by palpation thickenings of the wall could be demonstrated, but in every instance this thickening could be accounted for by irregularities of the mucous membrane. He therefore concludes that the musculature of the duodenum (especially the circular layer) presents certain irregularities in its thickness; these irregularities are slight as compared with the average thickness of the muscle, and, compared to a true sphincter, the pylorus, are insignificant. In short, he found no grouping of circular fibres in the duodenum which could be considered an anatomical sphincter muscle, though undoubtedly there are moderate variations in the thickness.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 20, 1907.

1. Nitrous Oxid as an Anæsthetic in Major Surgery. Chairman's Address Before the Section on Surgery and Anatomy at the Fifty-eighth Annual Session of the American Medical Association, June, 1907, By ARTHUR DEAN BEVAN.
2. Local Anæsthesia in General Surgery, By JAMES F. MITCHELL.
3. Prepared and Predigested Foods, By GRAHAM LUSK.
4. Homologous Bacteria as a Vaccine in Tuberculosis. Preliminary Report, By ALBERT H. ALLEN.
5. The Cause of Infantile Atrophy Deduced from a Study of Secretin in Normal and Atrophic Infants, By A. H. WENTWORTH.
6. Yeast Cells as a Probable Cause of Ulcerative Keratitis. Preliminary Report, By GEORGE F. KEIPER and SEVERANCE BURRAGE.
7. Ocular Neurasthenia, By HIRAM WOODS.
8. A Protest Against the Employment of Paraffin Injections Near the Eyes or the Use of Solid Paraffin in the Capsule of Tenon After Enucleation, with Report of Two Cases of Injury, By A. E. DAVIS.
9. Premiums Paid to Experience, By FREDERICK T. ROGERS and GEORGE W. VAN BENSO-HOTEN.
10. Pimplicis, By JOSEPH ZEISLER.
11. The Salicylates in the Treatment of Lichen Planus. Some Unusual Forms of This Affection, By M. B. HARTZELL.
12. A Case of Benign Melanosis, By J. CLARK STEWART.
13. Personal Surgical Errors, By ALGERNON MACLAREN.
14. Modern Views on Physiology and Pathology of Accommodation, By Professor CARL HESS.
15. Experimental Pathology and Surgical Treatment of Erysipelas, By ERNEST LAPLACE.
16. The Sudden Appearance of Aphasia in the Course of Tabes Dorsalis and Arterial Sclerosis, By C. F. HOOVER.
17. The Probable Demonstration of Thyroid Secretion in the Blood in Pseudothymic Gland, By JOHN HENRI.
18. Myopia Associated with Opacities of the Cornea, By WALTER L. PYLE.

7. **Ocular Neurasthenia.**—Woods, of Baltimore, says that fatigue symptoms, unrelieved by refraction correction, and often associated with the so called hysterical accommodation, may be due to special susceptibility of the eyes to outside irritation, either physical or psychical. These cases may be classified as ocular neurasthenes, though they seldom, at least in the stage when

they come under the oculist's care, present symptoms of general neurasthenia. They occur usually among industrious people. It is easy to dismiss them with a diagnosis of hysteria, but more thorough search for cause or subsequent development reveals an underlying condition capable of producing an objective ocular lesion, but at the time producing symptoms which, for want of a better term, must be termed "irritative." Among these causes are unsuspected syphilis, intestinal disorders, hæmic and nutritive troubles, pelvic anomalies, and functional and psychical influences. The symptoms which should lead the examiner to look for such remote conditions are absence of ocular explanation for the symptoms or persistence of the latter, after ocular abnormalities have been corrected; hysterical accommodation, varying refractive state. There are certain ocular troubles which usually cause little or no annoyance, but which may direct a neurasthenic tendency eyeward. Relief of these somewhat lessens susceptibility, but only discovery of the underlying cause, with its medicinal or surgical treatment, cures. The aid of workers in other medical fields is often essential to correct diagnosis. Diagnosis of ocular hysteria, with its unsatisfactory treatment, is justifiable only after careful search for remote causes has given negative results.

8. A Protest Against the Employment of Paraffin Injections Near the Eyes.—A. E. Davis, of New York, reports two cases, the nature of the accident in the first case is similar in character to that already reported in a number of instances; that is, escape of paraffin into the tissues of the upper lid as a result of a paraffin injection at the root of the nose. The accident in the other case is unique. In this case, a solid ball of paraffin had been placed within Tenon's capsule after enucleation for injury of the eyeball; in other words, the Frost or modified Mules operation was performed. The result was that a solid mass of paraffin escaped from the posterior part of Tenon's capsule into the apex of the orbit, pressed on the optic nerve, and caused marked sympathetic irritation in the fellow eye. As a result of paraffin injections to correct nasal deformities, instances of embolism of the central retinal arteries or thrombosis of the ophthalmic vein with loss of vision have been reported. Taking into consideration the fact that sight may be destroyed, and that life itself may be sacrificed from the injection of paraffin into the tissues to correct slight deformities, or to make the patient more comfortable, it seemed to the author worth while to call attention again to such dangers. Certainly all mishaps from the use of paraffin injections should be reported that the technique may be improved or the method abandoned if it proves unsatisfactory or too dangerous.

11. The Salicylates in the Treatment of Lichen Planus.—Hartzell states that perhaps the most generally useful internal remedy in the treatment of lichen planus is arsenic, which, when associated with appropriate local applications, in most cases produces improvement within a reasonable time and eventually a cure. In a not inconsiderable minority, however, arsenic fails to exert a favorable influence on the disease, or may even aggravate it and materially increase the patient's discomfort. In these cases he has recently employed with more or less success the various salicylates. He reports three such cases.

15. Experimental Pathology and Surgical Treatment of Erysipelas.—Laplace observes that erysipelas varies in its form of attack according to the violence of the streptococcus at the time of the invasion. The receptivity of the patient is also an important factor. Acid media of themselves diminish the violence of the streptococcus. Simple alkaline medium tends to increase the virulence. Our antiseptics become more potent if the solution is acidulated. Direct contact of antiseptic

solution with the streptococci in the lymphatics can be obtained by gentle scarifications of the reddened area, and that the course of the organisms can be stopped if the scarifications are made for an inch or two beyond the diseased surface, allowing the solution to arrest and destroy the organisms on their inward path.

17. The Probable Demonstration of Thyroid Secretion in the Blood in Exophthalmic Goitre.—Hunt cites his results of previous experiments which demonstrated marked resistance of mice to acetronitrile when fed on small amounts of thyroid. Further studies have shown that this is an exceedingly delicate test for thyroid. It seemed probable that this test would throw light on the question whether there is an excess of thyroid secretion in the blood in exophthalmic goitre; at present the theory that there is a condition of hyperthyroidism in this disease rests entirely on clinical evidence, and this evidence is considered insufficient by many. The author reports such a case.

MEDICAL RECORD.

July 20, 1907.

1. The Clinical Course of Gastroptosis and Its Treatment, By GEORGE ROE LOCKWOOD.
2. On Recent Investigations of the Action of Radium on Plants and Animals, By LOUIS HUSSAKOF.
3. Sulphur Waters in the Treatment of Syphilis, By J. DARDEL.
4. Early Diagnosis and Home Treatment of Pulmonary Tuberculosis, By EMMET KEATING.
5. Studies of Juvenile Criminals, By ARTHUR MACDONALD.
6. Treatment of Malaria in the Vicinity of New York City, By WILLIAM STUMP.

1. The Clinical Course of Gastroptosis and Its Treatment.—See Therapeutical Notes, page 171.

3. Sulphur Waters in the Treatment of Syphilis.—Dardel says that the question at what period of the disease a patient will derive most benefit from a sulphur cure, is no longer discussed nowadays, for it is generally admitted that the cure is indicated at any period, since nutrition suffers and a general stimulation of the system is required from the very beginning of the malady. We must not forget, however, that patients suffering from arteriosclerosis, or from liver trouble, or highly nervous people, should not undergo an active sulphur cure. A sulphur cure is indicated whenever a patient stands mercury badly, or when he can tolerate only a very small and insufficient dose, or, finally, whenever, in spite of the mercurial treatment, a therapeutical action is not obtained. The cure is also indicated in the serious forms of syphilis, especially in those forms which are severe at the very outset, also when syphilis supervenes in worn out and enfeebled patients, and, in the obstinate forms which resist treatment. Certain particular cases require a rapid and energetic treatment, with injections of large doses of soluble salts, as they are applied at sulphur spas. These are: Lesions of the nervous system, due to syphilis; ulcerative lesions which threaten to destroy an organ or even a whole region; in a word, all cases in which a rapid action is necessary in order to prevent destruction or disorganization of tissue and in which time lost cannot be regained. A sulphur water treatment has not the pretension of curing syphilis, but it forms the best auxiliary treatment which may be combined with a course of mercury, as it helps very greatly the absorption, action, and elimination of the latter.

5. Studies of Juvenile Criminals.—MacDonald, of Washington, reports three studies on juvenile criminals. He tabulates antecedents of forty-five criminals, and finds that the most frequent hereditary taints are: (1) Nervous diseases, 95 per cent.; (2) lung diseases, 64 per cent.; (3) alcoholism, 62 per cent.; (4) insanity, 47 per cent.; (5) epilepsy, 32 per cent.; (6) mental backwardness, 20 per cent. The second study has been

made on two hundred children from six to twelve years of age in a reformatory. Of these children 134 were abandoned children, 13 had been in the poorhouse, and the majority of these had committed crime before, 44 had been vagabonds, and 19 beggars, 146 thieves, and 33 embezzlers. The social surroundings of those children were substantially the same, coming from the lower classes and being in the same institution, having the same school advantages, and being born in the same city. In 10 cases the father was insane, in 14 the mother; epilepsy was found in the father in 11 instances, in the mother 15 times, and in sisters and brothers 7 times. Other nervous diseases were found in the father in 2 cases, and in the mother in 24 cases. In 78 cases the father was an alcoholic, in 5 the mother, and in 2 both parents; 22½ per cent. (45) were illegitimate, about 10 per cent. more than the general average for the city. It is noteworthy that so few of the parents were criminals; in 8 cases the father and in 7 the mother had been convicted of crime. In 24 children rickets was present, in 9 hereditary syphilis, in 12 scrofula, in 4 hydrocephalus, in 49 there were found injuries or wounds on the head, 15 of which must have affected the mental condition. In 25 cases there were chronic diseases. In at least 68 children there was mental weakness, of these 35 were morally deficient, 7 were hysterical, 5 had paranoia. The third study is the history of the criminal-born child. The author gives the following principal stigmata of the criminal type: Plagiocephaly, megalcephaly, microcephaly, prognathism, irregularity of teeth, ears outstanding, hypertrophy of genital organs, asymmetry of face, inequality of body, especially the eyes, ears, hands, and feet. In many cases bad secret habits are practised from the earliest periods. It should be noted that no individual would have all those stigmata, yet would have some of them in a striking way.

BRITISH MEDICAL JOURNAL.

July 6, 1907.

1. Sudden Cerebral Lesions; Their Diagnosis and Immediate Treatment, By Sir W. R. GOWERS.
2. Laennec and the Evolution of the Stethoscope, By C. T. WILLIAMS.
3. Where Physician and Surgeon Meet, By R. KIRKLAND.
4. Notes of an Experience of Stovain as a Spinal Anæsthetic in One Hundred Cases, By J. H. PRINGLE.
5. The Care of the Patient During Serious Abdominal Operations, By H. B. GARDNER.
6. Sterility Among X Ray Workers, By A. C. JORDAN.
7. Spontaneous Aneurysm of the Dorsalis Pedis Artery, By A. CUFF.
8. Upon the Bacteriology of the Summer Diarrhoea of Infants. (Report CII of the Science Committee of the British Medical Association), By H. DE R. MORGAN.

1. **Sudden Cerebral Lesions.**—Gowers states that sudden cerebral lesions are among the most perplexing problems met with by the practitioner. The nature of the lesion must be discerned at once in order that treatment may be wise and prompt. After a few hours the chief part of the opportunity is over. The most common evidence of a sudden lesion of the brain is hemiplegia, very rarely diplegia affecting both sides. An organic lesion of the brain of sudden onset, coming on in a few minutes or in a few hours is a vascular lesion. Moreover, in a vast majority of cases, it is an arterial lesion; it is due to the rupture of an artery causing hæmorrhage, or to the closure of an artery causing necrotic softening. The first question in a case of sudden hemiplegia is the age of the patient. Has he reached the degenerative period of life? This usually begins at fifty years in normal individuals, but may begin earlier if there is an inherited tendency to early arterial degeneration, or Bright's disease. In the absence of these last two influences, one of two lesions is

probable—hæmorrhage from the rupture of a minute artery which has dilated to a "miliary aneurysm," or necrotic softening from thrombosis in a larger artery the seat of atheroma. High tension of the pulse and a strongly acting hypertrophied heart are the conditions which point to hæmorrhage and a soft feeble pulse with a weak dilated heart are the indications of thrombosis. Distinct degeneration of the brachial arteries is in favor of atheroma, but tortuosity of the temporal arteries means little, as it is often due to the mechanical influence of hard hats. If the heart presents a valvular murmur, the diagnosis from embolism arises. Albuminuria, as indicating organic renal disease, is in favor of hæmorrhage; the same is true of a high degree of albuminuric retinitis, especially if acute in course and hæmorrhagic. Preceding cerebral attacks, if slight, and especially if repeated, are strongly in favor of thrombosis and softening. Warning symptoms during the few days before the attack are an important indication of thrombosis. They consist of tingling in the parts afterwards paralyzed, transient weakness, brief loss of speech, and giddiness. They are probably due to impaired circulation in the narrowed vessel. In hæmorrhage they are absent. In thrombosis a condition of fatigue, exhaustion or depression is often to be traced just before the attack. The onset of the symptoms in thrombosis is much more frequently during sleep than in the case of hæmorrhage. Loss of consciousness occurs in either lesion, but in hæmorrhage more readily than in softening, especially if the severity of the paralysis is considered. It is probably first due to irritative inhibition of the cortex, which is maintained by increased intracranial pressure. In thrombotic softening loss of consciousness depends chiefly on the size and importance of the artery, and the suddenness of the closure. Convulsions at the outset are more frequent in thrombosis; the same is true of true aphasia, especially if enduring. Hemianopia suggests softening. Early signs of considerable irritation are in favor of hæmorrhage. "Ingravescent," the steady increase of coma, signifies hæmorrhage; the same is true of a rapid rise of temperature. As regards treatment, an active purge should not be given in thrombosis where a clot has formed, but it should in hæmorrhage, so as to lower the blood pressure. In thrombosis citric acid may be given in the hope of lowering the coagulability of the blood. In hæmorrhage calcium salts should be given to produce the opposite effect—i. e., increased coagulation of the blood. Physical tranquillity is, of course, imperative in every case of either kind. In the first part of adult life, most sudden cerebral lesions are due to arterial closure, caused by embolism or by thrombosis, the result of syphilitic disease of the wall of a cerebral artery. In embolism there are no related preceding symptoms. With rare exceptions, the source of an embolus is a diseased valve on the left side of the heart. The presence of an organic mitral murmur justifies the diagnosis. Valvular disease is one of the chief causes of intracranial aneurysm, by embolic transplantation of inflammation. The treatment is that of the heart and the general state. In making a diagnosis of thrombosis due to syphilitic arterial disease, the absence of positive evidence has little negative weight. Headache a week or more before the onset is a valuable premonitory symptom. No features of the onset are characteristic enough to be of much weight in the diagnosis. Needless to say the iodides should be promptly given—twelve or fifteen grains, every three hours, for the first two days, after which the dose may be reduced. Larger doses are unwise, as they may reduce the coagulability of the blood. The hæmiplegia that occurs after acute disease is generally thrombosis from exhaustion, but sometimes embolism. A sudden lesion sometimes occurs leaving

lasting hemiplegia, occasionally occurs in young adults, chiefly girls who are in feeble health. Spontaneous thrombosis is the only conceivable cause, due probably to some congenital anomaly in the arterial distribution.

LANCET

July 6, 1907.

1. Pelvic Inflammations in the Female (*Ingleby Lectures, II*), By T. WILSON.
2. Experimental Researches in Specific Therapeutics (*Harben Lectures, II*), By P. EHRLICH.
3. Two Cases of Intermittent Hydronephrosis Treated by Operation, By W. W. CHEYNE.
4. An Improved Preparation for Intramuscular Injections of Insoluble Salts of Mercury in the Treatment of Syphilis, By F. J. LAMBKIN.
5. Separation of the Acetabular Epiphysis of the Femur; Its Relation to Adolescent Coxa Vara, By P. W. G. SARGENT and H. A. KISCH.
6. The Opsonic Index and Agglutination in Cerebrospinal Meningitis, By A. TAYLOR.
7. An Investigation of Some of the More Unusual Forms of Acute Conjunctivitis, By A. C. HUDSON and P. N. PANTON.
8. Important Epochs in the History of the Old School of Medicine of Paris, By H. MACNAUGHTON-JONES.

4. **Injection of Mercury in Syphilis.**—Lambkin, as a result of his observations, holds that the substitution of palmitin, which is a soluble constituent of the organism, as a vehicle for the suspension of mercury in place of the insoluble substances hitherto in use, and the success which has followed the use of camphorated creosote as an analgesic, begin a new era in the treatment of syphilis by intramuscular injections of unsoluble salts of mercury; for, in the first instance, one great objection to the treatment—i. e., the introduction of insoluble foreign bodies into the circulation—is done away with, and in the second pain has been practically abolished, even in the case of calomel. Palmitin is a neutral fat derived from palm oil, having the same chemical composition as the palmitin of the human system. It is an ether glyceride of palmitic acid, it is therefore easily saponified in the fluids of the organism, being converted into a soluble alkaline palmitate and glycerin; thus it enters into the circulation not as a foreign body like all other substances hitherto used as vehicles. It is nonirritant and nontoxic; is not so easily oxidized as the other components of human fat; and its melting point can be raised and lowered with the greatest facility. Pure palmitin, which is rather difficult to obtain, is a snowy white flocculent powder. The following is the formula for the injection "cream" used by the writer: Mercury, 10 grammes (or calomel, 5 grammes); equal parts of absolute creosote and camphoric acid, 20 c.c.; palmitin basis to 100 c.c. Ten minims of the above contains one grain of mercury, or one half grain of calomel.

6. **The Opsonic Index in Cerebrospinal Meningitis.**—Taylor has studied the opsonic index and the agglutinative powers of the blood in eight cases of cerebrospinal meningitis. She states her conclusions as answers to certain questions, as follows: 1. Is a high opsonic index pathognomonic of the disease? It appears possible from these eight cases to obtain a definite opsonic index in cerebrospinal meningitis, either working with an old or young culture. A high index was present in all the cases; this appears to be due to the characteristic feature that normal serum has scarcely any opsonic power against a young culture of the meningococcus. It is therefore probable that a high opsonic index is pathognomonic of the disease. 2. Is a high opsonic index diagnostic in all forms of meningococcal meningitis? A high index is not always obtained if different strains of organisms be used. So that a normal index does not negative the presence of the disease. 3. Will it be possible by the difference in the opsonic index or agglutination associated with it

to distinguish between the various forms of meningococci? The author was able thus to differentiate three strains. It seems probable that in order to obtain the fullest effects from a vaccine or serum treatment that the strain of organism employed in its preparation is of great importance.

7. **Acute Conjunctivitis.**—Hudson and Pantan have studied the bacteriology of various forms of acute conjunctivitis, and arrive at the following conclusions: Both staphylococcus albus and aureus, as well as streptococci, can excite acute conjunctival inflammation. When these organisms are the only pathogenic bacteria present, they should be considered the causative agents. They give rise to a considerable percentage of all cases, and the severity of the type of inflammation varies on the whole directly with the generally recognized pathogenicity of the members of the group, the most severe cases being associated with the streptococci and the least severe with the white staphylococci. These bacteria, when associated with other pathogenic organisms, tend to increase the severity of the conjunctival inflammation. The various types of conjunctivitis produced are not infrequently suggestive of their aetiology. Both staphylococcal and streptococcal infections are apt to be associated with the formation of membrane. Conjunctivitis due to the diphtheria bacillus is uncommon and may be very difficult to diagnose clinically. Diphtheroid bacilli are present in a large proportion of the cases without influencing the nature of the processes. There is no evidence that they ever become transformed into genuine diphtheria bacilli. Sporadic cases of pneumococcal conjunctivitis must be extremely rare, the authors not having met with a single instance. The organisms of the *Bacillus coli* group also are met with very rarely as causes of acute conjunctivitis.

LA PR SSE MEDICALE.

June 20, 1907.

1. Diagnosis of Leucokeratoses of the Mouth, By MARCEL FERRAND.
2. Practical Conclusions in Regard to the Question of the Duration of the Confinement to Bed after Labor, By L. BOUCHACOURT.
3. The Protection of the Neighboring Skin during an Operation, By F. JAYLE.
4. Technique of Colopexy in Prolapse of the Rectum, By M. GUIBE.
5. Tuberculosis, Tuberculin, and Antituberculous Serum, By R. ROMME.

1. **Diagnosis of Leucokeratoses of the Mouth.**—Ferrand prefers the term leucokeratosis to that of leucoplasia to designate white patches on the mucous membrane of the mouth. He describes these with their various causes, of which syphilis is perhaps the most important. They are very chronic, may progress slowly, may become papillomatous and fissured, and may become transformed into epithelioma. The essential point of the greatest practical importance is to recognize the moment of this transformation and to detect at its beginning the atypical epithelial new formation.

3. **Protection of the Skin About the Site of an Operation.**—Jayle recommends that a compress be laid over the skin about the wound as soon as it has been made and attached by forceps to its margins, and then a large moist compress be laid over both instruments and compress up to the edges of the wound.

4. **Technique of Colopexy.**—Guibe describes the Rotter-Lenormant operation, and gives briefly the three steps, the incision through the wall, the reduction of the prolapse, and the fixation of the colon, illustrated by three explanatory figures.

BERLINER KLINISCHE WOCHENSCHRIFT.

June 17, 1907.

1. Ernst von Bergmann, By M. BORCHARDT.
2. Concerning Pernicious Anæmia, By A. FLEHN.

3. Advances in the Study of Bacteria. By O. BAIL.
4. The Constitutional Form of Lipomatosis. By E. H. KISCH.
5. Concerning the Production of Heat in Fever. By E. ARONSOHN.

2. **Pernicious Anæmia.**—Plehn commences in this number an article based on his personal observations in private practice concerning this disease. Aside from the rare cases of latent leucæmia in which the condition of the blood is that of pernicious anæmia, he finds that two groups of diseases are included under the term pernicious anæmia. The first he denominated pernicious anæmia in the narrow sense. Of this he has seen twenty-five cases, the majority in patients between the ages of forty-five and fifty-five. Only four were under thirty, two were over seventy, two over sixty. When these patients came under observation they usually complained of weakness and obscure troubles frequently referred to the digestive organs. One came with the diagnosis "spinal disease," another had serious heart trouble, a third had albuminuria and enlargement of the heart, and one woman had already undergone laparotomy for a supposed carcinoma. In the early stages the almost regular symptoms of this form of anæmia are a general paleness of the skin and mucous membranes, with frequently only a moderate degree of bodily weakness and often no emaciation, retinal hæmorrhages, achylia, and albuminuria, with or without other symptoms of nephritis. Where retinal hæmorrhages are demonstrated, together with absence of hydrochloric acid and lactic acid from the secretion of the stomach, the diagnosis may be said to be as good as determined.

3. **Advances in the Study of Bacteria.**—Bail says that the theory of bacteria aggressivity is that every microorganism which remains and increases in an animal body and thus infects it, must have the ability to impair the protective power and to hold it at a distance. This power is known as aggressivity.

5. **The Production of Heat in Fever.**—Aronsohn asserts that the heat in fever is kindled in the muscles through the calorific or trophic nerves which come from the heat centre. It flames out while the proteolytic ferments stream out from the muscle plasma, and the living strength of the biogen is transformed into heat.

RIFORMA MEDICA.

June 8, 1907.

1. Digalen and Leucocytosis. By G. C. MIRANO.
2. Central Myelitis with Symptoms of Syringomyelia. By L. ANGELOTTI.
3. Secretin and Enterckynase, the Secreting Power of the Pancreatic Cells and the Digestive Power of the Proteolytic Ferment of the Pancreatic Juice of Dogs in Acute, Subacute, and Chronic Poisoning with Mercuric Chloride and in Chronic Lead Poisoning. By VINCENZO GALEATA.
4. A Case of Syphilitic Psychosis. By DOMENICO CAPPUCIO.

1. **Leucocytosis, After the Use of Digitoxine.**—Mirano studied the effect of the new preparation of amorphous digitoxine (digalen) with reference to the increase in leucocytes in the blood of patients to whom the remedy was administered hypodermically. He also compared the results with the effect of the internal use of the ordinary infusion of digitalis leaves. From a study of twelve cases he concludes that there is a marked leucocytosis after the use of digalen. It should be noted that the vehicle in which the digitoxine is dissolved in this preparation is a 25 per cent. solution of glycine and water. It may be that this solution in itself may produce leucocytosis when injected hypodermically. To make sure, a 25 per cent. solution of glycine was injected into the same patients, without, however, producing any leucocytosis. The increase in leucocytes regularly occurred from seven to eight hours

after the injection of digalen, and the number reached within twenty-four hours double the original number of leucocytes counted. This occurs both in patients with heart disease and with pneumonia. The leucocytosis recurs every time a dose of digalen is administered. Other authors found leucocytosis after injecting an infusion of digitalis into animals. Very probably the action of digalen upon the blood is due to the direct effect of digitoxine, which seems to attract the leucocytes or else to stimulate the production of leucocytes in the bone marrow. Inasmuch as the remedy in question regulates the heart and increases the functional efficiency of the kidneys, its property of producing leucocytosis is a valuable addition to its qualities as a remedy in pneumonia.

4. **A Case of Psychosis Due to Syphilis.**—Cappuccio reports the case of a man, aged forty-five, who developed symptoms of mental disease three months after the appearance of the secondary stage of syphilis. He became distraught, taciturn, listless, but had moments of intense anxiety. He remained for hours immovable, in a state of inertia and habitude. Every evening his listlessness gave place to a great oppression and anxiety, while his sleepless nights were accompanied by strange and frightful visions and a state of delirium. He avoided his family and his friends, and would lie for hours upon the floor in a perfectly apathetic state. This condition lasted for a month, during which time the patient became greatly emaciated, grew pale and feverish, but under antisyphilitic treatment his condition improved greatly, his appetite increased, and his mental state rapidly returned to normal. The author attributes the origin of the psychosis to the toxic effects of the syphilitic infection. Given an appropriate soil, syphilis can undoubtedly give rise to insanity.

ANNALS OF SURGERY.

July, 1907.

1. The Results of Radical Operations for the Cure of Carcinoma of the Breast. By W. S. HALSTED.
2. End Results of Three Hundred and Seventy-six Primary Operations for Carcinoma of the Breast at the Massachusetts General Hospital Between January 1, 1894, and January 1, 1907. By R. B. GREENOUGH, C. C. SIMMONS, and J. D. BARNES.
3. Final Results in One Hundred and Sixty-four Cases of Carcinoma of the Breast Operated Upon During the Past Fourteen Years at the Augustana Hospital. By A. J. CHESNER.
4. End Results Following Operations for Carcinoma of the Breast. By N. JACOBSON.
5. The End Results Following Operations for Carcinoma of the Breast. By J. C. OLIVER.
6. Carcinoma of the Breast: A Study of the Pathological Conditions and Their Relation to the Question of Recurrence. By A. T. CAROT.
7. End Results Following Operations for Carcinoma of the Breast. By L. S. PILCHER.
8. Very Late Recurrences after Operation for Carcinoma of the Breast. By J. RAUSOHOFF.
9. Carcinoma of the Bones Following Carcinoma of the Breast. By H. R. WHARTON.
10. Thymus Gland Treatment of Cancer. By F. GWYER.
11. Peritoneal Abscesses. By P. SYMES.
12. Acute Diffuse Gonorrheal Peritonitis. By C. GOODMAN.
13. Some Practical Deductions from Personal Experience in the Treatment of Appendicitis. By L. A. STANLEY.
14. Metastatic Tumors. By H. P. DE BOERST.

1. **The Results of Radical Operations for the Cure of Carcinoma of the Breast.**—Halsted mentions as important factors affecting the ultimate result, the variety of the cancer, the time elapsed since its appearance, the degree of outlying involvement, the activity of the gland, and the thoroughness of the operation. The prognosis in the early stage of breast cancer is good.

two in three being cured, but it is bad when the axillary glands are demonstrably involved, three in four dying. Before accepting a statement that one has cured a case of breast cancer with neck involvement, incontrovertible proof should be demanded, and the patient should live at least five years after the operation. The supraclavicular operation should be performed (1) in all cases with palpable neck involvement, (2) when the apex of the surgical axilla is involved, (3) and in such cases the neck should be cleaned of its lymphatics as high as the bifurcation of the carotid. Of the author's 232 patients, four died as the result of the operation. There is a definite connection between the original focus and all the outlying deposits of cancer. In making the diagnosis, it is important to note the relative amount of uninvolved mammary gland remaining.

2. **End Results of 376 Primary Operations for Carcinoma of the Breast at the Massachusetts General Hospital.**—Greenough, Simmons, and Barney give the following conclusions: 1. Of 416 primary operations, 376 patients were traced to a conclusive end result at an average period of eight years after operation. 2. Sixty-four were alive and well, and seven died without recurrence more than three years after the operation. 3. There were 320 attempts at radical cure, of which sixty-seven were successful. 4. During the given period fifty-six palliative operations were performed, and fifty-two patients were discharged untreated. 5. If the tumor was ulcerated or adherent to the skin of the chest or the axillary glands enlarged, the results were worse than when these conditions did not exist. 6. No case with enlarged glands above the clavicle and none of cancer of both breasts was cured. 7. Medullary carcinoma was more grave than scirrhous, and adenocarcinoma and colloid were less malignant. 8. The duration of the disease, other than in the individual case, had little influence on prognosis. 9. Extensive operations showed the greatest freedom from recurrence. Incomplete operations on early cases were more favorable than extensive ones on those which were well advanced. 10. Recurrence in the scar occurred in less than half the cases. 11. Of eighty-eight patients which passed the three years' limit without recurrence, seventeen showed later recurrence.

4, 5. **End Results Following Operations for Carcinoma of the Breast.**—Jacobson thinks the factors to be discussed in considering the results of this operation are the duration of the disease and rapidity of its progress, the extent of involvement of the various structures, the character of the carcinoma, and the radical nature of the operation. The duration cannot always be determined. The rapidity of progress varies as there is great difference in the virulence of cases. Acute cases may be scirrhous or medullary. If a case is very virulent a permanent cure is impossible. When the disease appears in different organs of the body and does not return at the primary site of operation, we must conclude that there is marked susceptibility to cancer. Advanced age is not of great importance in determining prognosis. Treatment by caustic applications is seldom beneficial. The removal of recurrent growths may be followed by permanent cure. The author prefers the Halsted operation, and of seventy-one patients thirty-five have survived more than three years. The present operative technique when properly performed will remove the carcinomatous disease and prevent recurrence in the majority of cases.—Oliver finds it very difficult to prepare accurate statistics as to end results. He gives histories of thirty-five cases in which he has carefully followed the patients from the time of operation. Of this number twenty-two patients died from recurrence of the disease within three years, twelve are alive and well from three to ten and a half years after operation, and one has in-

operable recurrence after more than three years. Accurate prognosis cannot be made from the period in which the patient has known of the existence of the disease. Central growths and those in the lower third of the breast give the largest percentage of recoveries. The most potent factor bearing upon prognosis is the character of the growth, a richly cellular growth is much less favorable than a fibrous, hard, slowly growing one. Success in the former variety is not possible unless an operation is undertaken very early. The operative treatment even with extensive removal is far from ideal. The hope of the future lies in better prophylaxis and in better knowledge of the nature of the disease.

Proceedings of Societies

MEDICAL SOCIETY OF NEW JERSEY.

One Hundred and Forty-first Annual Meeting, held in Long Branch, on June 25, 26, and 27, 1907.

The President, Dr. ALEXANDER MARCY, JR., of River-ton, in the Chair.

(Concluded from page 141.)

Biliary Diseases.—The discussion on the papers read was opened by Dr. E. W. HEDGES, of Plainfield, who said that he would criticise Dr. Deaver for saying that he hesitated to take out the gallbladder under certain conditions. If the source of gallstones was nearly always in the gallbladder, why not take it out when you got the chance, and thus rid the system of the possibility of a recurrence? In support of this view, Dr. Hedges quoted Mayer, who had never seen an ill effect follow the loss of this organ.

Dr. Hedges said that the facts that ten per cent. of the autopsies performed show gallstones, and that one elderly woman in every four had gallstones had a direct bearing on the treatment of this condition. If they were common in women, it must be due to the retardation of the bile caused by tight lacing. When a patient complained of persistent nausea and vomiting or of recurrent pains in the epigastric region, one should carefully palpate the region of the gallbladder. Dr. Hedges then gave the diagnostic signs of gallstone disease. In making the diagnosis between an enlarged gallbladder and floating kidney or tumor of the omentum, one should get the finger up under the lower rib on the right side and have the patient take an inspiration. If the tumor ascended and descended with the respiratory movements, the case was one of gallstones.

Dr. VANDER VEER, of Albany, emphasized the matter of the rôle of typhoid fever in the production of gallstones. He had found typhoid bacilli ten or twelve years after the attack of typhoid fever, and always took this factor into consideration. He related a case of typhoid fever in which gallstone colic developed. The patient was operated upon during the acute attack and recovered.

He believed that there were certain cases that the medical man might treat successfully, but that most patients who thought that they were cured by this means were not, and finally had to be operated upon. When there was great distention, he was suspicious of malignant trouble. In such cases he had done gastro-intestinal anastomosis and drained the gallbladder; and this had made the patient comfortable for years. It was in that condition particularly that an exploratory incision was of benefit.

It was very difficult to get patients to give up the belief that olive oil did good in some cases. He believed that the gallbladder should be allowed to drain as long as it would, which would sometimes be as long as eight or ten months or two years. If it went longer, one should

reopen the wound, when a useless sac that could be dissected out would usually be discovered.

Dr. PHILIP MARVEL, of Atlantic City, referred to the intermediate class of cases between the very grave, demanding immediate operation, and the very mild. These he classed as those that were complicated by other diseases previous to the attack and those that were complicated by diseases following the attack of gallstone infection. He asked whether in such cases it would not be better not to operate.

Dr. HARRIS said that the reason he had not mentioned the steeplechase temperature as characteristic of the sepsis of gallstone disease was that the paper was addressed to general practitioners, who usually had no facilities for taking the temperature at short enough intervals to demonstrate this sign. He thought Dr. Deaver had pretty well answered Dr. Marvel's question in reference to operating in cases with complications. He believed that Dr. Musser had given the general practitioner too much encouragement to employ medical treatment.

The President's Address, entitled *The Relations, Responsibilities, and Duties of the Medical Profession*, was devoted to a consideration of the following points: 1. How can we elevate the standing of the medical profession in the community? 2. What is its moral responsibility? 3. What is its duty regarding some of the evils that threaten our body politic? His recommendations were: 1. A four years' course, followed by a year in a hospital before the degree was conferred, a reexamination every five years, and a comprehensive plan of postgraduate work. 2. That the members be well developed morally, with the highest ideals, and characters above reproach. 3. That the profession should use their best efforts to create a sentiment among the people against the use of liquor, and that it should report every case of abortion to the prosecuting attorney.

Toxines and Antitoxines.—A paper thus entitled, by Dr. B. A. WADINGTON, of Salem, was a comprehensive review of the history of our knowledge on the subject of bacteria, together with their toxines and antitoxines, in many different diseases. He especially spoke of diphtheria antitoxine, and concluded that it was fair to assume that, as within the past generation, such marvelous progress had been made in establishing medicine on a scientific basis, ensuing generations would have a still greater inheritance to leave to posterity.

How Far May the General Practitioner Employ and Benefit from Laboratory Methods of Diagnosis?—This was the title of a paper by Dr. ROBERT N. WILLSON, of Philadelphia (to be published).

The PRESIDENT said that, while it was easy for the laboratory worker and the clinician to cooperate in the city, it had not until now seemed feasible in the rural districts. It had now, however, become absolutely necessary for the country doctor to avail himself of these scientific and accurate methods. The country practitioner should take a postgraduate course of study, and should keep in touch with progress by means of current medical literature. Each community should have some one man who was competent to attend to laboratory investigations and willing to devote his time to them. The county medical society should be the centre of graduate medical work and study, as well as for the diffusion of a knowledge of the recent discoveries and latest practical methods of treatment.

Dr. H. A. COSSETT, of Morris Plains, said that it was surprising to find that some of the specimens sent for laboratory examination were received with absolutely no history to go by. Specimens of blood were sent on a piece of glass a quarter of an inch thick, and all dried up. No wonder that laboratories could not get out the reports that they would like to.

THE ERUPTIVE FEVERS.

Scarlet Fever was the subject of a paper by Dr. HIRAM WILLIAMS, of Passaic. Scarlet fever, he said, was one of the most fatal of the diseases of childhood. It was always present in large communities, and was met with in epidemic form when least expected. Season did not seem to influence its presence. Most of the patients being among school children, it was most frequent during the school term. The eruption, the pulse, and the temperature must be considered in making a diagnosis. It was usually easy to diagnosticate it at the first visit. The incubation was rarely longer than four days. The initial symptom was usually vomiting, which must be initial to be of value for diagnostic purposes. Sore throat followed and was always present. The throat trouble began as a pharyngitis and became an amygdalitis. The diagnosis could not be made from the throat condition alone; the eruption was a necessity before a positive diagnosis could be made. It appeared not sooner than twenty-four hours after the onset of the throat trouble, and not later than forty-eight hours after it. The strawberry tongue appeared a day or two later than the eruption. The onset of the disease was usually accompanied with a rise of temperature. In the treatment, divided into prophylactic and remedial, the author considered isolation, light diet, daily ablutions, the avoidance of chill, and gentle diuretics and laxatives. The excretions should be carefully watched, and the nasopharynx should receive attention. One should be on the lookout for a rise of temperature, indicating inflammation in the ear, which should be promptly attended to. Suppuration of the glands disappeared as recovery progressed. The author has used antistreptococcic serum with favorable results.

Measles.—Dr. PHILIP MARVEL, of Atlantic City, said in this paper that the failure to find the microorganisms in this disease did not prove that it is not caused by bacteria. Dr. Marvel described the disease, and gave the points of distinction between it and other eruptive fevers resembling it, with which it sometimes existed simultaneously.

Roetheln.—In this paper Dr. ALEXANDER McALISTER, of Camden, said that the diagnosis of this disease was seldom easy. It resembled morbilli in its skin manifestations and scarlet fever in its throat manifestations. It had no single distinctive feature, apart from the epidemic considered as a unit; yet no exanthem of this class was more distinctive. The rose rash was the most conspicuous symptom. Another help in diagnosis was the presence or absence of the Koplik spots, which probably never appeared in roetheln, but were never absent in morbilli. It was unlike morbilli, also, in the earlier eruption, of more florid hue, not crescentically arranged, and with smaller individual papules; and in the milder catarrhal symptoms. It was unlike scarlatina in not having the rapid pulse, strawberry tongue, marked fever, and grave complications of that disease. The rash was usually the first symptom observed, and was more nearly like that of morbilli than like that of any other exanthem. It persisted longer than that of either morbilli or scarlatina. In early and isolated cases the elevation and decline of temperature coincident with the spreading and fading of the rash pointed to scarlet fever. An extensive eruption without disturbance of temperature or considerable desquamation was not that of scarlet fever. A profuse rose rash without the considerable catarrhal or febrile phenomena was probably not that of morbilli.

Smallpox.—Dr. E. F. WOOD, of Newark, in this paper, after defining smallpox, considered the unvaccinated classes, the conditions of liability or receptivity to the disease, the treatment of contagious diseases, and the diagnosis between smallpox and other infections.

chickenpox, measles, and pustular syphilide. He then referred to mild epidemics of smallpox, and concluded with a plea for the necessity of vaccination.

Dr. HENRY J. F. WALLHAUSER, of Newark, confined his remarks to the diagnosis, which he treated at considerable length. He said that while one might surmise the possible character of the condition during the stage of invasion, one was not justified in giving a positive diagnosis until the eruption was fairly well developed. He then took up the diagnosis between each of the eruptive diseases and every other of them, giving the points in detail.

Dr. E. B. SILVERS, of Rahway, called attention to the use of calcium sulphide in modifying attacks of measles and as a prophylactic in that disease. He also thought that it had a favorable effect in confluent smallpox, shortening the attack and preventing pitting.

Dr. D. E. ENGLISH, of Milburn, said that he believed that the diagnosis in scarlet fever could almost always be made long before desquamation occurred. He did not think that cold baths were beneficial in scarlet fever. He was opposed to putting anything greasy on the skin in that disease to prevent the scales from coming off, as he thought that this also prevented the excretion of poisonous matter through the skin and increased the liability to nephritis. He was also opposed to quarantining cases of measles, especially in the country, as he thought it better for persons to have this disease in childhood. He did not believe in quarantining cases of smallpox, believing that it put the burden on the persons who were paying large sums of money to protect those who would not get vaccinated. A man who would not be vaccinated once in five years ought to be imprisoned.

Dr. FRANK W. PINNEO, of Newark, said that the use of potassium chlorate would prevent many of the complications in middle ear infection from scarlet fever. The best way to employ it was in the form of a throat wash, so made that no harm would ensue should some of it be swallowed.

Dr. MITCHELL said that measles had never been efficiently prevented. One reason was that it was seldom recognized in its early stage, being taken for a cold. The medical inspection of schools promised something in the prophylaxis of this disease. Teachers should be taught the early signs of measles.

Dr. CORBUSIER spoke of his experience with vaccination in the Philippines. He found that many that had been recently vaccinated and had had good sores were susceptible to revaccination. He attributed this to the fact that the arm had not been properly protected, the sore having been the result of infection and not of vaccination. Whenever persons said that they had had a very sore arm, he was suspicious. He was always careful to have the arm well protected from infection. He thought that physicians should see that every child at whose birth they attended was vaccinated very early in life. Smallpox, which was rampant in the Philippine Islands, had been almost obliterated there since the Americans had taken possession.

Dr. BLAKE said that in the discrete type of smallpox and chickenpox there was no distinctive symptom in the one that was not found in the other. Therefore, errors in diagnosis must occur.

Dr. MARVEL said that he had mentioned the prophylactic treatment of measles, but that he did not believe in the treatment of the disease per se. In the majority of cases there was a mixed infection, and the patients frequently already suffered with intercurrent disturbances when seen. Dr. Marvel had not been aware of the existence of any specific treatment for measles. He had listened with interest to the remarks of Dr. Silvers, but he felt that the mere administration of one or another drug in a few cases of any disease with favorable

results would not constitute sufficient evidence that this drug was a specific in that disease. In regard to Dr. English's remarks, Dr. Marvel thought it a rather bold declaration for any physician to make to state that he did not believe in isolation for any contagious disease. We were not dealing with ideal conditions, but with conditions as we found them. The mass of ignorance among the public was the most distressing obstacle to the treatment of diseases. The physician should try to lessen this ignorance among his patients, and should insist upon as great a degree of isolation as possible. It was believed by many clinicians that a number of the eruptive diseases were due to one primary cause, and that the environment of the individual, etc., at the time the disturbance occurred made the difference in the manifestation of the disease. Opposed to this view, however, was the fact that an attack of one eruptive disease did not prevent an attack of some other. The declaration that chloride of calcium was effective in preventing middle ear disease had astonished Dr. Marvel, and he said he should take an interest in investigating its action in this class of cases. In regard to the inspection of the public schools and the instruction of the teachers regarding the early signs of measles, Dr. Marvel wished that Dr. Mitchell had gone a step further and advocated special instruction of the physicians that were made inspectors of these schools.

Dr. WORL referred to the remarks in regard to tuberculosis made by Dr. Howard A. Kelly, of Baltimore, at the banquet the preceding evening, and said that this disease would never be controlled until we began with the factors that created it. Measles carried off more children under two years of age than any other disease except whooping cough, and left a tendency to enlarged glands, which were a fruitful source of tuberculosis. Dr. Worl did not believe that any one ought to have any disease that he could escape. No one liked to have even a simple malady. He thought that there should be uniformity of practice in both city and country in regard to quarantining. He also was in favor of the old way of vaccinating with the scab from other human vaccinations.

Dr. ENGLISH explained that he had not meant to speak against isolation as part of the treatment of measles, but only against quarantining for that disease in the country.

Dr. WILLIAMS defended the use of cold baths in scarlet fever. He had looked up the literature very thoroughly, and had come to the conclusion that they did good and did not increase the tendency to nephritis.

Dr. DE SILVER said that he believed calcium sulphide to have prophylactic powers, and had only wished to have it placed on trial.

Dr. CHANDLER said that if quarantining would protect from other diseases as it would from smallpox, he would like to have it applied to them; but he would not have it done at present. In quarantining for smallpox we were punishing the innocent for the crimes of the guilty. The laws on the subject should be modified.

Letters to the Editors.

BYRON ROBINSON'S THEORY OF APPENDICITIS.

100 STATE STREET.

CHICAGO, June 22, 1907.

To the Editors: In the issue of the *New York Medical Journal* of June 15, 1907, Dr. John B. Deaver publishes an excellent paper on Traumatism as an Ætiological Factor in Appendicitis. I wish to be allowed space in your journal to reply to the views advocated in Dr. Deaver's article—first, to explain the methods by

which muscular trauma induces appendicitis and, second, to place the credit to Byron Robinson who, thirteen years ago—in 1894—introduced the view to the profession that muscular trauma was the general cause of appendicitis. To the subject of psoas trauma causing appendicitis Byron Robinson has devoted a dozen years of investigation, personally inspecting the abdominal viscera in some 700 autopsies. Dr. Deaver neglects to mention the name of the originator of the idea of "psoas trauma" in the aetiology of appendicitis. The question of trauma producing appendicitis may be reduced to two factors, viz., (1) extrinsic corporeal trauma; (2) muscular (psoas) trauma. Extrinsic corporeal trauma is an insignificant factor in the production of appendicitis except to exacerbate a chronic appendicitis; hence I shall devote my remarks to the chief extensive factor of *muscular trauma inducing appendicitis*. Whether the psoas trauma produces appendicitis by means of mesoappendicitis is not proved by merely theorizing, but is capable of demonstrative proof, both in the living and in the dead subject. Also by causal relations the proof that trauma of the psoas produces appendicitis is evident. Byron Robinson maintains in substance in his writing that trauma of the psoas muscle causes mesoappendicitis, peritoneal exudates, cicatrices, by inducing pathogenic bacteria to migrate through the endoappendix, through the myo-appendix and periappendix (ending in mesoappendicitis), which by organization and distorted cicatricial contraction compromises the lumen and parietes of the meso-appendicular vessels and dislocates, fixes, flexes the appendix, obstructing appendicular drainage—ending in perforation. The mesoappendicular cicatricial contractions compromises the appendicular physiology, function (sensation, peristalsis, absorption, secretion), and consequently decrease appendicular nourishment. The mesoappendicular cicatricial contractions compromise appendicular anatomy, structure (mucosa, muscularis, serosa, nerves, vessels), by compression, distortion, flexion, fixation, dislocation of the appendix, and consequently render structure nonresistant and a facile prey to pathogenic bacteria.

Dr. Robinson found, in the personal autopsic abdominal inspection of 500 adult males and 175 adult females, over seventy per cent. of peritoneal adhesions in the right iliac fossa (mesoappendicitis, pericæcitis, periliac adhesions) and eighty per cent. of peritoneal adhesions in the left iliac fossa (mesosigmoiditis). Peritoneal adhesions in the right or left iliac fossa do not exist previous to walking; hence babies are not afflicted with traumatic psoas peritoneal adhesions. Trauma of the psoas produces appendicitis by progressive, irregular steps, according to the virulence of bacteria and mainly through the mesoappendix, which from mesoappendicitis contracts irregularly, compromising the lumen and the parietes of the mesoappendicular vessels, and, flexing the appendix, obstructs drainage. The seventy per cent. of peritoneal adhesions in the right iliac fossa in adults is not all mesoappendicitis (and periappendicitis), but also represents the percentage of pericæcal and periliac peritoneal adhesions within psoas trauma. During the injecting of the vessels of the appendix in fifty subjects for the purpose of exposing and illustrating its hæmogenous circulation, Dr. Robinson demonstrated that, in subjects with mesoappendicitis, five, ten, fifteen, twenty, and as high as twenty-five per cent. of the meso-appendicular bloodvessels were compromised. In some subjects with advanced mesoappendicitis the most extensive and ancient mesoappendicular cicatrices would not admit more than seventy-five per cent. of normal blood supply—hence defective appendicular nourishment. Dr. Robinson has stated that the special peculiarities of the appendix are: (a.) Its limited and precarious blood supply, which is particularly affected by

thrombotic and embolic processes as well as compromise of its vessels and lumen by mesoappendicular cicatricial, distorted contraction in the mesoappendix; (b) the limited capacity of the appendicular lumen for drainage, which is particularly affected by appendicular flexion fixation, dislocation through the irregular, cicatricial, distorted contractions of the mesoappendix. Hence the primary damaging effect is the mesoappendicitis caused by the psoas trauma. There is more mesosigmoiditis in the left iliac fossa because the mesosigmoid is more locally fixed within psoas trauma than is the mesoappendix. Mesoappendicitis, the preappendicitis stage—a general precursor of appendicitis—may progress irregularly for years according to the virulence of accompanying bacteria and the muscular activity of the individual. In the final progress of mesoappendicitis due to psoas trauma the attack of virulent bacteria may precipitate appendicular perforation by reason of the appendicular tissue being rendered defective in resistance and the appendicular lumen defective in drainage from flexion. Appendicitis in general is a result of progressive chronic mesoappendicitis, which compromises, damages appendicular vessels, and obstructs appendicular evacuation, nondrainage.

In particular, appendicitis may arise from an acute embolic process of the mesoappendicular arteries. The state of the appendicular bloodvessels and the appendicular lumen tells the story of appendicitis. The reason that other visceral mesenteries, such as the mesosigmoid, may suffer advanced mesenteritis with less consequent disaster (perforation) than mesoappendicitis is the fact that the attached intestinal segment (e. g., the sigmoid) experiences ample drainage.

The production of mesoappendicitis (and to a vastly less extent periappendicitis) is a factor gradually arising in early adult life, between twenty and thirty-five years of age, when muscular activity is at a maximum.

The *preappendicitis* stage, i. e., mesoappendicitis, is the factor to study in order to understand the natural history of appendicitis and to introduce a rational prophylaxis. The natural history, in general, of appendicitis is the production of mesoappendicitis by means of psoas trauma with consequent compromise of meso-appendicular bloodvessels and appendicular lumen, checking drainage. The rational prophylaxis in the preappendicitis stage is the correction of constipation and colonic catarrh, as well as the rapid and complete evacuation (visceral drainage) of pathogenic bacteria. The importance of appendicitis and its cause cannot be exaggerated, for, as Dr. Robinson observes, "appendicitis is the most dangerous and treacherous of abdominal disease—dangerous because it kills, and treacherous because its capricious course cannot be prognosed." Hence it behoves us to search for the aetiology of appendicitis in order to introduce rational prophylaxis. What is the significance of peritoneal adhesions in the right or left iliac fossa in over seventy per cent. of adults? They are not present at birth and do not exist in nonerect animals or in quadrupeds in which the viscera of the right or left iliac fossa are not located within psoas trauma. The answer is: They are pathological. They are the results of psoas trauma as demonstrated and published by Byron Robinson in the *American Journal of Obstetrics*, February, 1895, *Medical Record*, November 30, 1895, and *Annals of Surgery*, April, 1901, and included in many of his other publications. There are more individuals afflicted with mesoappendicitis than are reported perforated appendicitis. Mesoappendicitis due to psoas trauma includes more aetiological factors of appendicitis than any other known.

Book Notices.

Metabolism and Practical Medicine. By CARL VON NOORDEN, Professor of the First University Medical Clinic, Vienna. Volume I.—The Physiology of Metabolism, by ADOLF MAGNUS-LEVY, Berlin. Volume II.—The Pathology of Metabolism, by CARL VON NOORDEN, FR. KRAUS, AD. SCHMIDT, W. WEINTRAUD, M. MATTHES, and H. STRAUSS. Anglo-American Issue Under the Editorship of I. WALKER HALL, Professor of Pathology, University College, Bristol. Chicago: W. T. Keener & Co., 1907.

It is probably in the investigation of the problems of immunity and metabolism that the most promising field lies for the advancement of internal medicine. In these two handsome volumes there is an authoritative presentation by von Noorden and his pupils of the phenomena of metabolism in health and disease. While not always easy reading, this important work possesses much of practical interest for both the physiologist and the clinician, and constitutes a valuable, reference handbook for the laboratory investigator. It is difficult in a brief notice to advert to single features, and, yet, for the medical reader who is interested most in the relations of modern problems to treatment, attention may be directed to those sections dealing with diet, acidosis, the purin bodies, acetone substances, the origin of oedema, the therapeutic rôle of iron in conditions of anæmia, the consumption of oxygen in cardiac and pulmonary diseases, and the relation of the internal secretion of the kidneys to uræmia. There is a full bibliography appended to each chapter, and the work of translation has been well done. A gratifying feature to the reader in this country is the generous appreciation evinced of the labors of American investigators. Among those who are freely cited are Chittenden, Atwater and Benedict, Herter, and Einhorn. As illustrating the great change which has taken place in the United States during recent years in the matter of research work and the material equipment for it, the following opinion is not without interest. In discussing the question of nitrogen retention in forced feeding, Professor von Noorden says the solution of this problem might be more easily attained by American workers, as they not only have better laboratory equipments than the workers of other nationalities, but they are also more favorably situated in the matter of skilled assistance.

Stereoskopbilder zur Lehre von den Hernien. Von Professor E. ENDERLEN, Basel, und Professor E. GASSER, Marburg. Jena: Gustav Fischer, 1906. Pp. 76. (Price, 28 marks.)

This atlas of stereoscopic photographs of herniæ is very well prepared. It is the intention of the editors, who taught anatomy at the University of Marburg, that the atlas shall be used for illustrating the leading textbooks on hernia. The photographs start with the descent of the testicle as an introduction to the ætiology of inguinal hernia, and with the topography of the inguinal region, leading up to inguinal hernia; the topography of the subinguinal region, with its herniæ, follows; and then the topography of the obturator and lumbar regions with their herniæ; and finally the topography of the gluteal region, a subject for a photograph of a sciatic or gluteal hernia not having been accessible.

Photographs of different herniæ in one person are then given. The herniæ through the diaphragm are well represented; and the relations of the peritonæum to the herniæ are clearly shown. The atlas closes with illustrations of internal hernia. Each division has a short ætiological introduction, followed by the pathology and treatment of the hernia in question.

The photographs are very clear and carefully executed, and arranged in the form of an album, that is, they can be taken out singly and used, being in pairs on one sheet, in a stereoscope, or can be left in the book and studied without the help of an instrument. Opposite the photographs are schematic cuts in the text with letters referring to a nomenclature printed in close proximity. The cuts, together with the nomenclature, could have been in many places more explicit, not so much on account of the practitioner or specialist, as for the medical student's sake, for whom as well as the graduate the book is written. The publisher has taken great pains to make the atlas as faultless as possible. Many of the photographs are beautifully colored.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Cook County Hospital Reports, 1906. Compiled and Edited under the Direction of the Publication Committee of the Cook County Hospital Attending Staff, Chicago.

A Textbook on Embryology. For Students of Medicine. By John Clement Heisler, M. D., Professor of Anatomy in the Medico-Chirurgical College, Philadelphia. Third Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907.

Archives of the Middlesex Hospital. Volume IX. Sixth Report from the Cancer Research Laboratories. London: Macmillan & Co., Limited, 1907.

Publications of the Massachusetts General Hospital. Selected Papers by the Staff. Boston: The Barta Press, 1907.

A Manual of Diseases of the Nose, Throat, and Ear. By E. B. Gleason, M. D., LL. D., Clinical Professor of Otology in the Medico-Chirurgical College, Philadelphia, etc. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 556. (Price, \$2.50.)

The Practice of Obstetrics. By American Authors. Edited by Charles Jewett, M. D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, New York. Third Edition, Revised and Enlarged. New York and Philadelphia: Lea Brothers & Co., 1907.

Official News.

Public Health and Marine Hospital Service
Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending July 19, 1907:

Smallpox—United States.

Place.	Date.	Cases.	Deaths.
California—San Francisco.....	June 22-July 6.....	2	0
Illinois—Chicago.....	July 6-13.....	3	0
Illinois—Galesburg.....	June 29-July 6.....	1	1
Indiana—Elkhart.....	June 29-July 6.....	1	0
Indiana—Indianapolis.....	June 30-July 7.....	1	0
Kansas—Kansas City.....	June 29-July 6.....	3	0
Louisiana—New Orleans.....	June 29-July 6.....	6	1
Michigan—Detroit.....	June 29-July 6.....	1	0
Mississippi—Natchez.....	June 29-July 6.....	2	Imported
Missouri—St. Joseph.....	June 30-July 6.....	5	0
Missouri—St. Louis.....	June 30-July 6.....	1	0
New York—New York.....	June 29-July 6.....	1	0
North Carolina—Wilmington.....	July 10.....	2	0
Tennessee—Nashville.....	July 6-13.....	1	0
Virginia—Richmond.....	June 29-July 6.....	2	0
Washington—Spokane.....	June 29-July 6.....	16	5 Imported.
Wisconsin—Milwaukee.....	June 29-July 6.....	3	0

Smallpox—Insular.

Philippine Islands—Manila....	May 25-June 1....	3	0
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Smallpox—Foreign.

Brazil—Para.....	June 22-29.....	3	1
Canada—Nova Scotia, Halifax.....	June 30-July 6.....	1	0
Canada—Quebec, Sherbrooke.....	June 1-50.....	2	Present.
Chile—Iquique.....	June 15.....	2	0
France—Paris.....	June 22-29.....	12	0
Germany—General.....	June 1-8.....	4	0
Germany—General.....	June 15-22.....	6	0
Great Britain—Manchester.....	June 15-22.....	1	0

India—Bombay	June 4-11	2	
India—Calcutta	June 25-June 1	26	
India—Madras	June 1-7	2	
Italy—General	June 20-27	27	
Italy—Florence	June 16-30	3	
Japan—Yokohama	June 20-27	1	
Java—Batavia	May 25-June 1	2	
Madeira—Funchal	June 15-30	100	25
Mexico—Agua Calientes	June 22-July 6	15	
Mexico—Mexico City	June 8-15	16	
Mexico—Monterrey	June 23-30	1	
Panama—Colon	June 30	1	
Portugal—Lisbon	June 15-22	On steamship.	
Russia—Batum	May 1-31	7	
Russia—Odessa	June 1-22	3	
Russia—Riga	June 15-22	4	
Russia—St. Petersburg	June 1-22	11	3
Siberia—Vladivostok	May 14-21	1	
Spain—Barcelona	June 10-20	3	
Spain—Madrid	May 1-31	3	
Spain—Valencia	June 15-30	32	
Straits Settlements—Singapore	May 25-June 1	3	
Turkey—Constantinople	June 16-23	2	
Turkey—Damascus	June 8-15	Present.	

Yellow Fever—Foreign.

Brazil—Manaos	June 15-22	1	
Brazil—Para	June 22-29	4	4
Ecuador—Guayaquil	June 15-22	3	
West Indies—Trinidad	June 15-22	2	

Cholera—Foreign.

India—Bombay	June 4-11	3	
India—Calcutta	May 25-June 1	32	
India—Kashmir	May 26-June 3	1,447	771

Plague—Foreign.

Africa—King William's Town	May 25-June 1	1	
Egypt—Alexandria	June 13-27	3	
Egypt—Assiut Province	June 13-27	6	
Egypt—Behera Province	June 13-27	3	9
Egypt—Beni Souef Province	June 13-27	1	
Egypt—Kena Province	June 13-27	11	12
Egypt—Minieh Province	June 13-27	2	
India—Bombay	June 4-11	39	
India—Calcutta	May 25-June 1	100	
India—Rangoon	May 25-June 1	44	
Japan—Yokohama	June 13-21	4	
New Zealand—Auckland	May 1-5	2	
Peru—Callao	May 31-June 6	2	
Peru—Chiclayo	May 31-June 6	1	
Peru—Lima	May 31-June 6	5	3
Peru—Mollendo	May 31-June 6	2	
Peru—Paita	May 31-June 6	1	
Peru—Trujillo	May 31-June 6	10	5
Russia—Astrachan Province	June 20	3	
French Indo-China—Cholon	May 3-10	Present.	
French Indo-China—Saigon	May 3-10	Present.	
Turkey—Ijeddah	May 30	1	

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the seven days ending July 17, 1907:

BAHRENBURG, L. P. H., Passed Assistant Surgeon. Granted leave of absence for seven days, from July 15, 1907, under paragraph 191, Service Regulations.

CLEAVES, F. H., Acting Assistant Surgeon. Granted leave of absence for six days, from July 15, 1907, under paragraph 210, Service Regulations.

FOSTER, J. P. C., Acting Assistant Surgeon. Granted leave of absence for twenty-seven days, from July 20, 1907.

FOSTER, S. B., Acting Assistant Surgeon. Granted leave of absence for six days.

HALL, L. P., Pharmacist. Granted leave of absence for seven days, from July 16, 1907, under paragraph 210, Service Regulations.

HERRING, R. A., Assistant Surgeon. Granted leave of absence for eight days, from June 30, 1907, on account of sickness.

KALLOCK, P. C., Surgeon. Granted leave of absence for seven days, from July 15, 1907.

KASTLE, J. H., Chief Division, Hygienic Laboratory. Designated to attend the eleventh annual convention of the Association of State and National Food and Dairy Departments, at Jamestown, Va., July 17-19, 1907.

KERR, J. W., Assistant Surgeon General. Granted leave of absence for twenty days, from August 12, 1907.

MEAD, F. W., Surgeon. Directed to proceed to Point Pleasant, N. J., for the purpose of examining keepers and surfmen of the Life Saving Service, upon completion of which duty to rejoin station.

NEVES, GEORGE, Pharmacist. Granted leave of absence for thirty days, from August 10, 1907.

SAFFORD, M. V., Acting Assistant Surgeon. Granted leave of absence for four days, from July 10, 1907, under paragraph 210, Service Regulations.

STANSFIELD, H. A., Passed Assistant Surgeon. Relieved from duty at Havana, Cuba, effective July 11, 1907.

TOWNSEND, W., Acting Assistant Surgeon. Granted leave of absence for seven days, from July 14, 1907.

WERTENBAKER, C. P., Surgeon. Directed to proceed to Ocean City and other points along the Chesapeake Bay, for the purpose of examining keepers and surfmen of the Life Saving Service, upon completion of which duty to rejoin station.

Appointment.

Dr. Louis A. Thunig appointed acting assistant surgeon, for duty at Stapleton, N. Y.

Resignation.

The resignation of Assistant Surgeon E. M. Steger was accepted, by direction of the President, to take effect July 14, 1907.

The resignation of Pharmacist George Neves was accepted, to take effect September 8, 1907.

Boards Convened.

A board of medical officers was convened to meet at Baltimore, Md., July 24, 1907, for the physical examination of certain officers of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon J. T. Burkhalter, Chairman; Acting Assistant Surgeon J. LaB. Ward, Recorder.

A board of medical officers was convened to meet at San Francisco, Cal., July 24, 1907, for the physical examination of certain officers of the Revenue Cutter Service. Detail for the board: Surgeon H. W. Austin, Chairman; Passed Assistant Surgeon J. D. Long, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending July 20, 1907:

APPEL, A. H., Lieutenant Colonel and Deputy Surgeon General. Upon arrival at San Francisco, Cal., will proceed to Fort D. A. Russell, Wyo., for station and duty.

BOURKE, JAMES, First Lieutenant and Assistant Surgeon. Ordered to report in person on August 15th to Major W. H. Arthur, surgeon, president of the examining board, at the Army Medical Museum, Washington, D. C., for examination to determine his fitness for advancement.

BUCK, C. D., Captain and Assistant Surgeon. Ordered to report to the commanding officer, 7th Cavalry, for duty to accompany that command to Fort Riley, Kas., and on arrival at that place granted seven days' leave of absence; on expiration of leave ordered to return to station, Army General Hospital, Presidio of San Francisco, Cal.

CROSBY, W. D., Major and Surgeon. Detailed a member of the Army Medical Examining Board, Army Medical Museum Building, Washington, D. C., vice Major J. D. Glennan, surgeon, hereby relieved.

EKWURZEL, G. M., First Lieutenant and Assistant Surgeon. Relieved from duty at Fort Meade, S. D., to take effect at such time as will enable him to comply with this order, and report at the proper time for duty with the 6th Cavalry, en route to the Philippine Islands, and upon arrival at Manila ordered to report in person to the commanding general, Philippines Division, for assignment to duty.

FISHER, H. C., Major and Surgeon. Assignment to duty at Fort D. A. Russell, Wyo., revoked, and instead ordered to Fort Logan, Colo., for duty.

GLENNAN, J. D., Major and Surgeon. Relieved from duty at Fort Myer, Va., and ordered to proceed to San Francisco, Cal., and take transport to sail from that place about October 5, 1907, for the Philippine Islands, and upon arrival at Manila ordered to report in person to the commanding general, Philippines Division, for assignment to duty.

HALL, J. E., Captain and Assistant Surgeon. Assignment to duty in the Philippine Islands revoked, and instead ordered to Fort Gibbon, Alaska, for duty.

HATHAWAY, L. M., First Lieutenant and Assistant Surgeon. Leave of absence extended fifteen days.

HESS, L. T., Captain and Assistant Surgeon. Detailed to attend the encampment of the 3rd Brigade, National Guard, State of New York, to be held at Felt's Mills, near Watertown, N. Y.

HOFF, J. VAN R., Colonel and Assistant Surgeon General. Ordered to report in person to the commanding general, Philippines Division, for duty as chief surgeon of that division.

KELLER, W. L., Captain and Assistant Surgeon. Relieved from duty at Fort Douglas, Utah, to take effect at such time as will enable him to comply with this order and proceed to San Francisco, Cal., and take transport to sail from that place on or about September 5th, to the Philippine Islands, and upon arrival at Manila will report to the commanding general, Philippines Division, for duty.

KENNEDY, J. M., Major and Surgeon. Detailed a member of the examining board, Army General Hospital, Presidio of San Francisco, Cal., vice Major W. Stephenson, surgeon, hereby relieved.

KIEFFER, C. F., Major and Surgeon. Relieved from treatment at the Army General Hospital, Washington, D. C., and ordered to the Army General Hospital, Presidio of San Francisco, Cal., for observation and treatment. Granted fourteen days' leave of absence.

LEWIS, W. F., Captain and Assistant Surgeon. Ordered to report in person, on August 12, 1907, to Lieut.-Col. G. H. Torney, deputy surgeon general, president of the examining board, at the Army General Hospital, Presidio of San Francisco, Cal., for reexamination to determine his fitness for promotion.

MURTAGH, J. A., Captain and Assistant Surgeon. Ordered to report to the commanding officer, 7th Cavalry, for duty to accompany that command to Fort Riley, Kas., and upon completion of this duty to return to station, Fort Mason, Cal.

O'CONNOR, R. P., Captain and Assistant Surgeon. Relieved from duty at Fort Leavenworth, Kas., and ordered to the Philippine Islands for duty, instead of to Fort Gibbon, Alaska.

RICHARD, CHARLES, Major and Surgeon. In addition to his other duties, is announced as assistant to the Chief Surgeon, Headquarters, Department of the East, Governor's Island, N. Y., and in the absence of the Chief Surgeon will perform his duties.

SNYDER, C. R., First Lieutenant and Assistant Surgeon. Upon arrival at San Francisco, Cal., will proceed to Fort William Henry Harrison, Mont., for temporary duty.

Navy Intelligence:
Official List of Changes in the Medical Corps of the United States Navy, for the week ending July 20, 1907:

ALDERMAN, C. G., Assistant Surgeon. Appointed an assistant surgeon, from July 9, 1907.

BAKER, M. C., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

BOLAND, M., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

CAMPBELL, R. A., Acting Assistant Surgeon. Detached from duty on the Midway Islands and ordered home to await orders.

CASTO, D. H., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

CURTIS, E. E., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

DOLLARD, H. L., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

DONELSON, M., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

HERMESCH, H. R., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

HOUGH, F. P. W., Acting Assistant Surgeon. Appointed an acting assistant surgeon, from July 12, 1907.

HUFF, E. P., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

JONES, A. MCK., Acting Assistant Surgeon. Orders of June 12th revoked; detached from the Naval Recruiting Station, Chattanooga, Tenn., and ordered to the Naval Medical School Hospital, Washington, D. C., for treatment.

McCLURG, W. A., Medical Director. Commissioned a medical director, from June 16, 1907.

MCCONNOR, G. H., Assistant Surgeon. Detached from the Missouri and ordered home to await orders. Resignation accepted, to take effect August 1, 1907.

McGUIRE, L. W., Acting Assistant Surgeon. Appointed an acting assistant surgeon, from July 12, 1907.

MILLIGAN, J. D., Pharmacist. Unexpired portion of sick leave revoked; ordered to the Fish Hawk.

SMITH, H. L., Assistant Surgeon. Appointed an assistant surgeon, from July 12, 1907.

STEADMAN, W. G., JR., assistant surgeon. Appointed an assistant surgeon, from July 12, 1907.

WIEBER, F. W. F., Surgeon. Detached from command of the Naval Hospital, Pensacola, Fla., and ordered to command the Naval Hospital, Canacao, P. I., sailing from San Francisco, Cal., about August 8, 1907.

Births, Marriages, and Deaths.

Married.

DORIA—SCHULZE.—In St. Louis, Missouri, on Wednesday, June 19th, Dr. M. M. Doria and Miss Mamie Schulze.

GARRISON—METZ.—In Philadelphia, on Wednesday, July 10th, Dr. Henry Garrison and Miss Matilde Louise Metz.

GILLESPIE—BRECHEMIN.—In London, England, on Saturday, July 20th, Dr. David Moffat Gillespie, of New York, and Miss Lillian Brechemin.

RYAN—MILLS.—In Albany, N. Y., on Monday, July 15th, Dr. Thomas A. Ryan and Mrs. Elizabeth McGarvey Mills.

Died.

BOARDMAN.—In Brooklyn, N. Y., on Wednesday, July 17th, Dr. Charles Hodge Boardman, aged sixty-eight years.

BREWER.—In Philadelphia, on Thursday, June 20th, Dr. Mary E. Brewer.

FURBECK.—In Albany, N. Y., on Friday, July 12th, Dr. Henry L. Furbeck, aged forty-nine years.

GALLAGHER.—In New York, on Sunday, July 21st, Dr. Edward J. Gallagher.

GIBERT.—In Shaw, Mississippi, on Monday, July 8th, Dr. J. Gibert, aged fifty-eight years.

GRANCHER.—In Paris, France, on Monday, July 15th, Dr. Joseph J. Grancher.

KELLEY.—In Fulton, N. Y., on Monday, July 15th, Dr. Edward F. Kelley, aged sixty-six years.

KENNAH.—In Saratoga, N. Y., on Thursday, July 11th, Dr. James B. Kennah.

KRIEGER.—In St. Louis, Missouri, on Friday, July 12th, Dr. Joseph A. Krieger.

MILLER.—In Catasauqua, Pennsylvania, on Friday, July 19th, Dr. Jacob Miller, aged seventy-eight years.

NEIRA.—In New York, on Saturday, July 13th, Dr. Ignacio Neira, of Colombia.

NEVINS.—At Old Lyme, Connecticut, on Sunday, July 21st, Catherine B., wife of Dr. Russell H. Nevins, aged fifty-one years.

PITMAN.—In Lynchburg, Virginia, on Wednesday, July 10th, Dr. William E. Pitman, aged sixty-six years.

ROBINSON.—In Loveland, Colorado, on Thursday, July 11th, Dr. W. W. Robinson.

RUSSELL.—In Brooklyn, N. Y., on Sunday, July 21st, Dr. James Edwin Russell, aged forty-nine years.

THOMPSON.—In Kingston, N. Y., on Monday, July 8th, Dr. Robert R. Thompson, aged fifty-seven years.

WARD.—In Boston, on Thursday, July 11th, Dr. Sullivan L. Ward, aged eighty-one years.

WHIMPLEBERG.—In New York, on Friday, July 12th, Dr. Samuel Whimbleberg.

WYNKOOP.—In Philadelphia, on Wednesday, July 17th, Dr. Alfred Wynkoop, aged eighty-seven years.

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VOL. LXXVI, No. 3.

NEW YORK, AUGUST 3, 1907.

WHOLE No. 1496.

Original Communications.

A CASE OF CARCINOMATOUS METASTASES IN UNUSUAL SITES.

Notably in the Meninges, and Several Peripheral Nerves.

By GEORGE L. PEABODY, M. D.,
New York.

The chief points of interest in this case relate to the unusual sites at which metastatic deposits were found. The organ primarily affected was the right breast. There were numerous metastases in situations where they are common enough, such as the lung, kidneys, thyroid, and suprarenals; but in my experience it is so uncommon to find microscopic deposits of carcinoma in the pia of brain and cord and in peripheral nerves that I have felt justified in reporting the case.

These deposits in the meninges were at the autopsy all absolutely invisible to the naked eye, and for the most part were discovered only by a general microscopical search for them. Only one of those found in the peripheral nerves caused a change in the appearance which the naked eye could detect, and that was a slight bulbous enlargement of a trunk nerve of the cauda equina.

Possibly they might be found in the pia more frequently in similar cases if they were systematically looked for, even where gross appearances give no suspicion of their presence.

CASE.—The patient was a woman, forty-three years of age, who came under my care in the New York Hospital on January 5, 1907, and died there three weeks later. She was a Hungarian. Her family history was unimportant. She said her neck had always been "swollen," but that she had never suffered from palpitation or dyspnea, and that her eyes had never been prominent. She had always considered herself "nervous." Her right breast had been removed four years ago, because there were firm nodules in it which were presumably cancerous. Since the operation she had not been troubled by any symptoms which she referred to the disease of the breast. Eight or ten years ago her right tube and ovary were removed for some cause of which she seemed to be ignorant. She had borne three children; of these one had died; the youngest was four months of age. She had been accustomed to coffee, tea, and beer in moderation, and had used no other form of alcohol.

The illness for whose relief she had entered the hospital had begun six weeks previously with pains and aches which she described rather vaguely as being distributed all over the body. These pains were chiefly in the lower extremities, and seemed to be deeply seated

in the muscles and in the bones. They came first in the right leg, then in the left leg, the small of the back, the shoulders, and elsewhere. There had never been any definite joint pain or joint swellings. The pain had not at first been permanent, but had skipped about from place to place. Her general health soon began to suffer; her appetite failed, and the pain became severer. Then she became so weak that she had spent most of the time in bed during the three weeks previous to her admission. She did not think that she had had much fever, but at night she had perspired very freely, especially about the head. She had never had sore throat. Three weeks before admission she had had a chill, which lasted ten minutes, and had been followed, she thought, by fever. Her bowels had become constipated. She had had no cough. Of late her urine had increased very much in amount, and with this had come thirst. Occasionally her head had ached. There had been no eye symptoms and no edema of ankles. Her chief complaint on admission related to the severe and general pains, chiefly in her lower extremities, and not involving the joints.

Physical examination showed a woman of large frame, fairly nourished, with areas of pigment in the upper third anterior chest wall. Her eyes were prominent; von Graefe's and Stellwag's signs were absent. Pupils were normal. Her neck showed a nearly symmetrical, elastic, and very obvious enlargement of the thyroid. Her pulse was rapid, regular, of good size and force; arteries were somewhat thickened. Her chest showed the scar of an old amputation wound of the right breast, which extended into the axilla. It was soft and apparently perfectly healthy. A similar scar was seen in the abdominal wall, extending from the umbilicus to the symphysis. Results of further examination of chest and abdomen on admission were unimportant. Knee jerks were absent. Beside the spontaneous pains of which she complained there was tenderness over the calves on deep pressure.

One of the few obvious facts in regard to her related to her urine. This, as long as it could be measured, namely, for two weeks, was always increased in amount, and sometimes very greatly increased. It fluctuated between 59 and 249 ounces, and was usually over 80. Its specific gravity fluctuated between 1.004 and 1.015. granular casts were found, and a trace of albumin when she entered the hospital, but they soon disappeared. It never contained sugar.

She always had fever, during the first week rarely over 100° F., but after that it rose higher, and during the last ten days of her life it was continuously present, the temperature being usually between 102° F. and 104° F. Her pulse fluctuated between wide limits without obvious cause. It was always over 100 and often between 120 and 130, and occasionally 140. She had 10,800 leucocytes and 70 per cent. of leucocytes. The differential count was not suggestive.

The case was at first one of very great obscurity. There were not enough objective signs for a diagnosis.

Read before the Association of American Physicians.

and she considered her fanciful that the complaint of pain was thought at first to be an exaggeration. It was very soon obvious, however, that her suffering was

face, weakness of right palate muscles, partial deafness of right ear, diplopia in part of field of vision. Pain in legs and in lumbosacral region continued, with a good deal of tenderness in the latter region on pressure and on attempting to sit upright. No alterations in sensation were made out. Her eye grounds were normal. Her urine and faeces began now to be passed involuntarily.

A few days later evidences of paresis of left third nerve became more prominent, ptosis became more marked, left pupil was dilated, and left eye did not follow movements of right, especially in inward and downward directions. Difficulty in swallowing became very pronounced.

Pulse failed steadily, oedema of the lungs developed, and she died at 2:15 a. m. on the 26th of January.

The autopsy was made on the same day at 4:15 p. m. by Dr. Elser, the pathologist of the hospital.

The whole skin of the body had a somewhat brownish tint, which was explained by her being a brunette Hungarian. About the genitals and inner and anterior surfaces of the thighs it was of darker hue. On the anterior surface of upper third of chest and anterior aspect of both shoulders and arms were numerous small, irregular grayish, brown pigmented areas. The areola of the left nipple was only moderately pigmented. The right breast had been removed for carcinoma, as already described. Superficial lymph nodes were not visible. Mucous membranes showed no evidences of pigmentation, including mouth, pharynx, and vagina. Thyroid gland was found enlarged, more

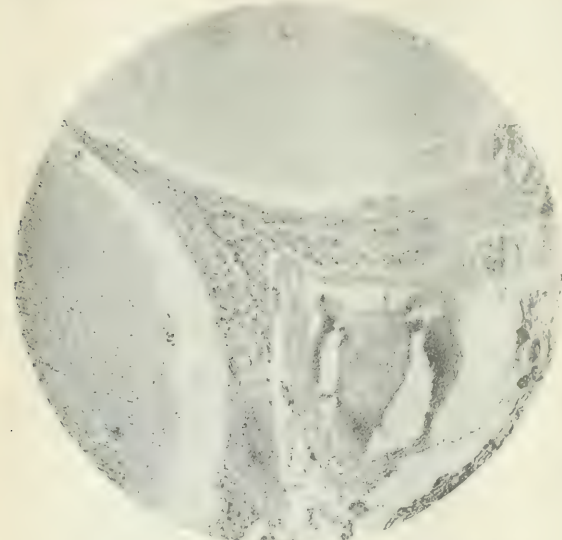


FIG. 1.—Carcinoma seen in pia of anterior median fissure of medulla

real and her distress very great. All the usual milder hypnotics and coal tar anodynes failed to give any real relief. Syphilis was, of course, thought of, partly because she always complained of nocturnal exacerbation in her pains, but no physical or historical evidence of it could be obtained. Peripheral neuritis was also considered, but a diagnosis of that disease was never justified. Her electric reactions were normal. Exophthalmic goitre was thought of at first, from the enlargement of the thyroid, the prominence of the eyes, and the rapidity of the heart's action, as well as her intense nervousness; but that would not account for her pain, and moreover, many of the classical symptoms were lacking. On the whole, it seemed most probable that she was suffering from recurrence of carcinoma in the nerve centres and in some of the peripheral nerves, and as the disease progressed only that diagnosis would account for her symptoms.

About this time she was seen at my request by Dr. Lewis A. Conner and Dr. J. Ramsay Hunt. Dr. Conner suggested a carcinoma of the cauda equina as being likely to account for the pains in her lower extremities, and also first suggested the likelihood of carcinomatosis.

Sleep was possible only under the influence of such drugs as morphine and codeine, and then only for a few hours at a time.

Lumbar puncture revealed a clear fluid, which contained a few lymphocytes, but no cancer cells.

About a week before she died various facial parietic symptoms developed, including partial ptosis of left eyelid, partial paralysis of muscles of right side of

enlarged.

Visible mucous membranes showed no evidences of pigmentation, including mouth, pharynx, and vagina. Thyroid gland was found enlarged, more

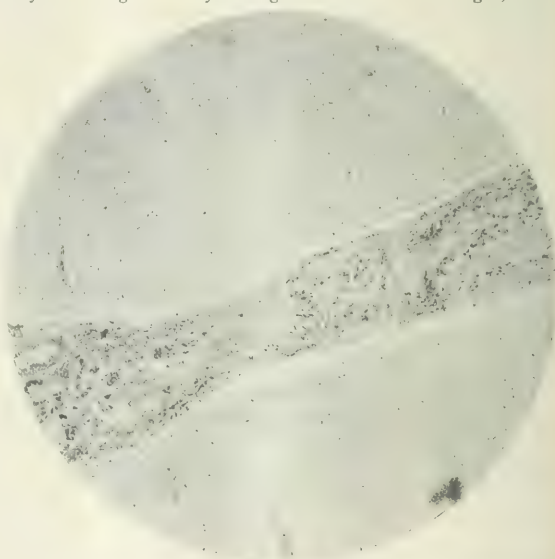


FIG. 2. Carcinoma seen in pia of anterior median fissure of upper part of spinal cord

especially its right lobe. Left breast was atrophic, chest symmetrical. Panniculus adiposus was moderate, muscular system atrophic, bony frame normal.

Head.—Dura was not adherent, but slightly thickened, and tension on both sides moderately increased. Internal surface of dura was normal. Leptomeninges were moderately edematous, meningeal vessels moderately injected. Basal venous sinuses and basal arteries were normal, excepting the Sylvian arteries, which showed early arteriosclerotic changes near their points of origin. Moisture of cut surface was not pronounced. Ventricles, particularly posterior horns of lateral ventricles, were dilated and contained a blood tinged fluid. The basal ganglia, internal capsule, pons, crura, and medulla showed no macroscopic lesions. The cerebellum revealed on section a cyst filled with clear fluid and presenting a grayish yellow, not wholly smooth internal surface. The cyst was about the size of a hickory nut, and was situated in the vermiform.

Spinal Cord.—The spinal cord revealed no macroscopic lesions externally. It was placed in formalin for study. After hardening in formalin, numerous very small, opaque, white areas were seen in pia. One nerve trunk of cauda equina showed a small fusiform thickening which on section presented an opaque, white appearance.

Spinal Column.—Spinal column was examined by making cross section of the bodies of the vertebrae without any lesion being detected.

Peritoneum.—The fundus of the uterus was found to be attached to the anterior wall of the abdomen corresponding to the scar which has been already described (hysteropexy). A few adhesions were found between omentum and scar, and between superior surface of liver and diaphragm.

Diaphragm.—Position of the diaphragm was normal.

Pleura.—A few adhesions were found over right apex, and firm adhesions were found over lower lobe posteriorly.

Thymus.—Absent.

Heart.—Pericardium was normal. Right chambers were filled with clotted blood. Left chambers contained only a small amount of clotted blood. Myocardium was moderately firm in consistence, pink in color, and presented a peculiar hyaline appearance. Chambers were normal in size, valves normal, coronaries and arch of aorta normal. Weight of heart, 8½ ounces.

Lungs. Right lung showed a moderate grade of congestion and edema. The smaller bronchi were filled with a purulent exudate. The mucosa of larger bronchi was rather anemic and was covered with mucopurulent exudate and a frothy fluid. Left lung showed similar lesions. Beside them, a firm nodule, the size of a large walnut, was found in the apex of the lower lobe, in close proximity to a large bronchus. The nodule presented on section grayish yellow, rather firm areas, tra-

versed by a band of deeply pigmented connective tissue. The bronchial lymph nodes were moderately swollen, deeply pigmented, and presented on section a few calcified nodules of obsolete tuberculosis. The pulmonary vessels were normal.

Thoracic Duct.—Normal.

Spleen was small and atrophic. The capsule was normal. On section stroma was fairly distinct. Pulp presented a mottled appearance, grayish and grayish red areas alternating. Consistence of organ was slightly decreased.

Suprarenals.—Left suprarenal was slightly enlarged and on section presented a small tumor, the size of an ordinary domestic pea, situated near one pole. Right suprarenal was distinctly enlarged, and on section presented a sharply circumscribed tumor, the size of a hickory nut, involving almost the entire thickness of the organ. The tumor was firm and elastic, and its cut surface was white and slightly granular in appearance.

Smaller foci in this tumor had a faint yellowish tint.

Kidneys.—Weight of kidneys was 9½ ounces. The right kidney was somewhat deformed, owing to a number of nodular projections on the surface. Capsule was thickened and adherent, leaving a finely granular surface. The projections on the surface were firm in consistence, opaque, white in color, and closely adherent to the capsule. The capsule covering some of these nodules was distinctly thickened, and in places the growth had extended beyond the capsule into perirenal fat. These tumors varied in size from that of a large

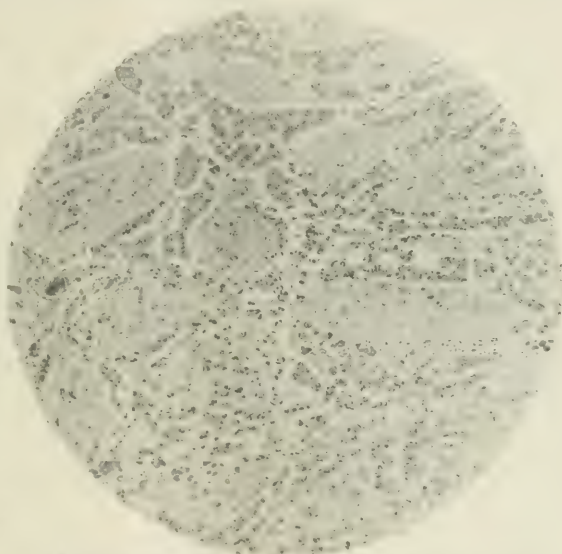


FIG. 3. Cross section of trunk nerve of cauda equina, showing carcinomatous

hickory nut to that of a domestic pea. Some were confined to the cortex, while others involved the entire thickness of the organ. On cutting into these tumors the cut surface was seen to be identical in appearance with that of the suprarenal tumor. The cortex of kidney was of about normal thickness. Markings were generally normal, but Malpighian bodies were indistinct; consistence but slightly altered. Left kidney presented the same appearance as right, excepting that surface was smooth and the organ contained fewer metastatic growths.

Pelvis, Ureters, and Bladder were normal.

Uterus. Neck of uterus was markedly elongated. Endometrium was pale pink in color, and had a somewhat ragged appearance.

Gastrointestinal Tract.—Stomach and intestines presented nothing unusual.

Pancreas.—Normal in size and appearance.

Liver. Normal, excepting adhesions already described. Weight 53 ounces.

Gallbladder was contracted and almost filled with a large gallstone, about the size of a hazel nut. This stone was surrounded by a small amount of greenish

gray material. The wall of gallbladder was thickened.

Lymph Nodes.—Retroperitoneal and mesenteric lymph nodes were swollen, but showed no evidence of metastasis.

Aorta.—Thoracic and abdominal portions of aorta were normal.

Mouth, Etc.—Tongue normal, no pigmentation; tonsils were normal; mucosa of trachea and larynx was covered with mucopurulent exudate.

Thyroid.—Left lobe smaller than right. Consistence of left lobe was firm, and it contained several small tumors of the size of a hickory nut, and presenting the appearance noted for the other metastatic growths. The parenchyma of the organ was otherwise normal, so far as the left lobe was concerned. Right lobe fluctuated and was chiefly represented by a cyst of the size of a small apple. Wall of cyst still showed remains of thyroid tissue. Contents of cyst were an amber colored, slightly viscid fluid.

The hypophysis cerebri appeared slightly larger than usual.

Bacteriological Examination.—One bouillon flask, containing 125 c.c. of bouillon into which 2 c.c. of blood from arm was put, was sterile after forty-eight hours. Similarly prepared flask with heart's blood was also sterile after forty-eight hours.

Microscopical examination. Metastases in suprarenals, kidneys, lung, and thyroid all presented the appearance of a fairly cellular carcinoma, resembling that of a carcinoma simplex of the breast. Most of the nodules showed small areas of necrosis, whereas the metastatic growth in the lung showed very extensive necrotic and fibroid changes. The new growth in lung involved the large bronchus, extending almost to the surface of mucosa. Several fairly large vessels embedded in the nodule were completely occluded; the lumina were filled with carcinoma tissue. These carcinomatous thrombi readily account for the secondary metastases, which were so very numerous.

A microscopical examination of the thyroid substance showed atrophic and hemorrhagic areas alternating with areas of compensatory hyperplasia. The kidneys showed the lesions of a chronic nephritis and in many places a diffuse carcinomatous infiltration. The liver showed no metastases. Its cells contained a brown pigment, which was fairly abundant. Sections from the skin revealed numerous areas of pigmentation.

Cyst of cerebellum was lined with a thin layer of carcinoma tissue; and very small metastatic growths were found in the cerebellar substance in the immediate neighborhood of the cyst. In one section, at considerable distance from the cyst, there was found a superficial and very minute but very plain cancer deposit. The medulla and pons were not themselves invaded as far as our search extended, but their pia showed many small metastatic growths. This condition is seen also in choroid plexus. The same is true of the spinal cord and its pia. In several places in pia of pons and cerebellum arteries show aggregations of leucocytes within them, which might be called local leucocytosis.

The fusiform swelling seen in a trunk nerve of the cauda equina, already described, was found to be due to a diffuse infiltration with carcinoma. This was very extensively present in the perineural lymph sheaths. One cranial nerve was also markedly invaded by this disease. Unfortunately whether this was the left third nerve or the right facial is not known. From the symptoms probably both were involved; but in only one of them did the sections happen to go through diseased tissue. One spinal nerve near its origin showed very distinct cancerous invasion.

The gross metastases in the various organs presented nothing out of the common; but the various extremely

minute and numerous lesions in the central nervous system and those in the nerves seem worthy of especial attention. While there was not a single naked eye lesion visible in the central nervous system at the autopsy, after hardening the cord in formalin some suspicious, very minute, white spots became visible in the pia, and these proved to be cancerous. Besides these many other smaller aggregations of carcinoma in the pia were always wholly invisible to the naked eye. Similar invisible deposits were found in the cerebellum, in one spinal nerve, in one cranial nerve, and a larger one in a trunk nerve of the cauda equina, and also in the lining of an old cerebellar cyst, as well as in the cerebellar substance in the immediate neighborhood of the cyst, and in one place on the surface of the cerebellum remote from the cyst.

The probable origin of all the smaller or more recent deposits in the carcinomatous emboli of the older deposit of the lung is also of interest.¹

A matter of secondary interest is the development of what might be called a partial Addison disease, the skin pigmentation being probably connected with the disease of the suprarenals. This pigmentation was chiefly confined to the skin of front of the chest, and was not visible in any mucous membrane.

My attention has been called to one similar case in the literature by Dr. J. Ramsay Hunt. That one was reported in 1906 by Dr. D. J. McCarthy at the meeting of the American Neurological Association in a paper which was read under the name of Multiple Miliary Metastatic Carcinomatosis of the Cerebrospinal Meninges. This was a case of primary sarcoma of the liver, with a secondary nodule in the pancreas and a local carcinoma of the lung, with cavity formation. Large numbers of pinhead tumors were scattered over the cerebral and spinal meninges. The lumbar spinal ganglia presented secondary carcinoma. There was also a small tumor on one of the dorsal roots. The clinical course of the disease was that of cerebrospinal syphilis.

Except McCarthy's case, I have been unable to find one in the literature at all resembling mine; but his is in many points strikingly similar.

57 WEST THIRTY-EIGHTH STREET.

INTRADURAL RESECTION OF THE POSTERIOR ROOTS OF A NUMBER OF SPINAL NERVES FOR THE RELIEF OF INTRACTABLE PAIN.

*With the Report of a Case of Resection of All the Roots
Which Go to Make Up the Brachial Plexus.**

BY GEORGE W. JACOB, M. D.,
New York.

The operation of resection of the posterior roots of a number of spinal nerves for the relief of intractable pain seems to have been first planned and advocated by C. L. Dana. Acting upon his suggestion, Robert Abbe divided the posterior roots in a case of severe persistent neuralgia of the arm and forearm in December, 1888, cutting both the motor and sensory roots of the sixth and seventh cervical nerves outside the dura, and two days later performing an intradural section of the seventh, which had previously been cut extradurally, and also of the eighth cervical nerve.

About this time W. H. Bennett, in England, per-

¹ The author showed here sections and photomicrographs.
* Read at the meeting of the American Neurological Association held in Washington, D. C., May 7, 1907.

formed an intradural resection of the third, fourth, and fifth lumbar, and first and second sacral posterior roots in a man suffering from acute spasmodic pains in the leg of nine years' duration.

Since then this operation has been carried out so many times that it may to-day well be looked upon as one of the classical operations in surgery. Yet the general impression among surgeons and neurologists seems to be that it is an operation to be feared and one in which the results to be attained are not commensurate with the risk incurred. This impression is voiced by Oppenheim, who but recently wrote that nothing positive concerning the indications and the value of the procedure was to be gleaned from the published reports, and that only so much was certain, "that the operation endangers the spinal cord to a high degree, since it has in sev-

granulation tissue, or callus, which caused the patient but little inconvenience relatively when measured by the amount of relief from pain gained through the operation. Certainly the section of the nerve roots bore no part in the causation of the palsy.

Chipault attributes the death of the two patients, one his own, the other Bennett's, to congestion of the brain and spinal cord and hemorrhage as a result of decompression in consequence of a prolonged outflow of cerebrospinal fluid and its insufficient reproduction. To those who have witnessed much of the earlier brain surgery and have seen persistent outflow of cerebrospinal fluid for days and even weeks, this explanation will hardly seem tenable, and as a matter of fact, in one of Victor Horsley's cases (Case VIII of table) of posterior root resection, there was an escape of cerebrospinal fluid lasting three weeks without injurious effect.

Bennett's patient, on the other hand, was, prior to the operation, rapidly approaching a state of exhaustion, and it was feared that death might occur unless he could be relieved of his suffering. In this patient Bennett did not suture the dura; there was a constant but diminishing flow of cerebrospinal fluid for a week; then vomiting, headache, and coma set in, with death ensuing twelve days after the operation. Upon autopsy, recent hemorrhages were found in the subarachnoid space upon the level of the sixth cervical vertebra, together with a small clot in the subdural space at the level of the ninth dorsal and other much larger clots on the surface of the left occipital lobe.

Bennett himself says that, in view of the time that had elapsed since the operation, and considering that the quantity of fluid draining away had become so small, he does not believe that death was in any way caused by the escape of cerebrospinal fluid, but would attribute it rather to vomiting, which produced the cerebral hemorrhage, or to the apoplexy resulting in vomiting, collapse, and coma; and that "it is by no means clear that his death was even remotely connected with the operation."

Chipault's patient went into sudden coma thirty-six hours after the operation, without apparent cause, but having lost a great deal of cerebrospinal fluid, and died on the third day. Upon autopsy, the entire subarachnoid space of cord and brain, as well as the ventricles, was found entirely dry, and there were disseminated hemorrhagic foci in the brain and marked sclerosis of the cerebral vessels. From this material Chipault draws the conclusion that the operation is one of great danger.

In view of the number of cases which I have tabulated, in which no untoward occurrence took place as a result of the operation, and considering the varied interpretation which is permissible in these fatal cases, it does not seem to me that the operation presents any greater danger than any laminectomy in which the dura has to be opened; in other words, the resection of the posterior roots does not add to the danger of the laminectomy.

While it is by no means my intention to spread here of matters purely surgical, there are certain questions pertaining to the technics of the operation which are upon as much of neurological as of surgical interest.

The indication for the operation having been

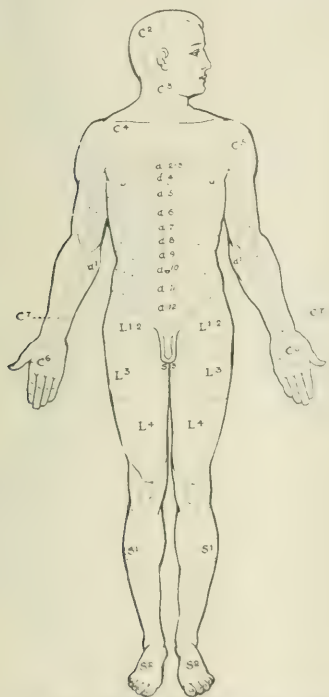


FIG. 1. Roots of molecular distribution of the spinal nerves. After Koster. Front view.

eral cases been followed by the Brown-Séquard symptom complex."

Yet the indications for the operation have been carefully formulated by Abbe and Chipault, and the success of most of the operations is manifest. The dangers, as shown in the published cases, resolve themselves into a persistent Brown-Séquard paralysis of moderate degree occurring as a result of the operation, in a single case, and into death following the operation in two others. The occurrence of the crossed sensorimotor paralysis in the case of Morton Prince was undoubtedly caused by the operation as such, yet was probably due to pressure upon the cord in consequence of the formation of a clot,

clearly decided upon, the precise nerve roots which are to be resected must of course be determined before the operation is begun. Our knowledge of the distribution of each of the posterior roots should be ample for this purpose, as is shown in the accompanying charts (Figs. 1 and 2). The various ques-

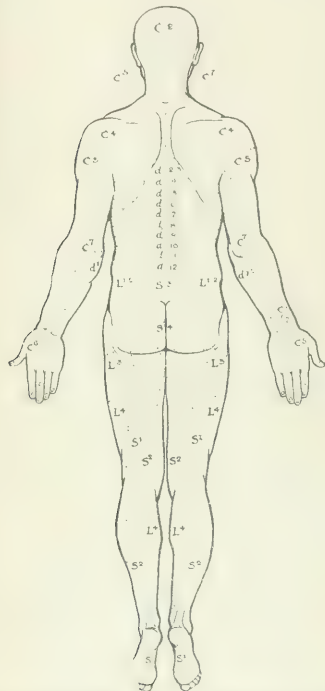


FIG. 2. Areas of radicular distribution of the spinal nerves (after Koehler). Back view.

tions concerning the distribution of the nerve fibres in the skin and their terminal relations do not concern us here so much as the relation of the roots with their dermatomes. We know that the nerve trunks which go to form the plexuses constitute a group of nerve fibres in which no very definite functional arrangement can be made out, and which in their course do not correspond to any real systematization. On the other hand, the relation of the roots with their dermatomes is very simple. These dermatomes assume the form of circular bands arranged at levels, each level succeeding the preceding one in the order of the roots themselves. The dermatomes may easily be pictured by conceiving of the individual as placed in the posture of a quadruped, the skin being divided into as many superposed zones as there are pairs of spinal nerves. In the upper limb these zones are projected into its length in parallel, more or less continuous bands, while in the lower limbs these bands are, on account of developmental distortion, rendered more or less discontinuous.

During the course of the operation we can more certainly determine the root which is to be cut by its relation to the spinous process (see Fig. 3) as

well as by direct faradaic excitation of the corresponding anterior root, aided by our knowledge of the motor innervation territory of such root.

Technically, there is merely to be said that, in resecting the posterior root, no traction should be made upon the proximal end, so as not to injure the cord, and none upon the distal end, so as not to injure the anterior root, which is in close relation to it.

The nerve is to be lifted and cut at the level of the cord, then the peripheral end caught, put to some tension, and cut at the place where it pierces the dura. In so doing as large a piece as possible of each root is resected, and by this means reunion is prevented so far as this can be done.

According to Chipault there can thus be resected 1 cm. in the cervical, 2 cm. in the dorsal, 3 cm. in the lumbar, and 4 cm. in the sacral regions.

In order to assist references and deductions, I have tabulated the cases which I have collected; in addition to the cases here tabulated, I have found references to other ones which I have not included in my tables, because sufficient details were not available.

Thus, Abbe refers to a case in which McCosh did an intradural section of the posterior roots of the fifth and sixth dorsal nerves for neuralgia, and J. L. Faure has resected the posterior roots as a palliative measure in a case of inoperable carcinoma of the uterus. Of the cases spoken of as Horsley's, I can find only the four given in the tables, but there seem to have been others which have formed the basis of verbal communications. My tables can therefore not be taken as a basis for any statistics regarding the number of times the operation has been performed; probably this operation has been



FIG. 3. Diagram showing the relation of the nerve roots to cord and spine, their points of origin at the surface of the cord, as well as the foramina from which they emerge (after Marion).

done much oftener than my references would lead one to believe.

A study of these various cases demonstrates that the indications for this operation are given by:

1. Persistent neuralgias of mixed nerves in which the motor functions of the nerve are intact and in

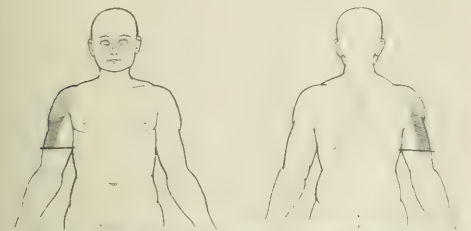


FIG. 1. The dotted area is that in which disorder of temperature sense was noted; the lined area shows the extent of loss of sensitivity to prick.

which these are of sufficient importance to warrant their preservation.

2. In neuralgias of radicular origin.

3. In symptomatic neuralgias in which the cause of the pain can be abolished by no other means, and as a palliative measure when the causative affection is irremediable, yet pain must be suppressed.

The case which I have to report, and which was the incentive to a reconsideration of various questions raised by the operation of resection of a number of posterior nerve roots was the following:

CASE.—F. K. H., aet. thirty-seven, was referred to me on October 22, 1906, by Dr. Elizabeth Sturgis. His history was as follows: He had always been in good health until the accident which caused his present trouble, seventeen years before. His family history was negative so far as any nervous or mental trouble was concerned. His habits were good, though he used beer occasionally. There was no history of lues. He had been married four years, and had two healthy children. His present trouble began about seventeen years before with his right hand being caught in a piece of machinery and being so lacerated that it had to be amputated at the wrist joint. Ten days later, gangrene of the stump having set in, an amputation five inches higher up was performed. This wound united perfectly, but soon after union had taken place he began to complain of pain in the stump, which increased in severity and soon spread from the stump into the missing hand.

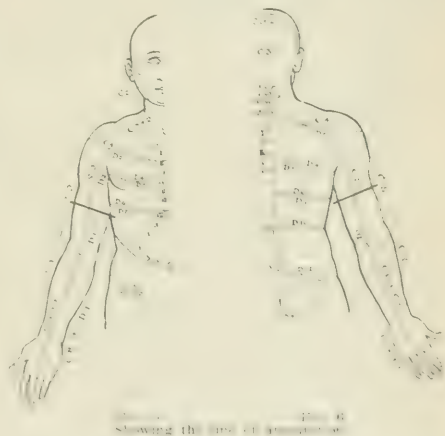
His work was then for several years in the open air, then again in the machine room, and during all this time pain in the absent hand persisted, and was at times worse than at others. In 1891, when he demanded relief of some kind, the stump was opened and "large bulbs" were removed from the nerve ends. For a short time this operation gave some relief, but soon again the pain increased in intensity, and in October, 1895, more "bulbs" were taken out and the nerves resected. This latter operation gave but little relief. In 1895 still another operation, the precise nature of which I do not claim to me, was performed, also without relief. The pain persisting and causing much distress, and loss of sleep, he was again operated upon in October, 1905, and finally, in May, 1906, the arm was amputated to the point where it was now seen to terminate. For a few months he had some relief, but the pain had never left him entirely; it had always been present in the absent hand, together with a deeper form of pain in the upper and shoulder

while handling of the part always caused exacerbation of the pain in the hand.

When I saw him the pain had become intolerable, and he was frequently kept awake for many nights in succession. What, however, alarmed him most and impelled him to seek relief was the increase of certain psychic symptoms which had been present for three or four years. Chief among these were lapses of memory; as an illustration of these, he related the following, which had occurred a number of times: His wife told him to get up and go to work; he answered, "This is no working day, this is Sunday," and remained at home. In the course of the day he realized his mistake and upbraided his wife for having allowed him to remain away from work. At other times he had, during two hours, lost the recollection of the day of the week; he had also lost his way while going from his work to his home, an entirely accustomed road. One night he went several miles in a direction entirely opposite to the one he should have taken before he realized his mistake; he had lost all sense of time, attending to his work, but not knowing whether it was forenoon or afternoon; at times he had no recollection of occurrences of most recent date, such as what he had read or what he had said or done during the past hour.

He had spells in which he was overpowered by a desire to run away, to escape. He said that when such a spell came over him he felt that if he could run away he would escape from himself and get rid of his pain, and at such times he had the strongest impulse to board trains and get away, or, with the same idea in view, to throw himself into the moving machinery of the factory in which he was employed. He feared that some day this impulse would become uncontrollable.

Examination.—Examination showed a fairly well



nourished man with all the thoracic and abdominal organs normal and no objective evidences of any disease of the nervous system. The right arm had been amputated nine inches and a half below the great tuberosity and bore a slightly atrophied stump, the scar on which was not adherent to the bone, but was decidedly tender, pressure upon it causing local sensitiveness as well as pain in the missing fingers.

Upon the internal part of the face of the stump there was a bulbous enlargement, a neuroma, which was extraordinarily sensitive to the slightest touch. Pressure over the neck, alongside the cervical vertebrae caused a feeling of tingling in the stump and fingers. The spontaneous pain and the tingling produced by pressure over the neck were not relieved by the removal of the

dorsum of the terminal joints, and to the knuckles, and he had a constant sensation of the fingers being in a "scooped" position and of being bound up too tight.

Sensory examination revealed an area of hyperaesthesia to pain and pressure, involving the entire stump, as well as a slight diminution of tactile sense (when touched with cotton wool) over the free end of the stump and extending upward on all sides for about an inch and a half. With this exception there was nowhere any disorder of tactile, pain, or temperature sense.

In view of the previous unsuccessful efforts to relieve the patient from his constant pain, and on account of the development of the psychic symptoms, I proposed to have a laminectomy performed and the posterior roots of all the nerves which combine to make up the brachial plexus, viz., the fifth, sixth, seventh, and eighth cervical, and the first dorsal, resected within the dura, central of their ganglion. For this purpose he was admitted into the German Hospital, where on November 17, 1906, Dr. O. G. T. Kiliani carried out the operation as suggested, for this purpose removing the spinous process and arch upon the right side of the fourth, fifth, sixth, and seventh cervical vertebrae. The operation itself has already been described by Dr. Kiliani on the occasion of his presenting the patient be-



FIG. 7. Copied from *From*. The boundary of insensitiveness to prick is shown by the thick continuous line; that of insensitiveness to light touch by the thin dotted one.

fore the German Medical Society of New York. Here I will merely state that the hemorrhage during the operation was very great, but that the utmost care was taken to prevent the blood from settling within the spinal canal. The dura was incised, the posterior nerves were lifted up on a blunt hook, and about a quarter of an inch of each root was removed.

An interesting phenomenon was produced when hot saline solution was poured upon the wound for the purpose of controlling the hemorrhage from the bone, the dura, and later the cord itself being exposed. Every time that the hot solution came in contact with the cord, the pulse became more rapid and stronger, and the respirations deeper and more frequent, so that the entire thorax was moved up and down. In view of the fact that the greater part of the arm was missing, no electrical excitation of the anterior roots was undertaken, inasmuch as the information thus attainable would have been disproportionate to the possible added danger to the patient.

The patient stood the operation exceedingly well, and made a prompt and uninterrupted recovery, being discharged from the hospital after seventeen days. A careful examination of him could not be made until November 19th, forty-eight hours after excision of the nerve roots. Upon this, as well as upon the subsequent day, there was present no evidence of any disturbance of the nervous system, except the slight sensory disorders in the arm, which I shall describe presently. In

all other parts motion, sensation, and the superficial and deep reflexes were entirely normal. Examination of the stump itself showed the following: Motility was perfect; sensibility to pressure and appreciation of position were present. Over the entire stump and shoulder, except in the area shown in the diagram (Fig. 4), sensation to the prick of a sharp needle and to a light touch with cotton wool, was as acute as upon the corresponding surface of the healthy arm; and, moreover, he was able to recognize the two points of an aesthesiometer and to discriminate between varying degrees of temperature, as well upon the one arm as upon the other.

Over the area referred to there was, however, loss of pain, sense to the prick of a needle, while a light touch was clearly recognized and localized; here also there existed a peculiarity in temperature recognition which was not limited to this area, but extended upward over the greater part of the deltoid, and which consisted in an appreciation of lesser degrees of heat and cold, while the extremes of either were not appreciated as hot or cold, but merely as touch. Thus, water at 70° F. and water at 100° F., were recognized as cool and warm, whereas a test tube filled with ice and one filled with boiling water could not be distinguished.

As to his pain in the amputated hand, he said on the 19th: "I still feel some pain in the fingers; it is really not a pain, but is more as if the hand were bound tight; it feels entirely different from what it did formerly; the stump feels sore, as if it were healing; I have no pain in the neck." On the 22nd he expressed himself as having "no pain whatever in the hand or fingers for the first time in seventeen years."

On the 29th of December he complained of weakness in the neck, of general lassitude (he had lost about twelve pounds in weight); and of pain to the touch and pressure in the end of the stump over the bulbous thickening. He had no pain in the hand or fingers. Sensory examinations were the same as on November 19th and 20th.

January 21, 1907: He had been in the country and had done well; there was some soreness in the shoulder, and severe soreness in the stump persisted unchanged. Of this he said: "If I had to, I could worry along with it the rest of my life, but I should hate to." There was no pain in the hand. All the psychic symptoms previously described had disappeared; he no longer dreaded being left alone, did not feel like getting away from himself, and was anxious to go to work.

The study of vasomotor changes was of course precluded by the absence of the greater part of the extremity; no such changes were observable in the stump.

A point of minor interest in the study of this case is the effect of heat upon the pulse and respiration, when applied directly to the cord. Here the pulse rate and the tension were directly increased by each application of the sort, and the respiratory movements were also decidedly increased thereby, both in strength and in frequency. It is of interest to note that in Bennett's case the cutting of each nerve root, lumbar and sacral, was immediately followed by a sudden cessation of the pulse, which, however, almost immediately returned upon a little gentle pressure with a warm sponge. It would thus appear from both these cases that the application of heat to the exposed cord, at any part, has a stimulating effect upon the heart's action.

Greater interest, however, centres around the effect upon sensation produced by the section of a large number of nerve roots. The first impression made by the sensory examination, forty-eight hours after the resection of all the posterior roots that go

to make up the brachial plexus, was one of astonishment at the small amount of sensory defect which could be demonstrated.

Yet a moment's reflection showed us that it could not have been otherwise, for while the fifth, sixth, seventh, and eighth cervical and the first dorsal roots had been resected, the parts available for examination were, in consequence of the amputation, reduced to those which are supplied by the fourth and fifth cervical and the second dorsal (Figs. 5 and 6 showing the line of amputation), and of these only the fifth cervical had been resected, thus for purposes of physiological study reducing the question to that of section of a single posterior root. Now, it is a well known fact that section of such a single root does not cause complete anæsthesia, but that this is produced only if the adjoining roots are also implicated. Sherrington has shown by experiments upon the monkey that the sensibility of a posterior dorsal root territory is dependent, not only upon that root, but also upon the adjacent upper and lower roots, and possibly also upon more distant ones.

That this fact is directly applicable to man is shown by Case X of my table, in which merely the eighth cervical was resected, and the only sensory change was a transitory hyperæsthesia of forty-eight hours' duration; by Case V, in which, although three roots were resected, there was produced merely a slight hyperæsthesia, which passed away in twenty-four hours; and by McCosh's case, in which two roots were resected without any anæsthesia following. In the case which we are now considering there was in the entire area supplied by the fifth cervical root complete sensibility except over a small area in which the pain sense and limited temperature sense were lost.

This also is in accord with what Sherrington has more recently shown, that the loss of sensation produced in the monkey by section of a single posterior root is for the pain and temperature sense only, while the tactile sense is in no way thereby affected. From this he concluded that the overlapping of the segmental fields is greater for the tactile sense than for the other sensory qualities. This view is also supported by Muskens.

In this connection the very recent work of Head, Rivers, and Sherren is of the utmost interest. These investigators, starting from the acknowledged truth that no view yet advanced of the structure and functions of the afferent nervous system is sufficient to explain obvious facts, have by means of clinical and experimental observation submitted the distribution and function of peripheral nerves to a reconsideration, as a result of which they conclude that the sensory mechanism in the peripheral nerves is found to consist of three systems:

1. Deep sensibility, capable of answering to pressure and to the movement of parts, and even capable of producing pain under the influence of excessive pressure or when the joint is injured. The fibres subserving this form of sensation run mainly with the motor nerves, and are not destroyed by division of all the sensory nerves in the skin.

2. Protopathic sensibility, capable of responding to painful cutaneous stimuli and to the extremes of heat and cold. This is the great reflex system producing a rapid wide-spread response unaccompanied by any

definite appreciation of the locality of the spot stimulated.

3. Epicritic sensibility, by which we gain the power of cutaneous localization, of the discrimination of two points, and of the finer grades of temperature called cool and warm.

In my case the sensory loss was a protopathic one in the sense of Head, and corresponded with remarkable exactitude, due allowance being made for the absence of the greater part of the arm to what he found in the cases in which Sir Victor Horsley had divided the posterior roots on account



FIG. 8. Copied from *Reber*. The dark line outlines the parts insensitive to prick; the dotted area corresponds to the loss of sensation to light touch.

of intolerable and obstinate pain. These cases (IV and XII of the table) are as follows:

CASE IV.—A woman, yet forty-five, was admitted into the hospital in March, 1898. Thirteen years before she had cut her right forearm with a glass lamp shade, and ever since had complained of pain in the arm. Portions of various nerves had been excised on fourteen occasions. Of the condition of sensation before the division of the nerve roots nothing definite was known beyond the fact that loss of sensation ceased a few inches above the wrist.

On May 31, 1898 the operation was performed. The dura was opened and the fifth, sixth, seventh, and eighth cervical, and the first and second dorsal posterior roots were resected. She remained perfectly from the operation, and on August 20th was bright and cheerful and free from pain. She suffered a stroke and lay over the whole forearm and hand and over the greater part of the arm (Fig. 7). A cotton wool was appreciated over part of this area, and the loss of light

Reported to by	Sex	Age	History	Chief complaint	Operation	Result
1	M	45	Severe pain in left arm.	Resection of fifth, sixth, and seventh cervical posterior roots.	Escape of cerebrospinal fluid for No details available.	Considerable amelioration.
2	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Death on the third day.	No pain whatever; no evidence of coming out of chloroform.
3	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
4	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
5	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
6	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
7	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
8	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
9	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
10	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
11	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
12	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
13	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
14	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.
15	M	45	Increasing pain in back and side, occurring in three weeks; duration; finally no freedom day or night; four years.	Resection of fifth, sixth, and seventh cervical posterior roots.	Relief from pain complete two years and a half after the operation.	Cure.

touch was less extensive than loss to a prick everywhere in the arm. While the border of the area insensitive to a prick was extremely definite, that of loss to light touch merged gradually into parts of normal sensibility. Water at 50° C. and ice were not appreciated over the analgetic area.

CASE XII.—F. M., a woman, æt. thirty-one, had had obstinate pain in the right arm for several years. In February, 1902, the spinal canal was opened and the posterior roots of the fifth, sixth, and seventh cervical nerves were divided.

On May 15, 1905, and subsequently, there was an area on the arm and forearm insensitive to the touch with cotton wool, also an area of analgesia, the extent of which is shown in the diagram.

The loss of sensation is the result of division of the posterior roots. Here also the area insensitive to a prick was larger than that insensitive to light touch (see Fig. 8). Discrimination of two points of the compasses over the deltoid region differed but little upon the two sides, and sensation to pressure was retained everywhere above the wrist, but the reaction to stimulation with heat and cold was peculiar. Over the deltoid region on the affected arm she could tell the difference between 38° and 25° C., saying that the first was warm, the latter cool, but she was unable to recognize any difference between ice and water at 65° C. A temperature of 20° C. was distinctly cold, but ice, in comparison, was said to be neutral. The lowest temperature lay between 15° C., which was not appreciated, and 18° C., which seemed to her cool. Her sensation of warmth ranged between 35° and 55° C. All specific sensation ceased at this temperature, and the stimulus was appreciated as a touch only.

From these two cases it would seem that division of several posterior roots causes a protopathic loss¹ larger and more sharply defined than the epicritic² one, while from my case the deduction seems to be warranted that section of a single posterior root produces changes in protopathic sensibility in the territory of that root, while no disorder of epicritic sensibility is discoverable. Head, Rivers, and Sherren, from their own work and material, have complemented their conclusion by the broader generalization that, while the supply of the epicritic system is laid down in units that correspond in the upper limb with certain groups of nerves, and lesions here produce well defined defects in sensation, the nearer we approach the posterior roots the less defined are the boundaries of the area insensitive to epicritic stimuli, and the more extensive and defined is the loss to protopathic stimuli. This they summarize by the statement: "It would seem, then, as if each of the peripheral nerves or nerve groups formed a unit of the epicritic system; the protopathic unit must be sought in one or more of the posterior roots."

In studying the defects of sensibility produced in the various cases in my table, we are struck by the discrepancies presented by certain sensory examinations which can be understood with but great difficulty, if at all.

Thus in Case I the sixth, seventh, and eighth cervical roots being resected, marked sensory disturbance was caused in regions supplied by the fourth and fifth roots, which were not cut; in Case VI, the fifth, sixth, seventh, and eighth cervical, and the first dorsal roots having been resected, there

was some insensitiveness in the part supplied by the fourth cervical, which was not cut.

This was also so in Case IV, in which the fifth, sixth, and seventh cervical roots were cut, and three years later there was, in addition to the sensory loss in the area supplied by these nerves, also insensitiveness to extremes of heat and cold in parts supplied by the fourth, which was not cut, as well as in my case, in which protopathic sensibility was lost over an area supplied by the fourth, which here also was left intact.

It seems possible that the well known facts of recurrent sensibility in the anterior roots may cast some light upon this peculiar phenomenon; yet if this proves to be so, Claude Bernard's statement that every anterior root acquires its recurrent sensibility from the corresponding posterior root and not from another could no longer be maintained.

Very curious also is the rapidity with which sensibility returned in parts supplied by resected nerve roots in Bennett's and Prince's cases. It is out of the question to assume a reunion of the nerve roots in their cases, and Prince's explanation that "the return of sensibility must therefore be due to overlapping nerve supply from adjoining root areas, which have become functionally more excitable," is hardly satisfactory.

That in Case XIV the eleventh and twelfth dorsal and the first lumbar roots were cut and sensation was abolished in a territory supplied by the first, second, third, and fourth lumbar and the first and second sacral is explicable only upon the hypothesis of erroneous observation.

Much more fruitful is the analysis of these colated cases in regard to the influence of the root section upon the pain from which the patients suffered and for which the operation was undertaken.

Such an analysis shows that in thirteen of the fifteen tabulated cases the result is given; that of these thirteen patients, eight may be said to have been given complete and permanent relief, and in the five remaining ones amelioration of the pain with improvement, yet with incomplete recovery, was attained.

It would also seem that in those cases in which merely diminution of pain was achieved, an insufficient number of nerve roots had been resected, and all evidence tends to show that more than one root above and below the apparent origin of the pain should be attacked.

I regret that in my case I did not advocate resection of the fourth cervical root together with the others, for I believe with Abbe that the fact that the third and fourth posterior cervical roots communicate with the phrenic should not deter us from severing them, inasmuch as the motor function of the phrenic can in nowise be thereby interfered with.

From this analysis the conclusion seems to be warranted that as an operation for the relief of protracted and intractable pain the intradural resection of a sufficient number of posterior nerve roots is one which can be advocated without reserve.

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² Limited reaction to those stimuli commonly employed as a test of sensibility to touch.

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44 WEST SEVENTY-SECOND STREET.

ÆTIOLOGY AND TREATMENT OF PRURITUS ANI.*

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Pruritus ani is an exceedingly annoying affection and an extremely obstinate and intractable disease to treat. It is characterized by persistent and intense itching at the anoperineal region, which is more or less constant, but grows worse after the patient has become warm in bed at night.

Pruritus ani is met with in both men and women, and is rarely seen in children. It is found in persons in all walks of life, in the overfed and underfed alike, but neurotic individuals and those who are stout or perspire freely are especially predisposed to it. Pruritus ani seems to be associated in most cases with affections of the mucous lining of the rectum, but it is often present in a marked degree when no cause for its existence can be discovered. Although the term pruritus ani simply means an itching at the anus, which is generally believed to be only a symptom of some other disease, such as hemorrhoids or eczema, we have sufficient reason to believe that in some instances pruritus ani is a disease *per se* due to a pathological change in the structure of the anal and circumanal skin. There are cases in which the local changes are slight or absent, and there are others with intense localization of the affection in the anoperineal region.

In its incipency the disease is attended by certain changes in the appearance of the parts. The skin may be red from scratching, or there may be a slight loss of the natural pigment of the anal region and marked excoriation of the skin. Later on, as the disease progresses, the skin becomes thickened and presents a parchment like appearance, accompanied by a moist exudation; or the skin may be dry, covered with scratch marks. When the disease is of long standing and severe, the radiating folds of skin become indurated, cedematous and sometimes ulcerated or fissured. As a result of continuous scratching, and the whole area assumes a dull whitish color from the total loss of pigment occasioned by the gradual exfoliation of the epithelium.

Causes.—It is sometimes impossible to ascertain the cause of pruritus ani, but in the large majority of cases the following are the most common exciting causes: (1) Constipation and fecal impaction; (2) local disease of the rectum or anus; (3) want of cleanliness in the anal region; (4) pediculi and seat worms or vegetable parasites; (5) constitutional or systemic diseases; (6) diet and irregular habits.

1. Constipation and fecal impaction is undoubtedly a very common cause of pruritus. The constant presence of feces in the rectum causes a certain degree of venous congestion. The pressure exerted upon the rectum necessitates the frequent passing of flatus, and each time the flatus is passed a small quantity of mucus escapes and this keeps the anal region wet, which in turn produces a dermatitis.

2. Local disease of the rectum or anus is a quite efficient cause for the disease. The most common of these are: Internal hemorrhoids, blind internal or external fistula, prolapsus mucosæ recti, fissure, polyp, candylomata, acute and atrophic proctitis, neoplasms, ulcers, etc. The existence of these conditions invariably causes marked congestion and tenesmus, accompanied by frequent discharges of large or small quantities of mucus, blood, or pus, which keeps the perianal skin moist, and this moisture is quite sufficient to produce a dermatitis in individuals predisposed to this disease.

3. Want of cleanliness in the anal region is an important factor in producing and aggravating itching at the anus. Persistent fecal soiling and the presence of even a slight degree of moisture will very often be sufficient to produce pruritus ani. The use of improper or printed toilet paper may sometimes induce a pruritus.

4. Pediculi, seat worms, and other parasites are not infrequently the cause of a persistent itching of the anus. In children, pruritus ani is due chiefly to intestinal worms, but thread worms are not infrequently found to be the cause of pruritus in adult life. I have treated a number of middle aged men and in one instance a man, fifty-eight years of age, for an intolerable itching at the anus due to oxyuris vermicularis. In the later case the man was so harassed by the itching that he was unable to sleep at night and was unfitted to attend to either business or social life.

5. Constitutional or systemic disease, such as diabetes mellitus, uremia, obstructive jaundice, rheumatism, may cause intense itching of the skin in the anal region. Occasionally pruritus is an early and most distressing symptom of gout and Graves's disease.

6. Irregular diet and habits are especially conducive to pruritus ani; shellfish, overseasoned food, lobster, strong coffee or tea, and the use of very greasy food will sometimes excite a pruritus. Anything like excess in smoking or in alcoholic drinks will keep up the disease.

Pruritus may also be a reflex phenomenon of uræmia and bladder disturbances, excessive and perverted sexual indulgence, and lastly some disease of the brain and cord, or senility.

Skin diseases occurring in the anal region are frequent causes of pruritus. These diseases are, as a

* Read before the Northwestern Medical Society, May 6, 1907.

rule, secondary to pruritus as a result of the scratching, but they may also be primarily responsible for the disease. The following are some of the primary skin affections conducive to pruritus: Herpes, eczema, scabies, anal ringworm, etc. Gonorrhoeal or leucorrhoeal discharges, which find their way to the anal region, will sometimes set up a pruritus. In rare cases the disease is due to a neurosis of the rectum.

Treatment.—In the treatment of this disease, the cause must be found and removed, if success in the treatment is to be obtained. If rectal constipation is present, this must first of all be overcome. An attempt should be made to secure at least one evacuation of the bowels every day. This can often be accomplished by dietetic and hygienic measures. If these measures are not effective, a dose of cascara at bedtime in addition to gentle massage of the sphincter with the finger and followed by the injection of three ounces of olive oil and its retention over night is very effective in a large majority of cases. The repeated administration of purgatives is apt to aggravate the condition, and it had better be avoided if possible. If fecal impaction be present the treatment consists of the removal of the mass. This may sometimes be accomplished by the use of enemas and assistance of the finger of the physician. In cases of long standing, however, this treatment is not effectual and the removal of the mass must be executed under an anæsthetic by first dilating the sphincter thoroughly and then breaking up the mass with the fingers, or iron spoon, when the broken up pieces are removed one after another.

When pruritus is a symptom of internal hæmorrhoids, it is easily cured by their removal. When fistula is found to be the exciting cause the cure will rapidly follow the usual operation for this condition. Pruritus is often dependent upon other diseases of the rectum or anus, such as polypus, fissure, prolapsus mucosæ recti, condylomata, acute and atrophic proctitis, neoplasms, ulcers, stricture, etc.; the proper treatment for these conditions will speedily and effectually cure it.

Want of cleanliness being sometimes the cause of pruritus ani, it is well to instruct the patient to cleanse thoroughly the anal region after each act of defæcation, and to keep the part dry in the intervals. Fæcal soiling, excessive perspiration, or discharges should be wiped off, and the parts should be bathed with hot water, dried and then dusted with boric acid finely powdered.

If the presence of oxyuris vermicularis in the rectum is observed to be the source of trouble they may be eradicated by simple measures, the best known of which is an enema of quassia or salt water after each passage in conjunction with anthelmintics. Seat worms are more readily removed in children than in adults, and in the case I quoted at the outset, it took me almost a year to rid my patient of them when the itching was entirely relieved. If pediculi are found to be the exciting cause of pruritus, the use of bichloride of mercury, larkspur, stavesacre, and acetic acid will destroy the parasites, and the consequence will be the cessation of the itching. If the microscopical examination of the epidermis proves the presence of a vegetable parasite (trichophyton) a wash of sulphurous acid of

various strength applied frequently, or the application of iodine, will eradicate the disease.

Chronic eczema is to be treated as elsewhere in the body. If the patient manifests a rheumatic, gouty, or syphilitic diathesis, or if he is suffering from diabetes mellitus, Bright's disease, or obstructive diseases of the liver or heart, or when evidence of eczema in other parts of the body is seen, he should be treated for that particular disease. In women, uterine disorders must be cured, first, before we attempt to treat the pruritus. When the affection is due to disease of adjacent organs the adequate treatment of those affections will rapidly cure or ameliorate the pruritus.

Where no distinct cause can be found to account for the itching, the diet should be regulated. Meat should be used sparingly and overseasoned food avoided, likewise alcoholic stimulants and tobacco, tea, and coffee. A light diet and regular hours for sleep should be recommended and insisted upon.

While it is true that the removal of the cause is of prime importance in the treatment of the itching, the physician will do well to make the patient as comfortable as possible in the meantime by local applications to allay the itching. It is equally true that in some cases the removal of the apparent cause fails to relieve the pruritus, in which instance the condition requires special treatment. I find the following formula used by Goodell in pruritus of the vulva a most reliable and soothing application:

R Chloral and camphor..... $\bar{a}\bar{a}$ $\bar{\text{z}}$ iv;
Red these into an oil and then add

Unguenti simplici, $\bar{\text{z}}$ $\bar{a}\bar{a}$ $\bar{\text{z}}$ iv.
Poly acid borici, $\bar{\text{z}}$

M. S. Apply with a brush three times daily after cleansing the parts with hot water.

In some cases the addition of 20 grains of carbolic acid, in others again 20 grains of menthol, is extremely beneficial, and is often sufficient to secure a good night's sleep. When the skin is fissured the application of a 5 per cent. solution of silver nitrate or a 50 per cent. solution of ichthyol or balsam of Peru in full strength are useful and effectual stimulants for healing. In cases of pruritus ani due to syphilis citrin ointment or the ammoniated mercurial ointment gives good results.

Some cases will not yield to the aforesaid treatment, and more heroic measures are required to get the desired result. I employed successfully pure carbolic acid, the saturated solution of silver nitrate, or the Paquelin cautery. These remedial agents destroy the epidermis of the affected skin, resulting in cessation of the itching. Having the same object in view, Mathews recommends as a last resource the resection of the affected skin. In order to prevent the nocturnal itching and to insure a good night's rest, Allingham advises "the introduction into the bowel of a bone plug about an inch and a half long, shaped like the nipple of an infant's feeding bottle, with a circular shield to prevent its slipping into the bowel." He attributes the benefit derived from this procedure to the pressure exerted upon the venous plexuses and filaments of nerves close to the anus. Divulsion of the sphincter muscle may also be resorted to when the ordinary remedies are of no avail.

There are instances which prove most obstinate and resist all forms of treatment, and in spite of

the best of care cannot be cured permanently. It is, therefore, advisable not to promise our patients too speedy relief, so that they are not disappointed. Whenever I undertake to cure a case of pruritus ani I always tell the patient that a cure may be effected within a short time, say, two weeks, but sometimes only after prolonged effort, and many discouragements. If we then have the opportunity to watch and follow intelligently the treatment we will generally meet with success. Where the itching is so intense as to prevent sleep, it is necessary to administer a hypnotic; morphine or opium should never be employed, because they aggravate the itching on the following day. Chloral, sulphomethane, and veronal are very reliable hypnotics, but should be used cautiously in chronic cases, so as not to induce the habit.

926 NORTH FRANKLIN STREET.

THE LEUCOCYTES IN DENGUE.

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Until very recently, nothing has been known concerning the blood count in dengue. Carpenter and Sutton (1) published a paper in January, 1905. According to their observations and those of all subsequent observers the erythrocytes are not diminished in number, nor do they present any features of interest in this disease.

Their conclusions as to the leucocytes, however, are as follows:

1. Dengue is one of the few fevers in which a leucopenia persists from the first.

2. Blood examinations are of great value in differentiating between malaria and dengue. Even though no parasites are found, a slight leucocytosis, with decided increase in the percentage of large mononuclears and transitionals, is indicative of the former, while a leucopenia, with a formal differential leucocyte count, or varying degrees of a small mononuclear lymphocytosis, and a marked eosinophilia late in the disease, is characteristic of the latter.

3. The period of convalescence in dengue is almost invariably ushered in with a pronounced small mononuclear lymphocytosis which persists for several days.

A later paper by Stitt, (2) while giving no information as to the number of cases studied, concludes as follows: "In conclusion I should consider the most characteristic blood findings of dengue, to be the following: 1. Absence of a demonstrable protozoan; 2. leucopenia; 3. diminution of polymorphonuclears; 4. a striking variation in the percentage of other leucocytes at varying periods of the disease. At first a large increase in the small lymphocytes is observed, then the appearance of a greater proportion of large lymphocytes and, in the final stages, at the time of the terminal rash, and during convalescence, a most striking increase in the mononuclears."

Early in July, 1905, while stationed at Fort William McKinley, an epidemic of dengue broke out among the troops, and the cases came so rapidly that within a month two hundred cases passed through the ward alone. Blood counts were made

in as many cases as the time at my disposal permitted, cases being selected in which the diagnosis was unquestionable, and from which malaria, the only other febrile disease then occurring in the post, was excluded by a careful examination of the blood for the malarial parasite. An endeavor was also made to obtain cases early, since the method employed was to make a count upon every day of the disease, beginning with the first day.

As the attack of dengue is usually quite sudden, this was the more feasible, and a case was called the first day if a blood count was secured at any time within the first twenty-four hours of the time the patient first noticed the illness. Twenty such cases were secured for a daily count, besides many scattering counts. Inasmuch as the results of Carpenter and Sutton, Stitt, and myself are in accord as to the fact that no interest attaches to the red count and that leucopenia is constant throughout the disease, to avoid unnecessary figures the red count is omitted from all the cases, and the white count from all but a few, leaving the differential leucocyte count for discussion.

As the chief discrepancy between the counts of Stitt, and those given in this paper, is the one between the small lymphocytes and large lymphocytes, a discussion as to what constitutes the characteristics of these two cells will not be amiss. Cabot (3) says "Small lymphocytes consist mostly of a round, blue nucleus about the size of a red cell, surrounded by a thin coating of protoplasm." With Ehrlich's triacid stain I do not find it possible to draw any line between this form and that now to be described, namely, the large lymphocyte which is simply larger and paler. In the so called large lymphocyte the nucleus occupies relatively less of the cell than in the small lymphocyte and stains less readily.

It will thus be seen that there is no dividing line between a small lymphocyte and a large lymphocyte. In order, however, to make the following counts of greater accuracy an arbitrary distinction based on size has been adopted. All lymphocytes smaller than two red blood cells have been called small; all larger than two but smaller than four red blood cells have been called large lymphocytes, while those larger than four red blood cells have been called mononuclears. All the transitions have been included in this latter class.

The following conclusions may be drawn from these observations:

1. Leucopenia is a constant feature of dengue. I have never seen a case in which leucocytosis was present, though on occasion the count may be nearly normal.

2. A marked reduction in the polymorphonuclear count takes place early in the disease; is very evident by the second or third day, at latest, and this reduction is constant, with slight variations, throughout the course of the disease until convalescence is complete, and possibly lasts for some time after convalescence.

3. Coincident with this decrease in polymorphonuclears is an increase in the small lymphocytes, which takes place with equal rapidity and is of a similar duration.

4. There is a marked decrease in the count of large lymphocytes in the early stages of the disease.

5. There is a similar gradual, but slight increase in the eosinophiles.

It was impossible to determine how long this peculiar count remained after convalescence, because as soon as the patients were well, and recovered strength and appetite, they were returned to duty. This was usually on the sixth or seventh day after admission, which is the reason for so few counts being made on the eighth day. As will be seen by studying the tables, the predominance is transferred in fully half of the cases, from the polymorphonuclear cell to the small lymphocyte as early as the second day, and in practically all the cases by the third day.

While the large lymphocytes were often increased in the later days of the disease, this increase is by no means as characteristic as the increase in small lymphocytes, being present in only about half the cases, and never to the degree described by Stitt. Twenty-one per cent. was the greatest number of large lymphocytes encountered. The tremendous increase in the large mononuclears described by Stitt was not seen. In no experience do the large lymphocytes replace the small lymphocytes, since these latter appear to predominate in every stage of the disease.

While it is possible that all this discrepancy is due simply to the adoption of a different standard of classification, still these counts conform more to the results obtained by Carpenter and Sutton than to those reported by Stitt.

The increase in eosinophiles during the last three or four days of the disease is very small and would pass unnoticed if a single count is made, but is quite perceptible in a majority of cases where counts are made during every day of the disease. Case II is of interest as showing a very variable eosinophile count; very high one day, and very low the next. This man had no intestinal parasites, or other condition which would account for this peculiar variation.

Dengue is a disease to which little importance attaches ordinarily, yet, in certain instances and localities it becomes of extreme importance owing to its liability to confusion with other diseases, notably malaria and yellow fever. Will this blood count aid in the differentiation of these diseases?

Carpenter and Sutton thought the blood count a very valuable distinguishing point between dengue and malaria, as will be seen from their second conclusion already quoted, and our own observations lead us to the same opinion, with the exception that we have never seen a normal differential count in dengue, after the first day of the disease. A series of cases was undertaken to determine whether the diagnosis could be made between malaria and dengue by the blood count alone, the results being checked up after the blood count was made, by an examination of the blood for parasites, and the clinical histories.

Out of seven such test cases the diagnosis was made correctly, on the blood count alone in four cases, was incorrect in two cases, and uncertain in one case. Thus it will be seen that while the differential count is certainly an aid in diagnosing malaria from dengue, it can not be regarded as infallible. On the whole it is of minor importance in the diagnosis of these diseases, since the detection

of malarial parasites in a blood specimen is usually so easy and so certain, and especially since the cases of chronic malaria, in which the parasite is often hard to find, are the very ones in which the leucopenia is pronounced, and the differential count most closely approximates that of dengue.

However, if the blood of a doubtful case is counted daily, for three days, beginning with the day on which the illness commenced, it is probable that the diagnosis of dengue could always be made with certainty, for, as far as we know, in no other disease is there such a rapid reversal of the predominance of polymorphonuclears over small lymphocytes which is characteristic of a normal count.

In other diseases that simulate dengue, the reversal would already have taken place when the count was made, but in dengue, if the count is made on the first day, it is possible to watch the normal count change to the peculiar one of dengue.

Differential diagnosis between dengue and yellow fever: This is a subject of acute interest annually in our southern States and, while the writer has never seen a case of yellow fever, the little information obtainable on the subject of the blood count in yellow fever would seem to indicate that a marked difference exists in this respect between it and dengue.

Pothier (4), of New Orleans, studying the epidemic of 1897, found the following results in one hundred and fifty-four cases: The red cells were never considerably diminished; the leucocytes varied from 4,600 to 20,000, averaging about 9,000.

Cabot (4) has made a differential count of the leucocytes in twelve cases of yellow fever, and the average count of these twelve cases is as follows: Polymorphonuclear, 83 per cent; small lymphocytes, 10 per cent.; eosinophiles, 0.37 per cent.; large lymphocytes, 6.25 per cent.; myelocytes, 0.37 per cent.

Guiteras (5) says: "In yellow fever we have hypoleucocytosis without any characteristic variation from the normal relations of the several kinds of leucocytes. The hypoleucocytosis gradually disappears during convalescence, and is followed by some augmentation of the number. There may be hyperleucocytosis during the preagonistic period. The relative proportion of the different kinds of leucocytes I have found to vary as follows: Polymorphonuclear, 60.50 to 79.50 per cent.; lymphocytes, 14.10 to 36.40 per cent.; large mononuclear, 1.78 to 9.50 per cent.; transitional, 1.50 to 3.00 per cent. There is usually some increase in the mononuclears, but the readings are not so high as in malaria. *Eosinophiles are seldom found.*"

It is true that in a later paper Guiteras (6) says that the blood count does not aid in distinguishing yellow fever from dengue, but it is difficult to understand how this can be so, in view of the peculiar count of dengue and his own figures for the count in yellow fever. It would seem that the following differences should be found:

Dengue.	Yellow Fever.
1. Leucopenia practically constant.	1. Usually either a normal number of leucocytes, or leucocytosis.
2. Polymorphonuclears greatly decreased.	2. Polymorphonuclears normal.
3. Small lymphocytes greatly increased.	3. The usual small number of small lymphocytes found in normal blood.
4. Eosinophiles possibly increased.	4. Eosinophiles very scarce.

As all these changes in the blood in dengue ex-

cept the eosinophilia are well defined by the second or third day, the blood count ought to prove a very valuable point in the early differential diagnosis of the two diseases, providing the facts as to the count are as stated.

With regard to dengue, the blood count of which appears now to have been more thoroughly studied than has that of yellow fever, three different observers, of three different epidemics, in widely separated parts of the world, have been in practical accord that leucopenia is constant, that the polymorphonuclear cells are greatly decreased, and that the lymphocytes are greatly increased; the only difference of opinion being as to the variety of lymphocytes increased, and this latter difference, as has been previously explained, may be due, in part at least, to a different standard of classification.

In view of these facts the blood count of yellow fever is surely entitled to further investigation than it appears to have had in the past, for, if the few counts given in this paper are proved to be constant in this disease, an extremely important diagnostic point between the two diseases has been found, and one, furthermore, that is available on the second or third day of the disease.

CASE I.

Day of disease.	Leuco- cytes.	Polymor- phonuclear.	Small lympho- cytes.	Large lympho- cytes.	Mono- nuclears.	Eosino- phils.	Rasi- phils.
1....	5,300	79.50	16.00	2.50	0.50	1.50	None.
2....	4,100	50.00	43.00	5.50	1.50	None.	None.
3....	5,900	45.00	48.25	5.75	1.05	None.	None.
4....	4,400	46.00	40.25	10.75	3.00	None.	None.
5....	4,700	58.25	34.00	6.50	1.25	None.	None.
6....	5,250	46.33	43.33	8.66	1.00	0.66	None.
7....	4,700	29.50	56.00	11.75	2.50	None.	0.25
8....	4,800	27.50	60.00	11.25	0.50	0.75	None.

CASE II.

1....	4,200	60.00	17.75	7.50	2.00	12.75	None.
2....	3,800	40.50	45.00	10.00	3.00	1.50	None.
3....	6,500	25.00	54.33	8.00	2.00	10.66	None.
4....	2,750	34.00	44.00	6.00	1.00	15.00	None.
5....	2,800	45.00	45.06	7.66	1.00	1.66	None.
6....	4,550	29.33	48.33	8.33	0.66	19.33	None.
7....	5,550	38.75	50.00	8.50	1.75	0.50	0.50
8....	5,550	30.00	47.33	6.33	0.66	15.33	0.33
9....	5,000	30.00	46.66	11.66	1.33	10.00	0.33

CASE III.

1....	4,850	85.25	10.75	2.75	1.00	0.25	None.
2....	5,800	49.00	44.00	5.00	0.50	0.50	None.
3....	5,400	54.00	39.00	5.00	1.00	1.00	None.
4....	2,700	54.00	41.00	3.00	1.00	0.50	0.50
5....	4,000	46.66	49.33	3.00	0.33	0.33	0.33
6....	2,900	47.06	46.33	3.33	0.33	2.33	None.
7....	4,000	34.50	52.50	10.25	0.75	2.00	None.
8....	4,000	44.00	35.66	14.33	2.66	3.00	0.33

CASE IV.

1....	2,750	48.00	39.00	0.00	3.00	1.00	None.
2....	2,250	34.00	51.50	13.00	1.00	None.	0.50
3....	3,000	29.00	58.33	10.66	2.00	1.00	None.
4....	4,000	36.66	59.33	3.00	0.33	0.33	0.33
5....	4,400	35.50	61.50	8.50	1.00	3.50	None.
6....	4,400	33.66	56.00	8.66	1.33	0.33	None.
7....	3,600	38.60	47.00	9.50	2.50	2.50	None.
8....	3,600	41.75	47.50	8.50	0.50	1.50	0.25

CASE V.

1....	1,250	61.33	26.00	7.00	1.00	1.66	None.
2....	4,200	39.66	51.00	7.33	1.66	1.00	0.33
3....	4,000	35.00	47.50	8.50	1.00	1.00	0.33
4....	6,550	30.33	48.66	6.00	1.33	7.33	0.33
5....	7,900	23.00	58.00	10.00	0.50	8.50	None.
6....	7,900	25.33	61.00	8.00	0.66	4.00	None.

CASE VI.

1....	5,650	78.00	17.33	3.00	1.33	0.73	None.
2....	5,650	73.00	17.00	2.00	0.33	0.33	0.33
3....	5,550	44.00	51.66	3.00	None.	0.33	1.00
4....	5,550	42.50	51.50	5.00	0.50	None.	1.50
5....	2,500	39.33	56.00	2.66	0.66	0.33	1.00
6....	2,500	35.00	70.75	5.25	0.75	None.	0.50
7....	5,000	32.00	68.66	8.33	0.66	0.33	None.
8....	5,000	41.00	35.66	11.33	2.66	3.00	0.33

CASE VII.

1....	3,600	58.00	36.33	4.00	1.66	None.	None.
2....	3,600	32.66	59.00	6.00	2.33	None.	None.
3....	3,550	37.00	50.66	10.33	2.00	None.	None.
4....	3,550	41.00	33.33	0.33	0.33	None.	None.
5....	4,900	23.66	49.33	6.00	0.33	0.66	None.
6....	4,900	33.33	48.00	0.33	1.00	0.66	0.66
7....	5,100	11.00	52.00	5.33	0.33	1.00	0.33
8....	5,100	18.66	53.66	11.66	0.66	3.66	None.
9....	5,100	37.50	53.50	5.50	0.75	2.50	0.25

CASE VIII.

1....	5,800	72.75	23.00	3.00	1.25	None.	None.
2....	4,400	37.33	55.33	7.00	0.33	None.	None.
3....	4,300	33.66	51.00	12.66	2.00	0.66	None.
4....	4,300	44.00	51.00	3.25	0.25	0.25	1.25
5....	4,500	44.50	49.25	4.00	0.50	0.50	1.00
6....	4,500	26.75	62.25	8.50	0.50	0.25	1.75
7....	4,500	33.00	57.25	7.50	0.75	1.25	0.25
8....	5,700	44.00	43.75	9.75	0.50	2.00	None.

CASE IX.

1....	5,800	72.75	23.00	3.00	1.25	None.	None.
2....	4,400	37.33	55.33	7.00	0.33	None.	None.
3....	4,300	33.66	51.00	12.66	2.00	0.66	None.
4....	4,300	44.00	51.00	3.25	0.25	0.25	1.25
5....	4,500	44.50	49.25	4.00	0.50	0.50	1.00
6....	4,500	26.75	62.25	8.50	0.50	0.25	1.75
7....	4,500	33.00	57.25	7.50	0.75	1.25	0.25
8....	5,700	44.00	43.75	9.75	0.50	2.00	None.

CASE X.

1....	67.50	25.25	6.25	1.00	None.	None.	None.
2....	50.66	42.33	4.66	1.00	0.33	None.	None.
3....	29.00	59.25	8.25	2.50	0.25	0.75	0.75
4....	27.00	52.00	16.00	2.50	1.50	1.00	1.00
5....	30.00	55.00	10.00	2.00	3.00	None.	None.
6....	37.00	36.50	14.00	9.50	3.00	None.	None.

CASE XI.

1....	76.00	15.50	6.00	0.75	1.00	0.75	0.75
2....	49.75	16.50	3.25	None.	0.25	0.25	0.25
3....	35.33	47.33	11.66	3.00	2.66	1.00	1.00
4....	31.00	64.33	7.00	0.66	3.00	0.66	0.33
5....	33.00	55.00	4.33	0.66	4.66	0.66	0.33

CASE XII.

1....	61.00	28.00	9.00	2.00	None.	None.	None.
2....	32.00	59.00	7.50	1.50	None.	None.	None.
3....	21.75	67.25	8.75	1.50	0.25	0.25	0.25
4....	27.06	67.06	7.33	0.33	2.06	0.33	0.33
5....	31.00	56.66	4.66	None.	4.00	None.	None.
6....	32.00	56.00	10.00	2.00	None.	None.	None.
7....	25.06	62.75	6.66	0.33	4.66	0.33	0.33

CASE XIII.

1....	42.00	44.75	11.25	2.66	None.	None.	None.
2....	26.33	68.66	5.00	None.	None.	None.	None.
3....	19.33	74.66	6.00	None.	None.	None.	None.
4....	18.25	78.00	3.75	None.	None.	None.	None.
5....	21.50	71.25	7.00	0.25	7.00	0.25	0.25
6....	29.33	57.33	11.33	1.33	0.66	0.66	0.33

CASE XIV.

1....	55.33	39.33	5.00	0.33	None.	None.	None.
2....	41.66	51.33	4.00	None.	None.	None.	None.
3....	43.25	50.75	4.00	None.	1.50	0.50	0.50
4....	32.25	54.75	10.00	0.25	0.25	0.50	0.50
5....	31.33	61.66	12.66	0.66	0.33	0.33	0.33
6....	30.50	57.00	9.25	1.25	1.75	0.25	0.25

CASE XV.

1....	67.75	25.00	7.25	1.00	0.75	0.25	0.25
2....	40.00	52.33	6.66	None.	None.	None.	None.
3....	45.75	50.00	4.25	None.	None.	None.	None.
4....	38.66	54.66	5.66	0.33	None.	0.66	0.66
5....	56.00	41.66	4.33	None.	0.33	0.66	0.33
6....	34.00	56.33	7.66	1.00	0.66	0.33	0.33
7....	31.66	40.66	5.66	1.00	1.00	None.	None.

CASE XVI.

1....	56.00	25.00	11.00	6.50	1.50	None.	None.
2....	39.75	52.75	5.75	None.	1.50	0.25	0.25
3....	57.75	34.75	4.75	None.	1.75	1.00	1.00
4....	58.33	33.33	4.33	None.	3.66	0.33	0.33
5....	48.66	43.00	4.00	None.	4.00	0.33	0.33

CASE XVII.

1....	52.00	40.00	6.66	0.66	0.33	0.33	0.33
2....	45.50	46.00	5.75	0.25	0.25	0.25	0.25
3....	42.33	41.66	4.66	None.	4.00	0.33	0.33
4....	44.00	48.33	6.33	0.33	1.00	None.	None.
5....	52.75	34.75	9.66	1.00	2.66	None.	None.
6....	51.00	31.50	5.75	0.75	0.75	0.75	0.25

CASE XVIII.

1....	62.00	39.00	7.00	1.00	0.50	None.	None.
2....	48.00	52.66	4.66	1.00	0.33	0.33	0.33
3....	44.50	50.50	5.00	1.00	0.50	None.	None.
4....	36.50	33.50	3.50	1.00	5.50	None.	None.
5....	38.00	50.00	8.00	1.00	3.00	None.	None.
6....	34.50	47.00	11.50	2.00	5.00	None.	None.
7....	41.00	46.75	11.25	3.50	7.25	0.25	0.25
8....	48.66	43.33	21.66	3.33	2.33	0.66	0.66

CASE XIX.

1....	45.75	16.66	6.00	0.25	1.33	0.33	0.33
2....	44.60	46.00	3.33	0.33	None.	1.00	1.00
3....	48.75	15.25	4.50	1.00	0.50	None.	None.
4....	37.00	51.00	8.00	2.00	1.00	1.00	1.00
5....	29.00	48.00	8.50	1.50	0.50	0.50	0.50
6....	35.25	46.00	17.50	18.25	7.75	2.25	0.75
7....	35.25	46.00	17.50	15.50	1.50	1.25	0.25

CASE NO.					
1.....	66.00	23.50	7.50	2.50	None.
2.....	62.00	34.00	2.50	1.00	None.
3.....	58.00	24.50	6.50	1.00	None.
4.....	14.75	61.50	16.25	6.75	0.25
5.....	.....	.....	.....	.....	.....
6.....	12.00	61.00	18.00	1.00	1.00

AVERAGE COUNT					
Day of dis- ease.	No. of counts.	Poly- morphic.	Small lympho- cytes.	Large lympho- cytes.	Mononuclears.
1.....	24	61.68	26.50	6.10	1.41
2.....	28	42.16	49.38	5.00	0.97
3.....	27	37.14	53.21	7.28	1.11
4.....	24	38.35	51.04	6.56	1.34
5.....	22	37.38	51.28	7.58	0.99
6.....	21	33.62	52.45	9.79	1.54
7.....	18	35.66	50.71	9.29	1.96
8.....	10	39.82	43.22	10.98	1.41

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THE PRESENT STATUS OF THE METHODS OF
PHYSICAL THERAPEUTICS

And their Importance for Medical Schools and Practising Physicians.

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The methods of physical therapeutics are all originally empirical, and if reasons have always been advanced for the virtue of these forms of treatment, they were really more in the way of excuses than true reasons. Although this method of treatment has been used since time immemorial, it has only developed immensely in the nineteenth century. The mode of Nature's treatment has been and still is a catchword which always attracts people, and great hosts of sick flocked to the quacks who used this treatment. In this fact may be found the cause that the medical schools have been so long adverse to acknowledging the methods of physical therapeutics, although a real basis had been found for the treatment. But circumstances have been changed. Dr. Winternitz, of Vienna, and Dr. Brieger, of Berlin, are chiefs of hydrotherapeutical departments of universities; Zabludowsky taught massage at the University of Berlin; Bum at the University of Vienna, etc. America also has assisted to build up hydrotherapeutics (Baruch, Kellogg, and others).

It is my intention in the following pages to prove that the methods of physical therapeutics have outgrown the empirical state, that there exists a physiological basis for its use, that only a thorough knowledge of the physiological effect and of the pathological state can assure a successful treatment. I am fully aware that by this statement I place myself into a certain opposition to a few scientists of note, as, for example, to Matthes who has carefully reviewed in his book the foundations of hydrotherapy, and has by doing so created many new problems.

It must be admitted that at present we do not know anything about the causative factors

of the reaction, the ætiology of hyperæmia induced by a long continued frigidity. The exact causes are still unknown. On the other hand, there exists no drug the pharmacodynamics of which would make unnecessary all further researches. According to the perception of leading philosophers it is the problem of science to describe as minutely as possible the processes. The physiological researches in the field of physical therapeutics have accomplished enough to show the road to the goal. If hydrotherapy is only an empirical method, all our pathological knowledge will be useless; as it is a well known fact that similar diseases will have to be treated by absolutely contrary methods, and if we did not possess sure and safe guiding points all our endeavors would only be a groping in the dark on account of the variety of conditions.

It is well established that cold water produces a more or less severe contraction of the vessels of the epidermis, depending on the duration of the application, and that this phenomenon has as sequel enlargement of the vessels of the epidermis, that is, very pronounced and variable according to the mode of application. Furthermore, we know that this reaction, so desired in most cases, will fail under certain conditions. It is known that cold irritations do not only affect the epidermis through direct or reflect action, but also exert a strong reflexory effect upon the internal organs and the blood pressures. Strasser and I have demonstrated in our oncometrical experiments that spleen and kidney contract very much through applications of cold irritation of the epidermis. But we could also see that a kidney which had been irritated and had lost its tone by being placed in the oncometer, did not contract upon any irritation, but was only passively dilated by increased blood pressure. This fact cannot be enough emphasized. The literature treating the influence of thermic irritations, long distance effects, etc., can hardly be reviewed in its entirety; the results are mostly so heterogenous because this fact is not taken into consideration. The organism of highly developed animals is a function complex so full of innumerable varieties, that to accomplish anything we are forced to accept certain varieties as constant, which in reality is not the case. We can only therefore have unanimity among the scientists if we take into consideration the possibility and probability of this inconsistency.

We know also that cold irritations increase metabolism, not only temporarily, but permanently. The thermic irritations have the one point in common with all other irritations that they stimulate in mild form, but paralyze in the strongest grade. They influence the nerves intensively, like every other irritation, and can be of benefit in a case where assimilation and dissimulation are normal, but they can become detrimental in cases where the power of resistance has been diminished through sickness, and where a somewhat stronger irritation demands increase of labor, as, for example, in tabes dorsalis, progressing paralysis, and some forms of hysteria.

The cold irritation influences the heart labor by reflex action, demands a stronger execution, and strengthens the heart by exercise. The great variation of thermic therapy not only in temperature, but as well in size of the attacked field, allows the use of

this irritation, even if the heart is much weakened. The cold rubber tube has even been designated by Dr. Winternitz as the *hydrotherapeutical digitalis*.

We are acquainted with the strong reflex effect of the cold irritations upon the blood circulation in the brain, the movement of the gut. Heat enlarges the vessels, temporarily or permanently, according to the duration of the application, it quietsens the nervous system in medium strength, excites it in full strength. Humid and dry heat influences resorption and inflammation processes, probably by causing hyperæmia. Hot baths have beneficent influence, so far not explained, upon chlorosis and uncomplicated anæmia.

I am well aware that many problems await explanation and solution. But I wish to state that our material, collected from physiological facts, is enough to show us the right way to gain our goal, i. e., to find the treatment which will cure. But what I have said so far proves, on the other hand, the necessity of instituting thorough researches so that this form of therapeutics may become beneficial. It is, furthermore, necessary to insist that hydrotherapy which can do as much if not more harm than any other treatment by drugs, is not prescribed by laymen. The technics will certainly always remain in the hands of laymen, but it is the duty of the physician to give exact directions, i. e., to designate the exact mode of treatment, and not to be vague in his statements, such as, a pacifying remedy, etc. It is, furthermore, absolutely necessary to examine the patient after the administration of the first treatment, to find out the grade of reaction, and if necessary to change the mode of procedure. This is important in the treatment of heart diseases, as one cannot foresee whether the application will be too strong or too weak.

Entirely left to the practice of the physician will always be Bier's method of hyperæmia. Bier himself continuously points out the difficulty of the technics. Any one who will compare Bier's results with the results of his critics must believe Bier on account of the merits of his work when he states that these poor results only follow wrongly executed technics. Others have acknowledged that they were only successful after having studied Bier's method at Bonn. I can state from my own experience how difficult it is to place a bandage properly so as to find the exact minute line between necessary and too strong hyperæmia. We can convince ourselves of the necessity of the general use of Bier's method when we observe the results of the ambulatory treatment of tuberculous joint diseases, a treatment proposed by Tillmanns and so well executed by Bier, or the splendid results in infected wounds and their sequelæ. As this method should be known to every physician it follows that it should be taught to the students. The same refers to the other methods of producing active or passive hyperæmia.

The eye views a new world, new problems rise which have to be solved and which will in turn produce others. It would lead me too far if I should go into details. I wish therefore to refer the reader to my paper on Artificial Hyperæmia, read before the Northern Medical Association of Philadelphia, March 22, 1907, and published in the *New York Medical Journal* of May 4, 1907.

Massage plays an important rôle among the physical therapeutics, but this form of treatment is entirely left to the layman. Nothing can be said against the method of typical massage, provided it consists in using certain technics, such as general massage, obstipation massage, etc. There is hardly a change or a special indication of position. Besides the extraordinary importance of massage as a form of treatment stands in a poor contrast to the relatively few problems which may arise. But I have referred to the great diagnostical importance of massage in two of my essays.¹ As an example, I wish to give the history of a case treated by me at the Vienna General Hospital:

A woman was referred to me for massage treatment of the muscles of the neck for supposed muscular rheumatism. After two séances I refused to continue the treatment, as I saw from the results that the patient did not suffer from rheumatism. A short time afterwards the case was diagnosed as pachymeningitis hypertrophica, which diagnosis was later confirmed by the autopsy.

I have observed many such cases. As the physicians do not perform the massage themselves, it is impossible for them to correct, if necessary, their diagnosis. It is therefore my opinion that massage should be done by the physician himself in all cases which show specific chronic pathological inflammation, such as neuralgia. The physician will have to decide in each of his cases whether the massage treatment can be given by a masseur. But to do this it is necessary that the physician should not only be acquainted with the technics, but must also know what results he may expect. But the diagnostic importance is also not to be overlooked.

There are other very important branches of physical therapeutics, so the several modes of therapeutical gymnastics, either by hand or by machine, the Frenkel-Goldscheider walking exercises in tabes dorsalis, the hot air treatment, etc. These methods are all more or less mechanical, and the execution can be entirely left with a well schooled nurse, with the exception of the treatment of heart diseases. But I again wish to emphasize that the physician should always give strict instructions.

I cannot close my paper without saying a few words about the psychology of the so called artists of Nature cures. As long as there are diseases which are incurable and as long as there are diseases the diagnosis and treatments of which are difficult, there will be quacks. It is impossible to pass laws which will hurt their business or remove them entirely. To perform abortion or have it performed upon one's self is severely punishable by law, but still it can be done if money is in the case. And still it should be remembered that to give birth to a child is usually not so dangerous as a real severe sickness. Any one who would order from a shoemaker a suit of clothes would be looked upon as mentally unbalanced, but what about a man consulting a quack who does not know more about medicine than a mole about its country. Science and mountaineering are so similar. The altitude which a climber reaches enlarges his views of the surrounding country. But a man whose knowledge does not overstep the limits of his daily experience, will be

¹ See especially the *Beiträge zur Pathologie und Therapie der Muskulatur*, 1905, and *Die Massage*, 1906.

only too apt to consider everything simple; he believes that there exists no problems, because none occur to him. Most of the laymen are not embarrassed if it becomes necessary to designate a cause for a bodily condition. They are not burdened with too great a knowledge of anatomy and physiology. They believe therefore any man who will explain to them the nature of a disease in a manner comprehensible to them. In all these cases it will be impossible for a physician to convince the patient of the ignorance of the quack; the patient can only comprehend the reasoning of the quack. I shall refer only to the movement against vaccination. Besides, there is the catchword *Nature*, so often rightly and so often wrongly used. Nature indeed cures, but every physician knows that Nature must be frequently stirred up by certain irritants to do its work. Many laymen think, that everything that exists in Nature must possess the power of healing, because Nature does cure, so for example, water, herbs, etc. The layman will not hesitate to use herbs, but they must not have been prepared for their use by the apothecary; neither will he touch the pure drugs, produced by the chemist from herbs. All that is latin concoction. He will salt his soup with sodium chloride, as he has always done, but he classifies sodium iodide as a poison, when prescribed by him by a physician. Everything prescribed by a physician is poison in some laymen's opinion; they do not know that the only correct definition of poison, comprising the subject in its entirety, is given by Kobert: "Poison is everything that is harmful."

These sick people are confirmed in their belief in the special abilities of the Nature curists through the positive successes of these men. Nobody knows how successful these curists are, as they are prudent enough to conceal their failures. Such successes have had Kneipp, Kühne, and the other apostles of the Nature cure.

America has a special kind of Nature curists, the osteopaths, but I do not think that their success can be doubted in many cases. In the last few years a small number of physicians have repeatedly declared that some disease symptoms radiate from painful points of pressure of the body. Quite a number of cases of nervous excitations are thus created. There are also many patients who call upon a number of physicians to be treated for an imaginary heart disease. They suffer from severe pain in the heart region which is sometimes so intense that it prevents them from walking. All kinds of method of examination are called into action, and the physicians declare that the heart is well, but still the patient does not lose his pain. Such conditions usually depend upon the before mentioned points of pain, and massage treatment dispels these pains and inconveniences. I have observed a few such patients and have cured them. In the same manner intestinal maladies can thus be simulated. Such observations are of great import for the praxis. The osteopaths know this, and have therefore been able to cure these patients through massage, although they are opposed to have their method called massage.

We therefore come to the conclusion that it is the duty of the physician to become acquainted with

the methods and the results of physical treatment. He must know what can be expected from the methods and must use them. He also must be able to give exact directions for the manipulations, instead of leaving it to the judgment of the bathing attendant or masseur.

There has been pointed out in Austria and Germany, for some time, the necessity of a hydrotherapeutical clinic, and especially my teacher, Winternitz, has repeatedly, although in vain, voiced his opinion. At the University of Vienna and at some universities of Germany are facultative lectures on hydrotherapeutics and massage, but the student is not obliged to hear them, and only very few of the students find an interest in them. This branch of medicine has to wait till the students become practising physicians. Physical therapeutics is hardly anywhere taught in a clinic.

The before mentioned necessity to establish a hydrotherapeutical clinic may not be generally acknowledged. It is true, hydrotherapeutics is only a method of treatment similar to every other treatment, and although it necessitates a specific study, it is only a part of clinical therapeutics which will often fail without medical treatment. But this one point is a positive one that hydrotherapeutics and the other related methods should be taught at the medical schools as well as pharmacology, and may be this branch should be taught even more thoroughly; every physician is able to write a more or less correct prescription for a certain malady, but only the experienced one can give correct directions for a hydrotherapeutical treatment. The students should have occasion to learn this armamentarium of the methods of physical treatment.

The United States universities, with their peculiar organization in medical education, would be in a position to take a leading part in this question. Each medical school should have a department in which all branches of physical therapeutics are represented, as in Rome. The students of the third or four year should be obliged to attend the clinic of this department once or twice every week, and would thus be introduced theoretically and practically into the substance of these methods.

1804 GREEN STREET.

EXAMINATION OF THE EYES OF THE PUPILS IN THE PUBLIC SCHOOLS OF MEMPHIS.

Comparison of the Whites and Blacks.

By J. L. MINOR, M. D.,
Memphis, Tenn.

At the instigation of the Board of Education, of Memphis, through the courtesy of which I am enabled to make this report, I introduced the method which is described further on of examining the eyes of the pupils in the public schools of this city.

I met the teachers at a general gathering, and, as an introductory to the work which was to be undertaken, pointed out the importance of good eyes, and the disadvantages of bad ones, not only in school work, but in afterlife as well.

I called attention to the fact that a considerable number of school children saw badly; and that, as this number of badly seeing children increased from 1 per cent. to 2 per cent. in the lower classes, to 20 per cent. to 30 per cent. in the higher grades, of

educational institutions, there were evidently causes at work during school life, to provoke it; that the schools themselves were responsible for the trouble, was proved by the absence of acquired bad sight during this period of life, in uneducated races. Moreover, that these causes were well understood, largely remediable, and much under the control of the teachers. That, if the teachers would see, that, instead of bad ventilation, a plentiful supply of good air was provided; instead of imperfectly arranged illumination, a good quality of light was furnished, which would come from behind, and preferably over the left shoulder at an angle of as nearly 45 degrees as possible; and, instead of allowing the pupil to stoop over his work, he was made to sit upright and comfortably, so as to have his work twelve or fifteen inches away, much would be done towards lessening eyestrain during school life.

I explained myopia and how it was caused by eyestrain; how long continued use of the eyes for near work, or their use for shorter periods, when light, ventilation, or position was faulty, would produce it. Attention was called to the fact that myopia was unknown among the illiterate, and rare in those races which had recently adopted educational habits; that it became progressively more frequent in those races which have long lines of educated ancestry, and therefore might be taken as an index of the intellectuality of a people.

I inveighed against long hours and continuous work, and dwelt upon the importance of out of door exercise and recreation.

I explained how the sight was tested with Snellen's test letters, and each teacher was provided with a test card, with instructions to place it in a good and favorable position, at a distance of twenty feet from the pupil to be examined; to test first the right eye, then the left; and to record the findings in separate and designated columns, opposite the name of the pupil examined.

I suggested that the teacher should notify the parents when imperfect sight was found, so they could take steps to correct it if they pleased; and that such pupils should have preferred seats, as to light, position at the blackboard, etc.; that stooping over the work, or holding it near by, be specially looked after; and that continuous application be avoided by frequent periods of brief rest, when the pupil would take the eyes from the work and look into space.

After the teachers completed their work, I visited the schools and made ophthalmoscopic examinations of such pupils as had been found to have imperfect sight, with a view of ascertaining the cause and measuring the refraction. The value of the report suffers from the fact that no pupil with perfect sight was examined by me, and it can only be said of them that they embraced the emmetropes, a considerable number of hypermetropes and the lighter grades of hyperopic astigmatism, but none of myopia or myopic astigmatism. And yet, as the myopic condition is the one usually taken as an index of eyestrain in school life, and all pupils with this defect had imperfect vision and came under my observation, it is not so lacking in important data as at first sight might appear.

In the ophthalmoscopic examinations, an effort was made to measure and record, not only the dif-

ferent forms, but the degree of ametropia; but I did not succeed in doing so with that accuracy that was demanded, hence I have simply recorded the cases under two grand divisions of myopia and hypermetropia. Because of this crudeness much of scientific interest is lacking, but enough has been obtained to be of importance; and if nothing else is accomplished it will show that we are working in the right direction, and may excite other communities to similar endeavors.

The entire number of pupils examined was 5,030. Of these the whites contributed 3,181, 2,685 with perfect sight and 465 with imperfect vision, 89 of whom were absent when I made my examination, leaving 376 whom I did examine. The negroes contributed 1,849, 1,726 with perfect and 123 with imperfect vision, 40 of whom were absent when I made my examination, leaving 83 whom I saw.

Two white pupils with perfect vision had "inverted sight" when they first came to school. They stated that what they saw was upside down, and in their efforts to make letters, to write, to draw, etc., persisted in attempts at inverting. The teachers had given these children—boys about seven years old—much personal attention and care, and had succeeded in cultivating them to see, and represent things naturally, in the course of several months. I saw them after this period, and could learn nothing but what the teachers told me. There was a combination of timidity, obstinacy, and cunning about them, which caused me to think that mental perversion, rather than "inversion," had been the cause of their trouble, a view not shared by the teachers.

Among the imperfectly seeing pupils, 205 were found to have better sight in one eye than the other, best vision in the right eye, 155; best in left, 50.

Among the whites examined by me were: Forty-two cases of corneal opacity in each eye, with average vision of two boys and two girls, 20/70; two cases of heterochromia (hypermetropes); one case of albinism (hypermetrope); one case of nystagmus (irregular cornea); one case of dislocated lenses (symmetrical), down and out—hypermetropic, above, myopic, through lens; one case of zocular cataract, v 15/200, in each eye; one case of optic neuritis, v 20/200 (right) and 15/200 (left); one case of phthisis bulbi (left), with other eye hypermetropic, v 20/20; ten cases of strabismus convergens, four boys and six girls, in nine cases the left eye crossed, in one the right, average vision in noncrossing eye, 20/50, in squinting eye, 20/150 (uncorrected), all hyperopic; one case of strabismus divergens, each eye myopic, 3.00 dioptres, otherwise normal. See also Table I, which is a summary of the examinations of each separate grade, from I to II, in the eight white schools, and is interesting as showing, practically, a relative diminution of hyperopia, and increase of myopia, from the lowest to the highest grades, which would have been more pronounced with a larger number of pupils and would probably have been supplied by the eighty-nine absentees seeing badly.

Among the blacks examined by me were: Eight cases of corneal opacity, each eye, with average vision of 20/100, three boys and five girls; one case of retinochorioiditis in each eye with vision of 15/200, in a girl ten years old, of strabismus dila-

sist; two cases of one solid pterygia built (left), with corneal scars in good eye, and vision of 20/70 in each instance; no cases of strabismus, or other than refractive errors and such as have been referred to, were found. See also Table II, which is a summary of each separate grade, from 1 to 7, in the four negro schools, and is interesting as showing not a single case of myopia in the entire number. Rarity of myopia in the race is to be anticipated, for they, as a rule, subject their eyes to but little strain, and are but slightly educated. But when the negro pupils are examined under the same conditions which apply to the whites, and grade after grade is passed without finding myopia, there is evidently something wanting, and that is, the predisposing cause already referred to, i. e., a long line of educated ancestry.

The blacks were not only free from myopia, but their average for perfect vision was two and a half times as great as in the whites, the proportion of badly seeing whites being 1 to 6; and black 1 to 15. This difference would have been more pronounced under careful tests, for Table II shows that one half of the badly seeing blacks were ten years old and younger, and that by far the greater proportion of those who saw badly had vision of 20/40. Due regard to their backwardness and ignorance would credit most of these with perfect sight.

It will be observed that there is no record of pupils with vision of 20/30. This is due to the fact that a number of teachers arbitrarily placed such pupils in the 20/20 or 20/40 column, as the former, when all letters in the 20/30 line, and some of the 20/20, were read; as the latter, when there was a question between the 20/30 and the 20/40 lines.

An interesting fact, showing the effect of general hygiene upon the eyes, was brought out in the following manner. In my report to the school board I called attention to the fact that practically the same percentage of myopia was found in all but one of the white schools that I had visited, that in this there was such an increase as to suggest some special cause, and, asked if such could be vouchsafed. With some astonishment that the question was made to appear in this guise, I was told that it was the oldest and most out of date building in the city, which was overcrowded, badly ventilated, and poorly lighted.

Table III shows for each grade, in separate columns, the acuity of vision, and among the imperfectly seeing, the refractive condition in the white pupils. Table IV shows the same for the blacks.

TABLE III.—WHITES.

—Imperfect vision. — — — —

Age	Grade	No.	Hyper- metropia	Myopia	Other causes.
7	1	666	25	36	1
8	2	580	13	16	1
9	3	444	1	14	1
10	4	405	10	51	3
11	5	315	7	36	8
12	6	211	4	25	12
13	7	201	10	2	9
14	8	117	12	13	1
15	9	100	1	16	1
16a	10	43	1	12	2
16b	11	33	0	3	0
Grand totals		3,111	89	212	58

Age	Grade	No.	Hyper- metropia	Myopia	Other causes.
7	1	789	20	0	1
8	2	310	13	16	2
9	3	146	4	7	0
10	4	155	8	13	0
11	5	181	3	1	0
12	6	118	1	2	0
13	7	80	1	3	0
Grand totals		1,849	40	75	9

TABLE III.—WHITES.

Grade	Number with V. 20/20	Number with V. 20/40	Number with V. 20/50	Number with V. 20/70	Number with V. 20/100	Number with V. 20/200
1	604	22	0	2	2	2
2	361	51	0	8	1	0
3	215	8	1	5	2	0
4	215	13	0	11	8	2
5	293	20	10	1	4	5
6	343	13	0	4	6	4
7	177	1	0	6	3	1
8	87	1	0	5	6	2
9	141	7	0	5	1	1
10	33	0	0	1	1	3
11	33	0	0	1	1	5
Total	2,985	154	0	81	42	17

H indicates hypermetropia; M indicates myopia.

TABLE IV.—COLORED.

Grade	Total with V. 20/20	Total with V. 20/40	Total with V. 20/50	Total with V. 20/70	Less than 20/70
1	750	27	0	0	0
2	279	7	0	0	0
3	163	7	0	0	0
4	171	5	2	0	0
5	171	2	1	0	0
6	115	2	0	0	0
7	80	1	1	1	0
Grand totals	1,849	61	10	2	0

RANDOLPH BUILDING.

POSTOPERATIVE TREATMENT OF MALIGNANT DISEASE OF THE BUCCAL CAVITY.

By J. SHERMAN WIGHT, B. S., M. D.,
Brooklyn, N. Y.

Cures from operation of malignant diseases of the tongue have undergone an increase as shown by some recent statistics of the 199 operations which were performed by Kronlein, Kocher, Whitehead, and Butlin, before the year 1900. Forty of the patients were very well and free from disease, or had died from some other cause than cancer three years after the last operation. This percentage has been increased since that time. In spite of the local character of this disease which is theoretically limited to the affected part of the tongue and adjoining parts of the mouth with the associated lymphatic glands, there can be little hope of attaining as great success here as with the more general affection in cancer of the breast. Many cases are hopeless from the outset, and we are sometimes called upon to operate on the disease to prolong life and relieve some of the symptoms that have accompanied the encroachment on surrounding structures. We cannot in such a case hope to remove all the disease, and must necessarily leave a base which retains the dreaded malignant tissue. Cures from operation for malignant disease of the upper jaw where a partial resection of considerable extent has been done, have likewise shown an increase in the past ten years. The mortality due to the operation itself is very large. Sarcoma or carcinoma here appears to display its malignancy chiefly in its great tendency to recur *in situ*. Dissemination whether in the lymph

phatic glands or other parts of the body appears to be comparatively infrequent.

Giant celled sarcomata are much less malignant than the other kind of sarcoma. The giant celled sarcoma may be successfully treated when it is not very extensive by partial removal of the upper jaw. Total excision of the upper jaw is probably indicated for the removal of carcinoma; if the disease has extended beyond the limit of the bone and the surrounding structures, it must be removed as freely as it is possible. The whole object of operation, here as well as elsewhere in the buccal cavity lies in preventing local recurrence of the disease.

CASE I.¹—J. E., age sixty-nine years, born in Germany; in the oyster business. Patient is an inveterate pipe smoker. Family history was negative; so was the previous personal history. The history of the present condition was as follows: Two years ago patient had had an ulceration appear under the tongue which extended and involved the right tonsil and fauces, and the glandular structures under the tongue. I first saw him June 6, 1905, and found the condition as described, the mass breaking down with a constant discharge. When I first saw the patient he was eating very little and had lost much flesh, and for one week before the operation not more than a cup of milk passed his throat. June 22, 1905, I did a Sédillot operation, removing the entire tongue down to the hyoid bone, together with the glands. He made a rapid recovery, leaving the hospital to return to his business at the end of four weeks. On October 11, 1905, he came to my office and I found that the floor of his mouth presented a recurrence of the cancerous growth. I saw him again at the end of two weeks and then injected half a drachm of 5 per cent. carbolized petrolatum in various parts of this mass. I gave him eight injections in all, three days apart. In two days the injected area appeared dark, and a slough occurred and left a healthy granulating surface underneath, and the whole mass contracted. I found, as I expected, that the petroleum escaped with the mass and was not absorbed. I have had some experiments made in which I found that this preparation is slightly radioactive and is hyperisotonic to the juices of the body in general and the blood serum. If applied to edematous surfaces it will draw the water out and will contract the tissue. It is insoluble and nonabsorbable, and it retains the carbohc acid in position in relation to the tissues for an indefinite length of time, or until it escapes with the slough or comes away from the mass through an opening in the surface. By December 7, 1905, this mass had dwindled down till the floor of the mouth presented a healthy, firm granulated surface. He was able to take his food and attend to business with very little pain and inconvenience. He remained comfortable until March, 1906, when the disease recurred, and was kept under control through the injections, but he died June 22, 1906, with the mass still under control.

CASE II.²—P. O., seventy-eight years, born in Ireland, a merchant. Patient had used tobacco and alcohol freely. Family history was negative. Patient had had typhoid fever some years ago. History of the present condition: He suffered from hoarseness for ten years. Two years ago he had an attack of dyspnea and had difficulty in swallowing, with a profuse mucous expectoration, and he lost thirty pounds in the last year. I saw him August 1, 1905, and found a growth in the left ventricular space attached to the wall just below the isthmus near the left arytenoepiglottic fold about

as large as a walnut. His general appearance was that of a man of full habit, with the superficial vessels pretty well injected. His pulse was a little above the normal, his temperature normal. He seemed in the state of apprehension and nervousness, and spoke of a sense of suffocation. On August 10, 1905, I did a rapid low tracheotomy. During the anæsthesia the glottis became suddenly occluded by the growth. A thyrotomy was done, disclosing the growth situated in the left ventricular space just below the isthmus; this was removed, and along with it the soft tissues and portion of the pharynx; the larynx was closed without drainage. The man was put to bed with the head low, the foot of the bed raised. Rectal feeding was continued for eight days, although he was able to swallow some liquid food and water during a part of this time. The tube was removed at the end of six days. He left the hospital at the end of nineteen days when recovery was complete. The growth proved to be an endothelioma. He remained well for five months and then suffered with gastric symptoms. I saw him and made a diagnosis of cancer of the stomach, but he refused further interference. I lost sight of him and learned later that he lived about two months and then died without any signs of recurrence at the site of the laryngeal tumor.

CASE III.³—A. D., age seventy-one, German; stone-cutter. Family history was negative. Patient was an inveterate smoker, and suffered with rheumatism. The history of present condition: Three months ago he noticed pain in the left upper jaw while eating, this led him to discover a growth on the alveolar process in this region, which grew rapidly, and in the last two weeks obtained a large size. He came to my office June 25, 1906, and I found a mass at the alveolar border of the left upper maxillary bone extending to the pharynx; this apparently had been the site of some decayed molar teeth. I sent him to the hospital, where on June 27, 1906, I removed the superior maxillary bone as follows: I carried an incision from the left angle of the mouth upward and backward to the malar bone; the upper flap was detached from the bone cutting through the cartilage of the nose so as to leave it in the flap, and continuing upward and inward so as to separate the periosteum from the floor of the orbit; the outer flap was then dissected free as far back as the malar bone; the nasal and the malar processes of the superior maxillary bone were both sawed through, a gigli saw was then carried through the nasal fossa and out through the mouth. An incision was made through the soft palate and along the roof of the mouth to the left of the median line. The hard palate was then sawed through along this line, the bone seized with lion jawed forceps and twisted free, carrying with it the floor of the orbit. The muscular attachments were then cut away with scissors and the bony mass removed. A hot compress was forced into the cavity to arrest hæmorrhage; this was removed and a large strip of gauze rung out in hot carbolized petrolatum, 5 per cent. packed into the opening and brought out through the left nostril. The flaps were replaced and brought together with sutures. He was placed in bed with the head low lying on the affected side; was fed through a tube, and allowed to sit up in bed at the end of twenty-four hours. On the second day the dressing was changed. The cavity was kept packed with gauze saturated with carbolized petrolatum 5 per cent. Just before he left the hospital, July 16, 1906, the granulating area was painted with a solution of iodoform and ether (1 to 8), and this was continued for some time after he went home. October 4, 1906, there was no sign of recurrence, this being about five months from the operation. He was wearing a gold tooth, suffering but little inconvenience.

¹ Patient was presented to the Brooklyn Surgical Society, December 7, 1905.

² Patient was presented to the Kings County Medical Association, October 11, 1905.

³ Patient was presented to the Brooklyn Surgical Society, October 11, 1906.

CONCLUSION: Though the cases we have presented form insufficient data, we may be warranted in coming to the following conclusions:

1. Carbolyzed petrolatum (3 to 5 per cent.) is insoluble and nonabsorbable in the human body.
2. It is hyperisotonic with the juices of the body and the blood serum; it will reduce inflammation and cut down edematous granulating surfaces; it is strongly germicidal, and through its nonsolubility and nonabsorbability will remain in contact with surfaces acting continuously through a long period of time.
3. Surfaces left after the removal of malignant growths, and which present familiar difficulties to the application of dressings and situated where they are exposed to infection, do well if treated with carbolyzed petrolatum.
4. Recurrent malignant growths can be kept under control by injecting carbolyzed petrolatum into the growth.
5. The removal of the upper jaw is readily done with incision carried from the angle of the mouth to the malar bone on either side, and cutting through the cartilage of the nose so as to raise the nose in this superior flap; this also gives the best cosmetic result.

3. S. H. HENTHORN, SEATTLE.

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXIV.—How do you treat influenza? (Closed July 15, 1907.)

LXV.—How do you prevent contraction in the scars of burns? (Answers due not later than August 15, 1907.)

LXVI.—How do you make an early diagnosis of pregnancy? (Answers due not later than September 16, 1907.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXIII has been awarded to Dr. Julius J. Valentine, of New York, whose article appeared on page 168.

PRIZE QUESTION NO. LXIII.

(Concluded from page 170.)

THE TREATMENT OF GONORRHEAL EPIDIDYMITIS.

Dr. John Milton Edwards, of Mankato, Minn., says:

The treatment of epididymitis on the whole is the most satisfactory of any complication which occurs in the practice of diseases of the genitourinary system. The severity of the symptoms depends to great extent upon the patient. The nervous and

high strung patient will of necessity need more attention than his brother, who is stoical and bears his pain philosophically.

Absolute rest in bed is the first indication in the treatment of epididymitis. This is necessary both for the comfort of the patient and to prevent termination in suppuration or tuberculosis of the testicle. A brisk cathartic is given, preferably 5 or 10 grains of calomel, followed by a saline. The affected testicle is then put at rest. Several schemes have been proposed, but the one which I have found the most convenient is a roll of ordinary cotton placed snugly between the thighs. Some prefer a shelf made out of a thin board and covered with cloth, others use a wide strap of adhesive plaster and suspend the testicle on this, but these are liable to become cumbersome and uncomfortable. After the scrotum is properly elevated hot applications are made, preferably with cloths saturated in hot water, to which may be added tincture of opium and Goulard's extract, this to be covered by gutta percha or oiled silk, and either a hot water bottle or a Japanese stove applied will keep the applications hot for some time. A tobacco poultice made by adding one and one half ounces of fine cut tobacco to a pint of hot water and flaxseed, quantity sufficient to make a thick paste, will sometimes give relief, especially to those who are nontobacco users. For the relief of the pain several leeches may be applied along the inguinal canal to the scrotum, strict surgical principles should be used in applying the leeches. For the extreme restlessness and sleeplessness nothing better can be used than opium in some form, preferably codeine, $\frac{1}{2}$ grain, and acidiphenacidin, 5 grains, one of these powders can be given as often as every three hours. The hot applications should be kept up for four or five days, after which guaiacol may be applied in the shape of the following ointment as proposed by Casper:

R	Ichthyol,	2.5 parts;
	Guaiacol,	5.0 parts;
	Mercurial ointment,	10.0 parts;
	Petrolatum,	ad 60.0 parts.
	Wool fat,	ad 60.0 parts.

The ointment is to be applied on lint and then covered with nonabsorbent cotton. This may be continued for a day or two when the patient is allowed to leave his bed after having been fitted with a proper suspensory. Most of the suspensories made are absolutely useless. After having experimented with many makes I find that the most satisfactory is the elastic "Jock strap," which may be obtained at any surgical instrument or sporting goods house.

The patient is directed at this stage to take a hot Sitzbad for half or three quarters of an hour daily. The guaiacol in the ointment causes considerable disquamation of the skin of the scrotum which at this time can be cleaned. He is then to reapply the ointment and is then allowed to go out of doors for a short time, not over three or four hours the first day; the time can be gradually increased. At the end of ten days he is able to resume his work unless it be that he is engaged in work that necessitates heavy lifting, if so, I prohibit him from engaging in any work until two weeks have elapsed, and he is to continue to apply the ointment and take the hot baths daily for a period of three weeks; at this time the ointment can be dispensed with, a nest of non-

absorbent cotton is placed beneath the testicle, and the whole is supported by the Jock strap which he has worn constantly.

In this manner and with the care and caution which is daily impressed upon the patient no relapses ever occur. I have found this treatment in 90 per cent. of my cases highly satisfactory. Of course, the treatment of the urethritis during this time is discontinued, and is not resumed for a period of three weeks from the initial symptoms. I have been in the habit of giving these patients during their attacks of epididymitis an urinary antiseptic of 5 grains of sodium benzoate, three times daily. The only other internal treatment I have ever given is tincture of pulsatille, which seems to benefit in a slight degree the inflamed urethra, especially the deeper portions. Ten drops may be given every two hours in water.

On those rare occasions where an abscess forms in the epididymitis, it must be treated on general surgical lines; open freely and pack with gauze until completely healed.

In treating transients or those who find it impossible to remain in bed, "strapping" the affected testicle enables them to travel and walk with comfort. The ointment to which I referred is spread on lint and completely envelops the testicle. The technique as proposed by Valentine is, as follows: "The neck of the scrotum covered by lint and ointment is grasped between the thumb and index finger, and with increasing pressure the testicle is forced to the bottom of the scrotum, the compressing fingers are steadily and forcibly contracted until the space about the funis is reduced to its smallest possible calibre, and without releasing the grasp of the fingers a half inch strip of strong adhesive plaster is firmly wrapped immediately below the finger, this must be thoroughly done or else the entire purpose of the strap will be thwarted, the patient will receive no relief, the scrotum will be injured and exposed to abscess formation." After the first strip is applied other strips of adhesive plaster, heated so as to secure their adhesion, one half inch wide and of sufficient length, are firmly attached to the centre of the posterior aspect of the first band and drawn tightly over the testicle and attached to the centre of the anterior part. A second and third, and as many as are necessary, are applied basket like in the same way until the entire testicle is firmly encased. The suspensory is applied after enveloping the whole scrotum in nonabsorbent cotton. This treatment will allow the patient to go to his home in comfort, when he is advised to take a hot bath and remove this dressing and institute the treatment as suggested before. The patient, who finds it necessary to continue his work, has a new strapping applied daily and a hot Sitzbad and hot applications at night. At no time at all should ice be directly applied, or used in an ice bag. I never have been able to see any relief from the use of ice, and on the contrary, it seems to exaggerate conditions and increase the danger of abscess.

Almost immediately after all inflammation has left the testicle, the urethral discharge will be reestablished, it having been arrested when the epididymitis began. The treatment for the urethritis can be recommenced.

Attempts should be made to secure complete resolution of the induration which has been left behind either in the head or the tail of the epididymis by applications of iodine or the belladonna and mercuric ointment, equal parts, employed in conjunction with warm, moist compresses snugly applied and covered with gutta percha and supported with the Jock strap.

Relapsing epididymitis is usually dependent upon some chronic urethral, vesical, seminovesicular, or prostatic infection, and the source of the trouble should be treated after the subacute inflammation of the epididymis has been treated along the same lines, as suggested for the acute epididymitis.

Dr. Theodore Bliss, of Schenectady, N. Y., observes:

There is no known means of preventing this complication apart from the careful management of the initial gonorrhoea with a view to preventing its spread to the deep urethra whence infection of the epididymis occurs by extension along the ejaculatory ducts and vas deferens.

Any injections or urethral instrumentation that may have been ordered for the urethritis must be stopped at once at the first indication of epididymitis. The patient should be put to bed, and the scrotum elevated on a small pillow placed between the thighs. The bowels should be opened freely by a saline purge, such as a Seidlitz powder. The diet aims to exclude all substances rendering the urine irritating. Hence much meat, condiments, spices, etc., are prohibited, and all alcoholic beverages. In cases with much constitutional reaction a strict fluid diet is best, of which skimmed milk is the basis. Plenty of water should be drunk, either plain or carbonated, but not to excess, lest digestion be deranged. A tepid or iced alcohol sponge bath is useful in febrile cases.

Medication is chiefly symptomatic. A specific serum has been successfully used by Rogers, of New York, but as yet it is not generally available. To render the urine bland and somewhat antiseptic, *ol. santali*, *mgv*, every four hours during the day, may be given either in a capsule or on a lump of sugar. For pain not controlled by local means, codeine sulphate in quarter grain doses, either alone or in combination with acetphenetidin, *gr. v*, may be given every two hours. The combination is especially effective in cases where an antipyretic effect is desired, provided there be no cardiac lesion. It is undesirable and rarely necessary to use morphine.

Locally, in addition to elevation of the testes, we may use cold, heat, and drugs acting on the local circulation. Cold should be used only in the early stages, and not continued for too long a time lest the vitality of the tissues be impaired. It is best applied as a snow or powdered ice poultice, which should not be made too thick and heavy. Heat is applied by cloths, wrung out of steaming hot water, to which may be added a 1 per cent. or 2 per cent. phenol solution, or the lotion of lead and opium. Of the drugs recommended I would advise to paint the scrotum over the affected side with 10 per cent. guaiacol solution in olive oil. This sometimes intensifies the pain on application, but soon gives place to a grateful sense of coolness. The use of various

ointments and the kaolin mixtures is mussy, and no more effective than the means already suggested.

When the acute pain and tenderness passes, firm pressure is indicated to reduce swelling and prevent relapse. A piece of rubber elastic fitted tightly around the scrotum and fastened by strips of adhesive (Chetwood) is more effective than strapping, since its compression follows the subsidence of the swelling. For persistent tenderness and induration, counterirritant by tincture of iodine, or the use of the thermocautery (Halstead) is recommended. The patient may be allowed to be up as soon as he is able to stand erect five minutes without causing a return of pain in the groin or testis. A well fitting suspensory will make this possible earlier, and its use should be continued for a month after all pain has ceased.

The average case lasts a week, with a stay of five days in bed. In cases where the lesion remains limited to the globus minor, the course is mild, and lasts but a few days. A more extensive lesion accompanied usually by constitutional symptoms runs a longer course. Orchitis commonly complicates the more severe cases, but affects prognosis rather than treatment. It may be followed by sterility. Suppuration rarely occurs, and its treatment, like any other abscess, is incision and drainage. A certain amount of persistent induration of the globus minor is to be expected.

There remains a class of cases requiring special mention. They may be termed ambulant cases, and they are of two kinds. The ambulant cases proper are the mild cases with lesion limited and lack of constitutional symptoms. The others are not true ambulant cases, but force themselves into this class because the patients, impelled by necessity or fear of disclosing their malady, insist on keeping up and about. The chief concern here is to guard against the irritation and dependent position of the inflamed part incident to the erect posture and bodily activity. This may be done by means of a suitable suspensory large enough to contain the dressings; or a triangular bandage may be made into a sling and attached to a band about the waist; or a roll of cotton may be placed below and behind the scrotum, and retained by a firm T binder so as to support and steady the testes. These cases may be allowed a more liberal diet, but abstinence from alcohol must be required. Drugs are used along the lines already suggested, according to the individual indications.

Dr. Glenn I. Jones, of Washington, D. C., states:

There is probably no disease of the genitourinary system which portends more anxiety to the physician than gonorrhœal epididymitis. The infection is in all cases secondary to a specific urethritis and occurs as a complication of acute or chronic gonorrhœa of the posterior urethra.

Prophylaxis.—Primarily prophylactic measures should be given the greatest consideration, and all cases of acute or chronic urethral gonorrhœa treated expectantly for infection of the epididymis. The patient should be forewarned as to the possible complications, instructed as to proper hygiene, and in every case an adequate support for the testicle should be provided from the outset, to prevent tension on the spermatic cord.

Curative, Medicinal.—The nonoperative treatment of epididymitis is confined to perfect hygiene of the genitalia, elevation, and support of the testicle, limitation of infection to epididymis, and rest. The patient is put to bed at absolute rest on a liquid, or soft nutritious diet, and encouraged to drink an abundance of water. Local applications are used to diminish the effusion and congestion of the tunica vaginalis. Tincture of guaiacol (40 per cent.) in glycerin freely applied to scrotum and inguinal region, and followed by an ice cap or by hot poultice of tobacco, flaxseed, or belladonna leaves, acts most efficiently as a counterirritant and analgesic, producing diminution in pain and œdema. The bowels should be moved daily, preferably with salines, and hexamethylinamine in 5 grain doses administered, three times daily, as an urinary antiseptic. When the swelling and acute pain subsides recovery can frequently be hastened and inflammatory induration be lessened by the application with gentle friction, three times a day, of the following unguent:

R. Pulv. opii.....	gr. iv.
Ung. belladonnæ (U. S. P.).....	ss.
Ung. ichthyollis (250).....	ad 3ij.

Strapping is of great advantage after the swelling begins to subside and pain becomes tolerable. The testicle on the affected side may be strapped snugly with adhesive plaster, but still better is a rubber bandage of sufficient length and width, to enclose the testicle from above its greatest line of swelling to its most dependent point, reinforced by a strip of adhesive plaster. The rubber bandage produces firm pressure, elevation, and support, and local depletion. It may be removed and reapplied daily as the swelling subsides.

Curative, Surgical.—The nature of the condition when considered from a scientific point of view, occurring as a secondary process to urethritis, would indicate immediate control of the spreading infection. The resistance of the gonococcus to the ordinary antiseptics and germicides tolerant to the mucous membrane, and the tendency to lead to other more unfavorable complications and sequelæ should demand prompt and radical surgical interference. In acute gonorrhœal epididymitis the epididymis is opened at its most dependent point; pus, if present, is evacuated; and the structure irrigated with a solution of bichloride of mercury, 1 in 4,000, followed by normal saline solution. Drainage is established by means of a few strands of silkworm gut or small cigarette drain. The advantages of this operation are: (1) Complications are rare; (2) tendency to recurrence is avoided; (3) treatment of urethra can be continued very much sooner; (4) convalescence is very much shortened; (5) patient is comparatively comfortable immediately after operation; and (6) danger of sterility is not increased.

In chronic epididymitis the prostate should be carefully examined, the urethra explored, and the infectious focus removed. Recurrent epididymitis should be treated surgically as in the acute variety. If this procedure does not destroy the infection, vasectomy should be done.

Epididymitis accompanies urethral gonorrhœa, and irrigation of the urethra should always be suspended until the acute process of the epididymis has subsided.

Dr. Leo Danziger, of Cincinnati, O., writes:

Gonorrhœal epididymitis is a complication of acute specific urethritis which usually occurs not earlier than the third week of the disease, except in cases where the posterior urethra had been previously infected, and not cured, and the new attack simply lights up the old one.

From the moment that a patient gets an inflamed epididymis all treatment to the urethra must be promptly stopped.

The treatment can be summed up in a very few words; namely, absolute rest and elevation of the parts, since there is a tendency on the part of Nature to do the work herself. But there are other points that have to be taken into consideration. Not in all cases is it possible for the patient to take to his bed and rest, partly on account of business affairs, and, secondly, for secrecy sake, as a great many patients are not willing that their families and friends should even suspect that they are ill. For those patients whom I can put to bed, I order absolute rest on a hard mattress, thorough elevation of the testes by means of a pillow shoved beneath them or by suspending them by means of a handkerchief suspensory, which is fastened to the waist or belly-band. Then I have the patient apply cool, but not ice cold, water, into which can be put liquor plumbi ad. libitum, or liquor alumni acetatis, three tablespoonfuls to the pint. The patient's bowels are to be moved briskly with salts, and a mild catharsis maintained during the whole of the acute stage. The diet is to be mainly vegetarian. Alcoholics and condiments are to be absolutely avoided. Usually in about seven days the acute stage is passed, and then I either put on an adhesive plaster (zinc oxide plaster) compression bandage, which is made by encircling the gland with successive layers of the zinc oxide plaster until it is evenly and snugly compressed. Then I apply a well fitting suspensory and see that it is well pulled up so that all weight and pull are taken from the cord. I also, as a routine practice, order 10 drops of a saturated solution of potassium iodide or sodium iodide, well diluted with water, to be taken three times daily after meals. The patient can then go about and tend to his work, and in about one to two weeks the process of absorption is complete, and the treatment of the urethra can be resumed.

In those cases that cannot or will not take to bed I order an ointment, consisting of guaiacol, 10 per cent.; pure iodine, 5 per cent.; wool fat, ad. $\mathfrak{z}\text{i}$, to be applied to the testicles and covered with a layer of gauze and then with a piece of oiled silk, and suspended either in a well fitting suspensory or a Jock strap, such as the athletes use.

After the acute stage has passed I either apply the zinc oxide adhesive plaster compression bandage or I order an alternative ointment as follows:

R. Turpentine, 100 grains.
 Turp. Balsam, 100 grains.
 M. in oil, and use alternately.

This is to be applied covered with gauze and oiled silk, and the suspensory worn until absorption has taken place completely.

Therapeutical Notes.

Treatment of Fractures Through Both Malleoli.—In a recent discussion before the Société de chirurgie de Paris, the bad results following treatment of fractures of the ankle through both malleoli were acknowledged and partly attributed to imperfect reduction of the deformity, and partly to allowing the patients to walk too soon. In some cases it appears that the best efforts of the surgeon will be unable to obtain a perfect result. The treatment may be summed up as follows: 1. Reduction of the fracture with the patient under chloroform, but carefully guarding against movements of the limb, as the patient is coming out from the anæsthetic, especially in alcoholic subjects. In order to bring the fractured ends into proper relation, strong traction is to be made upon the heel, tightly grasped in the hand, first in a direction downward and to the front, then flexing the foot and making strong adduction. 2. The immediate application of a plaster of Paris posterior splint. Support the limb until the plaster is hard, or apply an additional splint for one day. 3. Renew the plaster bandage if, after the subsidence of the cedema, it is observed to be loose. 4. The duration of immobilization should be forty, fifty, or sixty days. 5. The use of crutches is enjoined for one or two months without placing the foot on the ground during this time. 6. Massage and electricity should be applied to the limb before permitting the patient to walk, in order to overcome trophic troubles. 7. Radiographic examination should be made in case of doubt as to consolidation. If consolidation is not complete in six months (as shown by the translucent callus), surgical intervention should be considered.—*Revue médicale de Normandie*, through the *Journal de médecine de Paris*, April 7, 1907.

Relation of Epilepsy to Hyperchlorhydria.

Professor Robin, in a clinical lecture, has stated that among eleven patients of epilepsy, he had found that nine also suffered from hyperchlorhydria. Without admitting that this condition produces epilepsy, it is assuredly an exciting factor. In fact, in an epileptic, who had long been on the bromide treatment, Robin was able to obtain almost a complete cure by simply treating the dyspepsia. The attacks ceased for two years, but at the end of this period they returned, owing to a nervous shock. In this case the psychical cause, so to speak, replaced the gastric cause. It is known, moreover, that dyspepsia aggravates other nervous states, and this may be explained either by the presence of toxines or as suggested by Robin, by reflex irritation. The plan of treatment would, therefore, be to diminish the excessive secretion in the stomach, and to reduce the excitability of the medulla oblongata. A dechlorinized diet is useful not only by reducing the hydrochloric acid, but also by rendering the system more subject to the action of the bromides, for the dechlorination should not be carried to excess. *La Semaine Médicale*, June 25, 1907.

Internal Myiasis. The Larvæ of Teichomyza Fusca in the Human Intestine.—The black flies which are found in swamps in various localities

urinals, and which are seen forming dark patches in the angles of the walls, feeding on organic matter—and if disturbed do not fly far, but return immediately to their favored spot—are known as the *Teichomyxa fusca*. It is the only known representative of the genus. The acephalous larvæ when they have attained their full size measure 0.010 to 0.012 m. in length. They have the appearance of elongated spindle, terminating in a point in front, their body is formed of 11 well defined segments, without counting the pseudocephalus (which carries the mouth), and the bifurcated caudal extremity. These organisms have occasionally entered the digestive canal of man, where they live, because their chitinous envelope is insoluble in the digestive fluids. Chevrel reported a case in a strong, well developed woman, twenty-four years of age, who suddenly was attacked by various symptoms, slight fever, loss of appetite, violent headache, sore throat, and itching at the anus. Examination of the feces did not reveal oxyurides, as had been expected, but on the contrary, a large quantity of the above described larvæ, of which more than one hundred were counted. The manner of introduction of the larval organisms in this patient was unknown, but it was demonstrated that they were not an accidental contamination of the stools after they were passed. These cases, in fact, are not very rare. Paul Lallier, in 1897, in his *Thésis*, collected eighty-eight cases of intestinal myiasis, and since that time a score or more have been published. Among the muscides, the genera that have been best represented, are those of anthomyia, sarcophaga, musca, and teichomyza.—*La Tribune médicale*, June 22nd.

A Novel Device for the Protection of the Skin from X Ray Dermatitis.—Professor von Jaksch (*Prager Medizinische Wochenschrift*, June 13th) recently communicated to the Scientific Society of German Physicians in Bohemia, the results of experiments he had made to determine the permeability of different metals (silver, gold, platinum) with regard to the x rays. He especially desired to perfect a radiotherapeutical method, which would act deeply upon the internal organs, while at the same time the injurious action upon the surface would be eliminated. He was able to demonstrate finally that a shield of silver, one fifth of a millimetre in thickness, was capable of entirely intercepting the rays that were injurious to the skin, without interfering with the penetration of those which should act on the viscera. In a case of leucæmia, for instance, he directed the x rays to the region of the spleen, but passed them through a thin plate of silver. In three weeks, the number of leucocytes was reduced from 250,000 to 8,200, and these corpuscles became also qualitatively normal. The enormously enlarged spleen diminished rapidly under the treatment. The patient had twenty-five exposures in all, each lasting twenty-five minutes, and given once daily. At the point of application of the x rays, there was only a little redness, with traces of pigmentation and desquamation, which in a few days disappeared. The author has treated, in the same manner, several cases of visceral carcinoma, without having seen any radiodermatitis in spite of the long duration of the exposure (thirty minutes). It is evident that in addition to the sheet of silver covering

the location of incidence of the x rays, the body of the patient should elsewhere be protected, as usual, by a sheet of lead against the injurious effects of the rays. The filtration of the therapeutical rays through the protecting sheet of silver thus enables the operator to treat the diseases of the underlying organs without causing the destructive lesions of the skin, which hitherto have been so frequent.

Local Treatment of Itching.—Bulkeley (*Journal of the American Medical Association*, July 27, 1907) finds the calamin and zinc lotion, so widely known, to be one of the best, mild, soothing applications in many pruritic conditions. The formula which he employs is composed about as follows:

R	Phenolis,	5ss-3i;
	Pulv. calamin. prep.,	3i;
	Zinci oxid.,	3ii;
	Glycerini,	3iii;
	Aquæ calcis,	3i;
	Aquæ rose, q. s. ad.	3iv.
M.	Sig.: To be sopped repeatedly over the surface.	

Ichthyol is a very valuable remedy, and in from 10 to 25 per cent. solution, in water or oil, will often act very efficiently; it is also very valuable in ointments. The liquor picis alkalinus, which he introduced some years ago, is also serviceable. It is made as follows:

R	Picis liquide,	5ij;
	Potassii caustici,	3ii;
	Aquæ,	5x.
M.		

The potash is dissolved in the water and rubbed up with the tar in a mortar until perfect solution is effected. This is to be diluted in varying strength, one part to ten or to twenty of water, and bathed over the surface, a suitable ointment being applied afterward. Lead and opium wash is often employed and occasionally will be found effective, but, as a rule, it does not answer so well as other remedies. Ointments are constantly employed to relieve itching, and if properly constructed and efficiently applied answer well, although often annoying to the patient. For rather mild general itching a carbolic compound wool fat ointment is valuable, made as follows:

R	Phenol,	gr. xx-xl;
	Wool fat,	5i;
	Boroglycerin,	5iv;
	Ointment of rose water,	3iii.
M.		

This is applied with the palms of the hands and gently rubbed in until about all is absorbed. A mixture of camphor and chloral is a very efficient antipruritic, made thus:

R	Chloral hydrate, {	of each, 5ss-3i;
	Camphor gum, {	
	Rub together until liquid and add:	
	Compound ointment (as above),	5i.
M.	Sig.: To be gently rubbed in.	

If there are any raw surfaces this will sting considerably, but on the unbroken skin it is very comfortable and allays itching greatly. Many skins do better without any greasy application, and the glycerite of starch can be substituted in the above ointments for the fatty base. Tar and the tarry preparations, oil of cade, and oleum rusci, are also valuable antipruritic remedies, and may be freely used without danger of absorption.

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THE MORBID ANATOMY OF MENTAL CONFUSION.

Cases of confusional insanity are beginning to be recognized by the French as distinct from the group of primary, organic dementias. In this they are following the lines laid down by Kraepelin some fifteen years ago. Recent investigations appear to demonstrate a certain relation existing between the disturbance of intellection present in these patients and certain changes in the cells of the cerebral cortex, and, less directly, but more constantly, certain morbid conditions, notably pus collections or chronic inflammatory foci, in remote regions of the body, especially those affecting the pelvic organs.

In patients suffering with light forms of mental confusion, a distinction can and should be made between the fundamental and the accessory manifestations of the mental disorder. Prominent among the fundamental manifestations are the disturbances of the perceptive faculties. These patients are in a state of uncertainty and doubt; they seem lost and undecided where to go. Hence arises the failure in orientation in time and space which is so characteristic of mental confusion. From it also arises the abulia, or deficient will power, which causes the slowness of movement and indecision. Among the accessory manifestations are occasional delirious phenomena. There may be also temporary exaltation, but more frequently depressive ideas prevail. Hallucinations are rare, but delusions are not infrequent.

In a recent article in the *Journal de médecine de*

Paris (June 16, 1907), Gilbert-Ballet, of the Hôtel Dieu, declares that surmenage, mental shock, or a state of mental and physical exhaustion, is very often the direct, or immediate, cause of the mental disturbance. This is strikingly manifest in the post puerperal psychoses, which are now generally held to be primarily due to intoxication or infection. The toxic elements are the result of hepatic and renal insufficiency, and possibly of the introduction of foetal excreta into the maternal organism. Associated with this, there is frequently a slight septic or sapræmic condition. Nevertheless, the economy may tolerate all this without showing any ill effect, until the day when the equilibrium is broken by the interposition of a new factor, such as excitement or mental shock in a manner quite analogous to the outbreak of delirium tremens.

Two pathological factors may be recognized in the class of cases under consideration. One is constant, and this is the presence of toxic elements in the organism; the other is, accessory, and consists in local changes in the cerebral cortex or, more specifically, a local swelling of cortical cells, the projection of their nuclei to the periphery, and the disappearance of chromatin granules (chromatolysis). Where the intoxication has been intense or the disease has existed for some time, it is stated that these lesions are constantly present. It is evident, therefore, that the prognosis in a case of acute mental confusion is not invariably favorable, but depends upon the physical and pathological conditions in the given case. If the intoxication or infection is recent and removable, and the degenerative process in the cortex not far advanced, recovery may be reasonably expected, provided that a rational therapeutics is followed. When this cannot be accomplished, and the cerebral lesion is permanent or progressive, the case left to itself will probably end in permanent deterioration.

It has been demonstrated, however, in some cases of chronic confusional insanity, especially in puerperal psychoses, that surgical intervention, i. e., for the relief of metritis, or removal of a purulent collection in the pelvis, has resulted in a cure of the mental condition and the entire recovery of the health of the patient. This affords strong support to the position taken some time ago by American gynecologists and alienists, notably by Rohé, of Baltimore, that some of the chronic insane have remediable pelvic surgical conditions, and consequently have a right to receive appropriate treatment. At that time, it was shown by clinical experience that, after such physical relief had been given, the mental condition improved and, in a fair proportion (as high as twenty-five per cent., according to Rohé), cases of chronic insanity was deemed

The concurrence of pelvic disease with insanity is not rare, and while much has undoubtedly been accomplished within the last decade by the appointment of gynecologists to the staff of hospitals for the insane, it cannot be amiss to direct attention to this subject again, and to urge upon those having them in their charge the careful study of each individual case belonging to this most unfortunate class of sufferers from the point of view herein suggested.

THE DOMESTIC FLY.

The advent of the house fly of 1907 should create renewed activity among entomologists and bacteriologists in the study of this dangerous pest. It is not only the bald headed man to whom *Musca domestica* should be anathema maranatha—it sharing the propensity of the wicked generally to stand on slippery places—but every one who is charged with the maintenance of hygienic conditions. The stable is the native heath of flies, abattoirs also breeding them in large numbers. The latter should have no place in city life, and it is not unlikely that the horse will ere long be banished from metropolitan communities. Meanwhile, could there not be provision made for the daily removal of manure from all city stables, public and private, where it is a menace, to rural regions, where it is of great value?

Of the fly's part in the transmission of typhoid fever there is no doubt; of the maleficent rôle it plays in carrying other diseases, particularly from child to child and among the very poor, doubt is hardly possible. The study of this pest and of other insects may not improbably result in the discovery that, strictly speaking, there are no such things as contagious diseases; all are merely infectious.

It is hard to have to shut out the sunlight and the air of heaven from our dwellings, but in awaiting other help, we are unable to proffer any advice except so to do by means of screens and shades, the while removing the insanitary stables and slaughter houses. The beds of sleeping infants should be covered with netting, and it could do no harm to sponge the face and wash out the mouth when the child awakes. The motor fan will drive flies from the area covered by its breeze, but the latter has all the dangers of natural draughts. Wire netting should cover all food inside the refrigerator and out.

"Some day wood work will be banished from all kitchens; the new construction of concrete blocks seems to promise more cleanly conditions in many parts of the dwelling, and flies abhor cleanliness. The sole useful function of the fly is much better

performed by the clean and generally innocuous alarm clock.

INFANTILE PARALYSIS AND RECUMBENCY.

Dr. Adoniram B. Judson, of New York, has favored us with an account of his views on the prevention of deformity after infantile paralysis by recumbency during the period of recession. He sees an analogy between the frequency of articular deformities resulting from tuberculous disease of the lower extremities, as compared with that of similar results in the upper limbs, which prevalence he attributes to the greater amount of work put upon the legs in sustaining the weight of the body and in locomotion at too early a date, and the frequency of leg disabilities after infantile paralysis. It is to prevent these evil consequences of tuberculous disease that so many surgical appliances are so constructed as to bear the weight of the body themselves rather than allow it to fall on crippled limbs. He would give the same protection to the muscles weakened by infantile paralysis, and would afford it by enforcing prolonged recumbency. He foresees opposition on the part of patients' friends, but he suggests that the continuance of such measures as passive motion, resistance exercises, electricity, massage, local applications, and judicious medication will moderate the opposition. Dr. Judson is under the impression that more cases of lameness are produced by infantile paralysis than by joint disease.

DIABETIC GANGRENE AND SURGICAL INTERVENTION.

Experience has amply demonstrated that the problem of surgical intervention in diabetic gangrene is difficult of solution. The great majority of surgical textbooks couch their advice on this point with considerable vagueness, and the deductions to be drawn are far from conclusive.

This indecision has led Klemperer to make a specific study of the problem, and in some recent work on the subject which he reports (*Therapie der Gegenwart*, 1907, No. 1) he has taken the occasion to study fifteen diabetic patients with the view of determining the applicability of surgical measures in the light of their diabetic complications. Of these fifteen patients suffering from diabetic gangrene, five had the disease in a grave form, with signs of marked acid intoxication; in the remainder acidosis was not developed to any grave extent, in which latter fact one may read the lack of correspondence of the gangrenous lesions and the acid intoxication.

In the milder cases his results were excellent; of the ten, eight showed healing spontaneously after

an operation, treated locally by dry dressings and by Bier's hyperæmic procedures. A strict dietetic regimen at the same time led to a marked diminution in the glycæmia.

So far as the graver forms are concerned, those in which acetone, diacetic acid, etc., are present in appreciable quantities, the dangers are distinctly greater. Narcosis and shock are borne by these patients badly, and cardiac exhaustion is always imminent; nevertheless, Klemperer is of the opinion that these patients can be operated on with comparative safety. They certainly succumb without such intervention. A strict dietetic regimen is desirable before the operation, and minimum amounts of narcotics are imperative. Grave results, however, are ever to be kept in mind and the prognosis reserved.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

This subject has been prominent among the varieties of sanitary work for a considerable length of time now—not for so long a period, however, as to insure readiness at all times on the part of teachers and newly appointed inspectors. We are glad to see, therefore, that the Massachusetts Board of Education has recently issued a little pamphlet, prepared by a competent body of writers, entitled *Suggestions to Teachers and School Physicians Regarding Medical Inspection*. We do not doubt that it will prove of great service.

THE CHEWING OF GUM.

From the æsthetic standpoint we can say nothing in palliation of the habit of gum chewing, which seems to have taken a firm hold on rather a low class of the American people, both men and women, who, not content with carrying it out in private, persist in parading it before their civilized fellow beings. It is unmitigatedly repulsive. However, two or three years ago—perhaps longer ago—we felt constrained to express our belief that it was hygienically beneficial. We pointed out, in particular, that it tended powerfully to cleanse the teeth, those instruments that we are all too prone to neglect, with the result that we get dyspepsia from defective mastication and insalivation.

These points have lately been brought forward in greater detail by M. Léon Meunier (*Gazette médicale de Paris*, July 15th), though not with special reference to gum chewing, of which however, he appears to approve while unable to restrain his representation of it as an American oddity. M. Meunier's main purpose is to demonstrate the frequency of dyspepsia dependent on insufficient insalivation. Those who bite their meals, he says, and none of us can doubt that he is right—deprive

themselves of the salivary amyolytic aid to gastric digestion. He perceives a supplementary insalivation within the stomach as the result of swallowing the saliva poured out by reason of chewing gum. So it seems that we cannot scientifically oppose the disgusting habit.

PNEUMONIA IN THE FŒTUS.

An interesting contribution to our knowledge of the facts bearing on the question of the transmission of disease from the maternal organism to the fœtus in utero was presented by M. Menetrier at a recent meeting of the Société médicale des hôpitaux de Paris (*Semaine médicale*, July 17th). Speaking for himself and for M. Touraine, M. Menetrier gave an account of a case in which a woman beginning to recover from a grave attack of pneumonia was delivered of a still born child of six months and a half. In the middle lobe of the child's right lung there was observed a patch of hepatization extending to the surface and accompanied by some localized pleurisy. The other organs were healthy.

Histological examination of the area of hepatization showed lesions resembling those of frank lobar pneumonia of the adult. In the peripheral zone the congestion had passed the stage of splenization and had reached that of diffuse hæmorrhagic effusions. The pneumococcus was found in the blood, in the lung, and in the liver of the fœtus. The interesting feature of the case was thought to be the exclusive localization of the infectious process in the lung. To explain this localization, the reporter questioned if one might not admit the existence of pneumotoxines which, elaborated in the organism of the mother, in the course of her pneumonia, passed into the fœtus and gave rise in the corresponding organ, namely, the lung, to cellular disturbances or circulatory modifications that set up a local attraction for the germs in the circulation. M. Menetrier's conjecture seems rational, but we presume that much further study would be required to establish or disprove it.

THE NEWSPAPER LIE ABOUT DR. KNOPE.

Our readers are familiar with the fact that various newspapers lately gave currency to an atrocious calumny attributing to Dr. S. A. Knopf, of New York, the teaching that the death of dying consumptives should be painlessly hastened by means of poisonous doses of morphia. The charge has been amply refuted, but it seems that there are some newspapers which do not get, or at least do not print, the real news, and it is still asserted in such sheets that Dr. Knopf made the absurd statement imputed to him. It is intolerable that he should thus be held up as a wholly unscrupulous scoundrel and it is regrettable that his name is in the case.

many poor consumptives have been rendered so suspicious that they decline ministrations most kindly meant.

News Items.

The Death of Dr. William T. Howard, of Baltimore.—occurred at Narragansett Pier, R. I., on Wednesday, July 31st, at the age of eighty-four years.

Sanitary Officers' Association of Ontario County, N. Y.—The programme for a meeting of this association, held at Geneva, on Thursday, August 1st, included an address on Milk for Babies, by Dr. G. W. Goler, of Rochester.

Medical Students at French Universities.—For the summer course of 1907, there were 8,297 medical matriculants, of which number 796 were women. The University of Paris led with 3,369 matriculants.

The Pennsylvania State Board of Medical Examiners has issued licenses to practice medicine in the State of Pennsylvania to 328 candidates. Thirty-nine candidates, out of 367 who took the examination, failed to pass.

Meetings of State Medical Societies in the Month of August, 1907:

Minnesota, Duluth, August 21st.

Ohio, Cedar Point, August 28th.

Wisconsin, Superior, August 20th, 21st, 22nd.

Drowning of a Physician's Son.—The Reverend Arthur S. Mann, a missionary to China, son of Dr. Matthew D. Mann, of Buffalo, was drowned at Kuling, China, on July 30th, in attempting to rescue a brother missionary, the Reverend Mr. Seabury, whose life was also lost.

The Alvarenga Prize of the College of Physicians of Philadelphia.—The award of this prize for 1907 has been made to Dr. William L. Chapman, of Providence, R. I., for his essay on Postoperative Phlebitis, Thrombosis, and Embolism.

Charitable Bequests.—According to the will of Caroline Wolf, St. Vincent's Orphan Asylum and St. Mary's Hospital, Philadelphia, receive \$200 each. The Sanitarium at Red Bank, N. J.; the Society to Protect Children from Cruelty; and the House of the Good Shepherd receive \$100 each.

Change of Address.—Dr. J. Irving Chapin, from 1724 Diamond Street, Philadelphia, to Washingtonboro, Lancaster County, Pennsylvania.

Dr. L. W. Zwisohn, from 616 Madison Avenue, to 249 West One Hundred and Twenty-second Street, Manhattan.

Dr. Charles M. Beall, to the Geneva, Seventeenth and U streets, N. W., Washington, D. C.

Civil Service Examinations for the State and County Service.—Among the positions for which examinations will be held on August 24, 1907, is that of Assistant Bacteriologist and Chemist, State Department of Health Laboratory, Albany. The salary is \$720. The last day for filing applications for this position is August 17th. Full information and application forms may be obtained by addressing Charles S. Fowler, Chief Examiner of the Commission, in Albany.

The Chatham County, Georgia, Medical Society was formally dissolved, and the organization of *The First Georgia District Medical Association* completed, at a meeting held at Tybee, on July 24th. The organization was made under the direction of Dr. J. L. Hiers, councilor for the district. Officers were elected as follows: President, Dr. George M. Overstreet, Sylvania; first vice-president, Dr. John K. Train, Savannah; second vice-president, Dr. J. L. Farmer, Savannah; secretary and treasurer, Dr. J. M. Sigman, Savannah. The next meeting will be held in January, the exact time and place yet to be determined.

The Health of Pittsburgh.—During the week ending July 26th the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chickenpox, 6 cases, no deaths; typhoid fever, 60 cases, 8 deaths; scarlet fever, 10 cases, 1 death; diphtheria, 5 cases, no deaths; measles, 8 cases, 1 death; whooping cough, 30 cases, 8 deaths; pulmonary tuberculosis, 11 cases, 9 deaths. The total deaths for the week numbered 172, in a population, according to the census of 1900, of 312,616, corresponding to an annual death rate of 28.64 in 1,000 population.

Yorkville Dispensary and Hospital for Women and Children.—The board of directors of the Yorkville Hospital, in order to meet the increased demand upon the institution by the sick poor of Yorkville, and with the view also of purchasing a new hospital site at an early date, has decided to add to the present medical board additional visitings in surgery, gynecology, internal medicine, orthopedics, eye, ear, nose, and throat. The directors announce that the selection of the physicians will be made solely on professional merit, regardless of political or financial influence. The Yorkville Hospital was formerly known as the Metropolitan Hospital and Dispensary.

The Brainerd District, Illinois, Medical Society.—The one hundred and twenty-second quarterly meeting of this society was held at Petersburg, Ill., on July 25th. The programme arranged for the meeting included the following papers: The Modern Short Incision in Certain Operative Technique, by Dr. Don A. Deal, of Springfield; The Significance of Pain in Acute Abdominal Disease, by Dr. Carl E. Black, Jacksonville; Some Affections of the Gallbladder and Bile Duct, by Dr. J. J. Hill, Athens; Accessory Sinuses of the Nose, by Dr. A. L. Adams, Jacksonville; Typhoid Fever, by Dr. S. E. Munson, Springfield; Report of a Case, by Dr. S. T. Hurst, Greenville.

The International Guild for the Benefit of the Insane.—Under the auspices of this guild there will be a meeting of women physicians of the Clara Settlement, at St. Regis House, One Hundred and Fortieth Street and Riverside Drive, Manhattan, on Saturday, August 17, 1907, at 3 p. m. The following programme has been prepared for the occasion: The Object and Need of Psychopathic Wards in General Hospitals, Dr. Ruth Demarest, Hudson River State Hospital, Poughkeepsie; discussion to be opened by Dr. Theodosia F. Schöney, New York; Borderland Cases, Dr. A. Lenora White, New York; discussion to be opened by Dr. Amelia M. Fendler, New York; Sociology Applied, Dr. Bertha A. Rosenfeld, New York.

Medical Students at German Universities.—The official report from the twenty-one German universities gives a total of 7,210 medical students for the winter course of 1906, as against 6,570 and 6,080 for the summer course of 1906 and winter course of 1905, respectively. The University of Munich leads with 1,292 medical students, followed by Berlin with 1,182, while Münster counts only 63, taking the lowest place. Six universities admit female medical students: Erlangen (1); Freiburg (27); Heidelberg (25); München (43); Tübingen (2); Würzburg (6); a total of 104 female students. The total number of students is 45,136 men and 254 women; in addition to these, 5,509 persons (2,105 women) avail themselves of the privilege of attending lectures without having the right to matriculate; Berlin leads with 8,188 students, followed by Munich with 5,567, while Rostock has the smallest number of students, 645.

Naval Hospital Needs.—Under this heading the *New York Tribune* (July 24th) says: "The naval medical officers hope to obtain some legislation at the next session of Congress which shall be beneficial to the hospital corps of that branch of the navy. The corps needs reorganization and an increase. The situation is such that good men are not reenlisting, and it is difficult to induce others to enter the service. As the conditions are to-day, the pay of the members of the hospital corps cannot be increased without special act of Congress. The pay of all other enlisted men of the navy can be altered by executive order. Something will have to be done to give the same chance to the naval hospital corps men. It is also intended by the head of the corps to renew the recommendation in favor of the establishment of a dental corps similar to that in the army medical department. There will be an effort made also to obtain authority for the employment of women nurses, principally at naval hospitals at home and abroad. These nurses have proved of great value at the army general hospitals in the United States as well as in the Philippines."

The New Army General Hospital.—According to the *New York Tribune* (July 24th), "the plans for the establishment of a large army general hospital and medical station in the District of Columbia, beyond the Soldiers' Home, have been completed. A hospital building is now under construction and is expected to be finished in about six months. It is intended to remove to this place the army medical school, which is now accommodated in the Medical Museum on the Smithsonian reservation. There

will also be established two companies of the hospital corps for the purpose of instruction and demonstration. There will be a postgraduate school for the benefit, not only of the newly appointed assistant surgeons, but for older officers who desire to take up some special study or pursue some line of scientific investigation. This general hospital will be the largest of its kind under the government, and when completed there will be, counting the quarters, laboratories, and so on, something like one hundred buildings. The site selected is a commanding one overlooking the national capitol, and is intended as a memorial of the late Major Walter Reed, surgeon, to whose efforts in Cuba were due the extinction of yellow fever. The first of the surgeon commandants in charge of the new institution will be Major William H. Arthur, who entered the medical department in 1881."

Report of the Department of Health of the Isthmian Canal Commission for the Month of May, 1907.—During May, 1907, there were 263 deaths on the Isthmus, in a population of 99,950, corresponding to an annual death rate of 31.57 in 1,000 population. There were 18 deaths from typhoid fever, 5 from aestivoautumnal malaria, 17 from clinical malaria, 2 from hæmoglobinuric fever, 1 from diphtheria, 4 from amoebic dysentery, 5 from clinical dysentery, 3 from beriberi, 4 from septicæmia, 9 from tuberculosis of the lungs, 1 from tuberculosis of other organs, 10 from general tuberculosis, 3 from bronchopneumonia, and 51 from pneumonia. Three deaths were reported among the 4,284 American employees, all from accidental traumatism. Thirteen deaths were recorded among the 6,182 employees other than Americans, of which 4 were from disease. There were 82 deaths among the 28,537 blacks, all except 7 of which were from disease. The first rain of the season occurred on May 10th, nearly a month later than in 1906. The morbidity rate was 18.97 in 1,000 daily. One white American infant, aged seven days, died from marasmus. No quarantinable disease of any kind occurred during the month. The prolonged dry season and the comparative lateness of the beginning of the rains have been productive of conditions favorable to the breeding of mosquitoes which are unique and which required the adoption of sanitary measures never before necessary. The rivers have been converted into a series of still pools connected by a mere thread of trickling water. Under an unclouded sky the temperature of these pools becomes favorable for the development of algae, so that a good crop would spring up the second day after a good cleaning. In the eddies and shallow bends *anopheles* appeared at once, while the various species of *culex* abounded at all times. Oiling was only partly effective, and no sooner was a stream cleared in its entire length than it was necessary to repeat the operation. Consequently a boat was built and the entire mouth of the Bas Obispo river was blown out where it emptied into the Chagres. The boat then proceeded up the river, gangs of laborers clearing away the grass from the banks and removing obstructions from the stream. The shallows were treated either by deepening the channel and narrowing its banks with rough stonework or by blowing out a channel with dynamite, which would be sufficiently deep and wide to completely do away with the pools of water above. In these ways the breeding places were kept down. The canal cut proper gives much trouble. The progress of each steam shovel leaves new breeding places behind it. In many places the water can only be ditched in one pool, which may then be oiled. Efforts were made to turn all the water into the main ditch, where the swift running stream is unfavorable to mosquito breeding. Drip barrels of oil were placed in localities where the current was too slow. The location of points of infection is an important part of the work of the sanitary department. When at any camp the hospital returns show a decided increase of cases of malaria, the mosquito inspector goes over the whole ground of the camp and its surroundings, tries to locate the breeding places, and reports on measures best adapted for their removal. All the laborers that can be spared are at once concentrated on this district and make a swift end of breeding places. Special measures are being taken to prevent typhoid fever, which is still too prevalent, and pneumonia, which is now the disease causing the greatest number of deaths. Excess of fat and meat eaten in the messes has been overhauled and made flyproof; the water sheds are patrolled and settlers removed from them; the messes except the localized ones are closed, drains and ditches are kept free of decomposing matter, and are systematically disinfected

by phenol and chlorinated lime; meats and other foodstuffs are kept under wire screens; extra garbage cans have been distributed to the houses; houses in which cases of either disease have occurred are fumigated; and the water closets and surrounding ditches and drains are disinfected.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending July 27, 1907:

	July 27.		July 20.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	81	14	54	9
Smallpox.....	1	1	—	—
Varicella.....	20	—	44	—
Measles.....	401	24	414	24
Scarlet fever.....	180	14	231	14
Whooping cough.....	47	10	32	6
Diphtheria.....	278	30	304	29
Tuberculosis pulmonalis.....	346	143	308	152
Cerebrospinal meningitis.....	20	8	13	12
Totals.....	1,374	244	1,400	246

The Mortality of Baltimore.—The report of the health department for the week ending July 27, 1907, showed a total of 290 deaths, as compared with 232 the corresponding week of last year, 253 in 1905, and 238 in 1904. The annual death rate in 1,000 of population was: Whole, 25.59; white, 23.10; colored, 38.71. The principal causes of death were: Typhoid fever, 5; diphtheria, 2; influenza (la grippe), 1; consumption, 23; cancer, 8; apoplexy, 8; organic heart diseases, 8; bronchitis, 1; pneumonia, 9; diarrhoea, under two years of age, 93; Bright's disease, 18; congenital debility, 20; lack of care, 2; old age, 4; suicide, 1; homicide, 1; accidents, etc., 22. The nativity of the decedents was: United States, whites, 170; foreign, 37; colored, 67; unknown, 16. The following number of cases of infectious diseases were reported, as compared with the corresponding week of last year:

	1906.	1907.
Diphtheria.....	176	17
Scarlet fever.....	5	9
Typhoid fever.....	32	20
Measles.....	7	15
Mumps.....	1	3
Whooping cough.....	3	4
Chickendix.....	0	0
Consumption.....	16	17

Statement of Mortality of Chicago for the Week Ending July 20, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of midyear population—2,107,020 for 1907 and 2,040,185 for 1906:

	July 20, 1907.	July 13, 1907.	July 21, 1906.
Total deaths, all causes.....	300	483	517
Annual death rate in 1,000.....	12.37	11.95	13.15
Sexes:			
Males.....	278	278	291
Females.....	227	205	226
Ages:			
Under 1 year of age.....	111	92	148
Between 1 and 5 years of age.....	50	49	47
Between 5 and 20 years of age.....	39	40	29
Between 20 and 60 years of age.....	209	221	192
Over 60 years of age.....	91	81	91
Important causes of death:			
Apoplexy.....	8	6	6
Bright's disease.....	16	22	10
Bronchitis.....	7	10	8
Consumption.....	25	22	26
Cancer.....	28	24	23
Convulsions.....	6	8	6
Diphtheria.....	6	8	14
Heart disease.....	25	20	25
Infectious diseases acute.....	51	36	98
Measles.....	10	7	1
Nervous diseases.....	18	24	16
Pneumonia.....	22	17	21
Scarlet fever.....	7	0	12
Suicide.....	19	8	10
Typhoid.....	1	2	1
Typhoid fever.....	5	2	4
Typhoid fever, other than small.....	40	4	41
Whooping cough.....	3	1	1
All other causes.....	138	78	116

The promise of the lowest July death rate on record still holds good for the present month. Although, of course, more deaths were reported during the week than during the week previous the annual rate for the twenty elapsed days of this month is only 11.89 in a thousand population, the lowest previously recorded in thirty years having been 11.95 on July 13, 1907. Of the seventeen additional deaths there were two more from suicide, three more from tetanus, and six more from violence other than suicide.

With of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

July 25, 1907.

1. Hydrophobia and Its Prevention. By C. P. SYLVESTER.
2. The Uterine Ligaments. By DANIEL H. CRAIG.
3. The Contamination of the Air of Our Cities with Sulphur Dioxide, the Cause of Respiratory Disease. By THEODORE W. SCHAEFER.
4. A Case of Extensive Resection of the Stomach for Carcinoma. By FARRAR COBB.
5. A Department of School Hygiene. By LUTHER HALSEY GULICK.

1. **Hydrophobia and Its Prevention.**—Sylvester proposes the following to be adopted as national and State laws: 1. Control of the disease in the United States to be placed under the supervision of the Chief of the Bureau of Animal Industry at Washington, as are other epizootic diseases. 2. Full authority vested in the State cattle or other appointed commission to act as may be necessary for the eradication of the disease, in conjunction with the United States Bureau of Animal Industry at Washington, whenever rabies appears in the State. 3. All licensed dogs to wear collars and metal plate of special form, that they may be readily recognized. 4. Prompt capture of all dogs not properly tagged, with subsequent humane destruction, unless properly licensed within a short time. 5. Efficient muzzling of all dogs unrestrained in public places for a period of at least one year. 6. Dogs imported from countries other than those from which rabies is excluded to be quarantined for six months.

3. **The Contamination of the Air of Our Cities with Sulphur Dioxide, the Cause of Respiratory Disease.**—Schaefer says that man disposes of his sewage and dejecta in a most peculiar manner by casting them into the streams and large bodies of water from which he derives his water supply. In a like manner he ignorantly pollutes with poisonous gases the very air he breathes. It stands to reason that factories, manufacturing plants, and other large industrial establishments modify seriously, by their excessive smoke, the atmosphere of cities by the addition of a deleterious gas like sulphur dioxide, and they should, therefore, for hygienic reasons alone, be located at some distance from cities. Instead of permitting colossal quantities of sulphur dioxide to go to waste by passing into the atmosphere, thereby occasioning serious atmospheric contamination and economic damage, means and ways should be devised to recover the enormous quantities of sulphur dioxide thus lost. Industrial application should be made of sulphur dioxide as in the case of carbon dioxide. Sulphur dioxide could find many a useful technical application in the arts and industries.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

July 27, 1907

1. The Need of Medical Cooperation in Laboratory Work. Chairman's Address Before the Section in Pathology and Physiology at the Fifty-eighth Annual Session of the American Medical Association, June, 1907. By WALTER L. BIERING.
2. The Relation of the Circumferential Space to the Causation of Glaucoma as Shown by the Würdemann Lamp. By JOHN A. TENNEY.
3. The Surgical Treatment of Chronic Glaucoma. By S. D. RISLEY.
4. The Preventive Treatment of Transferred Ophthalmitis (So Called Sympathetic Ophthalmia). By CHARLES A. OLIVER.
5. Further Observations on Retinitis Punctata. By H. GRADLE.
6. Surgery of Tumors of the Bladder from a Modern Aspect. By G. KOLISCHER and L. E. SCHMIDT.
7. Onychomycosis Trichophytina, With Report of Two Cases. By A. RAVOGLI.

8. Cases of Cancer at the Prostate. Angio-Carcinoma with Autopsies. By THEODORE DILLER.
9. Carcinosis of the Brain and Spinal Cord. By WALTER TIMME.
10. Opsonic Therapy in Skin Diseases. By H. R. VARNEY.
11. Significance and Treatment of Itching. By L. DUNCAN BULKLEY.
12. Indications for the Employment of Adrenalin Chloride, in Conjunction with Cocaine, in Operations on the Eye. By SAMUEL THEOBALD.

6. **Surgery of Tumors of the Bladder from a Modern Aspect.**—Kolischer and Schmidt, of Chicago, state that all benign tumors of the bladder should be approached from the inside, all malign tumors from the outside of the viscus. In all malign cases in which the loss of substance is not too great the bladder should be closed completely by sutures after the removal of the tumor, and the incision into the bladder should be made in accordance with the location of the growth, as defined by the cystoscope. The permanent catheter should be absolutely abolished. Nitrous oxide gas anesthesia should be employed exclusively. A constant cystoscopic surveillance should be maintained over any bladder that has ever been operated on for tumor.

7. **Onychomycosis Trichophytina.**—Ravogli reports two such cases. From these he observes that in cases in which the parasite is hidden in the interstices of the cells of the nail plate, it can be reached only with great difficulty, and the obstinacy of the case, lasting for over twenty years, shows that the prognosis is bad. In the cases in which the fungus is on the surface of the nail plate, however, it can be reached, and the fungus can be destroyed, and with constant treatment we are rewarded by seeing the nail grow free from the disease. In the case of the first patient it appears, from the condition of the nails, that anything which was used brought only a temporary relief, while in the case of the second patient with constant applications of Wilkinson's ointment the patient obtained perfect recovery within four months. This shows that in one case the spores were protected in the interstices of the cells forming the plate of the nail, and can be reached only with great difficulty. It is difficult, indeed, to bring a case of onychomycosis of the first type to recovery, so much so that in many cases it has been necessary to remove the nails. The affected finger is wrapped up in lint, well saturated with salve containing a large percentage of pyrogallic acid so as to produce an inflammatory condition of the nail, an artificial paronychia. In this way the nail is detached from the surrounding epidermis and it can be removed. This method is rather severe, and not all patients are ready to submit to it.

10. **Opsonic Index in Skin Diseases.**—Varney is convinced that in bacterial inoculations we possess a therapeutical agent with a specificity of great merit. Wright's method of obtaining the resisting power of a patient is also of unquestionable value as a guide to determine what will raise the resistance. Vaccines made from the patients' own invading microorganisms (or autogenous vaccinations) produce better results than those made of stock vaccines. These results can be obtained with or without opsonic readings, but they will be uniformly better if the vaccinations are controlled by frequent estimation of the patient's resistance. He believes that proper autogenous vaccination, administered in appropriate doses, when the patient's index indicates the necessity for revaccination, is a harmless, quick, and efficient treatment in certain chronic localized infections yet to be classified.

11. **Significance and Treatment of Itching.**—Bulkley observes that itching, or pruritus, should always receive the careful attention of the physician, and every effort should be made to determine the true cause or the nature of the difficulty behind it; for it is Nature's signal that something is wrong, either with the

skin itself or in some portion of the economy of the body. He, therefore, poorly does his duty medically who when consulted in regard to itching, simply prescribes a lotion, or an ointment, or an advertised remedy, instead of patiently ascertaining by careful examination the true condition of all the skin, and then seeking to determine and reach and remove the real cause of the trouble. An interesting consideration in regard to itching relates to the well known tendency to increased trouble at night. The reason for this appears twofold, relating (1) to the condition of the person and (2) to outside influences. The treatment should be constitutional and local. Dietary measures certainly are of importance in the class of autotoxic and nervous cases, and also more or less in those of the last class, in which the itching is due to active skin lesions. The internal medicinal treatment of itching may be considered under four heads: (a) General; (b) neurotic; (c) analgesic; (d) hypnotic. Arsenic may sometimes be of value in connection with other remedies, but alone it is powerless to allay itching. The various proper nerve tonics, iron, strychnine, quinine, preparations of phosphorus, cod liver oil, etc., may each and all of them alone and combined be needed in many cases to effect the desired result. Electricity in the form of static or galvanic current is also of value when properly utilized, and x rays are sometimes of value in arresting itching. Analgesic internal medication at times may be of great value in the treatment of itching, but is also very often greatly abused, especially when employed empirically or without the use of proper measures to remove the cause of the pruritus. It is well known that opium and morphine are worse than useless, for while insensibility to the suffering may be produced thereby they really aggravate the cutaneous irritability and in the end do much harm; if sleep is thus induced the patient scratches while asleep, and on awakening experiences even more pruritus. In very rare cases a whiff of chloroform has been of service in producing insensibility, so that other measures can act; but in the end, if repeated, this also does harm. Veronal has been used often in repeated doses, with good effects, and apparently also without subsequent harm. Sometimes the patient is able to obtain very satisfactory sleep from repeated doses of phenacetin. A combination of chloral and potassium bromide, with a little aconite added, will often act well. For the local treatment see Therapeutical Notes, page 216.

MEDICAL RECORD.

July 27, 1907.

1. Inoperable Sarcoma. A Further Report of Cases Successfully Treated with the Mixed Toxines of Erysipelas and Bacillus Prodigiosus.

By WILLIAM B. COLEY.

2. Through Physiology to Pathology in Complications of Gallbladder Disease.

By G. K. DICKINSON.

3. Infection with Syphilis. Report of a Case with Hereditary Syphilis in the Child.

By JAMES BREW.

4. The Long Waited Woman and Her Movable Kidney.

By A. LESTER GALELAND.

5. Anomorphine in Acute Alcoholism. A Plan for Its More Extensive Employment.

By CHARLES A. ROSENWASSER.

1. **Inoperable Sarcoma.**—Coley refers to his former publications on this subject. In 1906 he reported a series of observations of thirty-six personal cases and sixty successfully treated by other physicians. Since the publication of these papers, he has had six other successful cases, making a total of forty-two cases. Of these seventeen were round celled sarcoma, seventeen spindle celled sarcoma, two mixed sarcoma, one chondrosarcoma, one epithelioma. In four no microscopical examination was made, yet the clinical courses of the cases, such as recurrence after operation, rapidity of growth, size, and inoperability of the tumors, left hard-

ly any doubt as to the diagnosis. The late results in these cases are as follows: Twenty-one patients well from five to fourteen years, twenty-six well from three to fourteen years, ten well from ten to fourteen years. The successful cases treated by other surgeons show: Twenty-two round celled sarcoma, fourteen spindle celled sarcoma, three mixed celled sarcoma, three endothelioma, two epithelioma, sixteen in which no microscopical examination was made. During the last few years the author has reached the conclusion that the *Bacillus prodigiosus* plays a far more important part than has been hitherto believed. He has often noted that in the preparation in which the red color of the *Bacillus prodigiosus* was nearly absent, or quite faint, the strength of the toxines was much inferior, and the destructive effect upon the tumor was correspondingly diminished. From the very red toxines showing a large amount of *Bacillus prodigiosus* he has had the best results. The truth of the author's conclusions that the *Bacillus prodigiosus* has an actual, curative value of its own, aside from the effect it may have in increasing the virulence of the streptococci of erysipelas, has recently been verified by others. The prodigious suspension used is made and measured in the following way: *Prodigious* is grown on agar for ten days. There is then a thick red growth, which is scraped off with glass rods and rubbed up with a mortar and pestle to a smooth, rather thick suspension, using physiological salt solution as diluent. This suspension is sterilized by heat—one hour at 75° F. The total nitrogen per c.c. is determined, and the weight of nitrogen per c.c. multiplied by the factor 6.25 gives the weight of proteid present. Thus the weight of prodigious proteid in each c.c. is known and the suspension is diluted to the required strength before mixing with the streptococcus culture. After mixing and bottling the toxines, the mixture is again sterilized two hours at 75° F. The toxines made in this way he has used almost exclusively during the past six months, and he believes that they are not only more powerful than the eosin preparations, but more efficient. It is most important to begin in every case with a very small dose, not over ¼ minim (diluted with a little boiled water to insure accuracy of dosage). If the tumor in question is highly vascular, it is wiser to begin the injections remote from the same, until the susceptibility of the patient to the toxines has been ascertained. This varies considerably in different individuals. After a few doses it is safe, in most cases, to inject into the tumor itself. As a rule, when giving injections into the tumor, only about one fifth of the dose used for injections remote from the tumor is required to produce the same reaction. The dose should be increased by ¼ minim when given into the tumor; by ½ minim when injected remote from the tumor, until the desired reaction is obtained. The best results are obtained by doses sufficiently large to produce severe reactions, say, a temperature of 102° F. to 105° F. The frequency of the injections must depend entirely upon the strength of the patient, some being able to bear daily injections, while in others it may be unwise to push the treatment beyond three or four injections a week. In the successful cases the effect is usually very promptly noticeable. The tumor becomes smaller in size, much more movable, and very much less vascular. These changes appear very quickly, often within two to three days. The action of the toxines is both local and systemic. Sometimes the best results are obtained by giving the injections alternately into the tumor and remote from the same. In tumors in inaccessible regions, e. g., intra-abdominal tumors, or tumors of the breast, a permanent cure may be obtained merely by systemic treatment.

4. **The Long Waited Woman and Her Movable Kidney.**—Lester gives details of the removal of a mobile kidney. The new features brought into play

by the writer's method involves (1) the replacement of the prolapsed viscera in the semiprithotonos posture; and (2) suprapubic support of the replaced organs by the wearing of a specially constructed corset, made from measurements, taken by the physician, while the patient is lying on her back. This garment is a simple modification of an ordinary corset, which reaches low down over the hips, and to the symphysis in front, of fashionable design, gracefully curving in at the waist and out over the hips (padded inside for women with small hips). The front section is made V shaped, narrow at the symphysis, broadening out toward the top, to provide ample room in the epigastrium for the replaced stomach. When about to put the corset on, the patient loosens the lower lace (laced from the waistline down), the upper one being of thin hat elastic, wraps the corset around her waist, lies down upon her bed or a couch, raises her hips, rubs and strokes the stomach upward toward the diaphragm, fastens the hooks from the lowest one up, and draws in the lower lace as tightly as possible, without lowering the hips until the lacing has been accomplished. No belts or buckles, straps, or airpads, except the ordinary garters, are required, and are only found on garments made by those who fail to grasp and apply the principles involved.

BRITISH MEDICAL JOURNAL.

July 13, 1907.

1. The Simulation of Malignant Disease by Chronic Inflammatory Affections of the Sigmoid Flexure, By K. W. MONSARRAT.
2. The Diagnosis and Treatment of Appendicitis, By W. H. B. BROOK.
3. One Year's Work in Acute Appendicitis, By A. H. BURGESS.
4. The Treatment of Complications and Sequelæ of Gastric and Duodenal Ulcers, By J. L. THOMAS.
5. Some Observations on Nephrectomy, with Statistics of a Series of Cases Operated on During the Last Ten Years, By G. BARLING.
6. A Case of Pyonephrosis Containing Typhoid Bacilli in Pure Culture, By F. L. A. GREAVES.
7. Two Cases of Suprapubic Litholapaxy, By R. HEARD.
8. Suppurating Vaginal Cysts, By J. B. HELLIER.
9. A Case of Spreading Peritonitis Cured by Drainage of Pelvis, the Fowler Position, and Rectal Instillation of Saline Solution, By C. H. WHITEFORD.
10. Preliminary Note on the Life Cycle of a Species of Herpetomonas Found in Culex Pipiens, By W. S. PATTON.
11. On the Duty of Restoring Hearing by Operation in Chronic Aural Suppuration, By C. J. HEATH.

1. **Chronic Disease of the Sigmoid Flexure.**—Monsarrat states that chronic inflammatory disease of the sigmoid flexure sometimes simulates malignant disease, just as is the case in the cæcum. In the latter, however, the affection is usually tuberculosis, a tumor like mass developing, associated with symptoms of intestinal stenosis—unless there are signs of tuberculous infection elsewhere the diagnosis from malignant disease may be impossible. The two cases reported by the author represent two types of chronic inflammatory lesion in the sigmoid flexure. The first case was one of chronic adhesive colitis or sigmoiditis occurring in a man, aged forty-four years. The second patient, a man of forty-seven years, suffered from subacute infiltrative sigmoiditis. Both conditions occur in other parts of the bowel besides the sigmoid, but this segment of the bowel is almost always involved when the disease affects the transverse and descending colon. Usually it occurs in the latter situations as an extension backwards from the sigmoid.

2 and 3. **Appendicitis.**—Brook discusses the diagnosis and treatment of appendicitis, and states that every now and then cases occur in which the disease is of the most acute type, inflammation arising in the appendix, and progressing with such rapidity and vio-

lence that the whole organ is speedily destroyed by an acute septic peritonitis set up unless operation is done without delay. If the fulminating appendix is removed within a few hours of the onset all may yet be well. A case may take on a fulminating character from the very beginning, and the only chance of saving life lies in the watching of the case at short intervals, refraining from giving opium, and operating as soon as the malady is seen to be steadily and rapidly becoming more acute. In these cases there is often a period of comparative quiet after the first shock of the onset has passed off; this is the surgeon's opportunity, for an operation may now be done with almost as much ease as in the interval between the attacks. The pulse rate is the best guide, a steadily increasing frequency showing that the heart muscle is being poisoned by toxins and calling for immediate interference, especially if a fall of temperature is conjoined with the rising pulse rate. The writer recapitulates our position in dealing with appendicitis as follows: 1. The majority of cases will get over the attack if treated on simple medicinal lines. 2. During the quiet period the appendix should be removed. 3. During an attack the patient should be carefully and frequently watched, and upon any sign of fulmination, operation should be done at once. 4. If there is suppuration, if all is going on otherwise satisfactorily, the evacuation should be deferred until after the fifth day, care being taken not to open the general peritoneal cavity. But if in doubt whether to wait, the pus may be directly evacuated. If the appendix is present in the wound it should be removed, but no elaborate search should be made for it. It may be removed later on. 5. In general suppurative peritonitis the use of drainage, massive infusions, and calomel is recommended.—Burgess, during 1906, operated in forty-seven cases of acute appendicitis with a mortality of 8.5 per cent. He classifies them as follows: 1. "Early" cases, where the infection is found at the operation to be still limited to the appendix, there being as yet no evidence of peritonitis. 2. "Abscess" cases, where an abscess is present, more or less securely shut off by localized peritonitis from the rest of the peritoneal cavity. 3. "Diffuse spreading" peritonitis, where the peritonæum becomes rapidly and progressively infected, without any attempt at limitation of the process. 4. "General" peritonitis, where at the operation it is actually seen that the peritonitis extends everywhere. The author maintains that, for a disease which in its early stages is a purely local infection, appendicitis has yet far too high a mortality. Early removal of the infected appendix is the only means we have for reducing the mortality to a minimum, and will, he is convinced, ultimately become the generally adopted rule of practice.

4. **Gastric and Duodenal Ulcers.**—Thomas draws special attention to one of the many complications of gastric and duodenal ulcers—the immediate treatment of perforation of ulcers situated in these viscera. In many cases immediate surgical interference is not available—yet many such cases recover. The author has studied a number of such cases, recovering without operation, and as a result of his observations has formulated the following mode of treatment, which should be carried out in every case, whether operation can be done or not: 1. Place the patient in the horizontal position. 2. The administration of morphine in sufficient doses to relieve pain and to check peristalsis. 3. The avoidance of palpation and manipulation of the abdomen. 4. The emptying of the stomach by means of a stomach pump. Ordinary siphonage is unsatisfactory, because the solid contents of the stomach cannot be thus satisfactorily removed. 5. No food or drink to be given by the mouth. 6. The abdomen should be covered with several inches thickness of cotton wool and bandages. 7. Water and food to be given by the

rectum only. Never blister the abdomen in acute abdominal pain of unknown cause.

11. Chronic Aural Suppuration.—Heath states that aural appendicitis is the name by which chronic aural suppuration might be known, for disease of that mucous cul de sac, the mastoid antrum or appendix of the ear, is responsible for the perpetuation of the discharge. Like appendicitis in the abdomen that in the ear is also a latent danger. In both situations it is a grave disease on account of its liability to infect neighboring and vital parts. In the abscess it may cause local abscess or fatal septic infection of the serous peritoneum (peritonitis); in the ear it may cause local or cerebral abscess, or fatal septic infection of the jugular vein or the serous pia mater (meningitis). No careful surgeon waits for abscess in abdominal appendicitis, nor should he wait for it in the ear, for just as removal of the abdominal appendix will eradicate the danger there, so will timely elimination of the aural appendix usually restore the ear to function and to safety.

LANCET.

July 13, 1907.

1. Plague (*Croonian Lectures, II.*) By W. J. R. SIMPSON.
2. The Most Frequent Hernia in Childhood and Its Significance, By E. M. CORNER.
3. On the Treatment of Lupus, By Dr. DREUW.
4. A Case of Acute Lead Encephalopathy Following the Use of (?) Diachylon Pills as an Abortifacient, By H. F. WARNER.
5. A New Method for Using X Rays, By A. H. PRIE.
6. The Prophylactic Use of Antitoxine in Epidemic Diphtheria, By E. E. NORTON.
7. On the Use of a New Fluid for the Hemocytometer, By A. EDINGTON.

1. Plague.—Simpson, in his second Croonian lecture, discusses the pandemic of plague prevailing at present, especially in India, and states that the prevention of plague is the most important question for India and England at the present time. It is now accepted that the importation of plague into a healthy locality can be effected by an infected human being, or an infected rat, or infected clothes. Infected grain may also be an agent in the importation of the disease. Once imported, the dissemination of the disease is effected by similar agents as those bringing about importation. Except in pneumonic cases rats are the principal agents in the dissemination of the disease, though personal contact, as in typhoid fever, plays a part. The writer accepts Simond's theory that the flea on the rat, leaving the rat dead from plague, and then biting man, transfers plague from the rat to the man. But the flea theory accounts for only a certain percentage of the fatal bubonic cases. It has been proved beyond dispute that the plague bacilli taken, in contaminated food multiply while the food is in the intestines, enter through the lymph channels or lacteals of the intestines and invade the blood in swarms. The only qualification is that the microbes shall be so protected as not to be affected by the gastric juice.

2. Hernia in Childhood.—Corner holds that a median ventral hernia between the upper parts of the divaricated recti is manifestly the most common and characteristic hernia of childhood. It has never received its full due, owing to the fact that surgeons have made more observations in the operating theatre than in the out patient room, and hence, with few exceptions, never combined the two sets of observations. This median ventral hernia is almost invariably an acquired character, and is directly related to the pressure of gases produced by intestinal fermentation. Any hernia or set of hernie in any situation are more frequent when accompanied by it than when alone. Clinical experience shows that raised intraabdominal pressure is related to the frequency of inguinal hernial and, it is suggested, probably also to their initiation. It has

been further suggested that the true proportion of acquired to congenital hernie is about two to one. In the face of the fact that it is nearly impossible to distinguish the funicular variety of the congenital hernia sac from the acquired sac at an operation and even perhaps at anecropsy, there can be no certain knowledge of the formation of the hernie in children. Therefore the writer suggests that by means of the recognition of the presence and significance of the median ventral hernia, its frequency and associations, it is possible to introduce a strong probability into the question, which would seem to indicate that acquired hernie are more common in children than those due to the presence of a congenital sac.

3. The Treatment of Lupus.—Dreuw states that there is no single method which can definitely cure every case of lupus so that no recurrence will take place. The methods of treatment in general use at present are as follows: (1) Physical (Finsen light, Röntgen rays, and radium); (2) chemical (caustics); (3) mechanical (surgical methods); and (4) internally acting substances (cantharidin, tuberculin). Treatment by means of the Finsen light, and Röntgen rays are only within the reach of a few specialists. The author introduced two years ago a method by which the general practitioner can treat lupus cheaply, easily, and with success. The lupus patch which is to be treated is frozen by means of ethyl chloride (or by carbonic acid gas if a deeper effect is desired) until it is snow white. Over this frozen surface crude hydrochloric acid is rubbed thoroughly and with a certain degree of force. According to Unna it is advantageous to saturate this crude hydrochloric acid with chlorine. The acid is applied in the following way: Cotton wool is wound round one end of a small wooden stick of about the size of a penholder; this is dipped in the crude hydrochloric acid and rubbed on the frozen surface, pressing slightly, till the nodules become of a grayish white color (reaction). This grayish white color occurs first where nodules are and then in the skin surrounding the nodules. In this way a large surface can be treated at once by a succession of applications of the caustic. If the patch is very large, it is best to administer chloroform. The spots are then similarly thoroughly frozen by preference with carbonic acid gas, and then by the above mentioned means the crude hydrochloric acid is energetically rubbed in. This freezing and cauterization under general anesthesia is especially suitable (1) in lupus multiplex and lupus exulcerans; (2) in lupus of the mucous membranes, the nasal cavities, the lips, and tuberculous abscesses and fistule (cauterize from six to eight times in rapid succession); and, (3) where the freezing is not well borne by the patient (e. g., nervous and sensitive patients) or where very energetic cauterization is necessary—e. g., in tuberculous ulcers, lupus hypertrophicus, and verrucosus. The advantages of this method are summarized as follows: 1. The method is simple, cheap, rapidly effective, and gives good cosmetic results. 2. It can be carried out at home without hospital treatment, and that is especially important for patients of limited means. 3. Complicated apparatus is not necessary, therefore the method can be applied by any practitioner. 4. The method can be applied in all forms of lupus and in all situations, with the exception, perhaps, of the eye. Favorable results are obtained by repeated cauterization, especially of lupus of the nasal cavity. 5. As a preliminary treatment for later Finsen treatment one gains time and gets favorable results.

7. A New Hemocytometer Fluid.—Edington recommends the following fluid for use in blood counting. Neutral sodium citrate 7.5 grammes, formalin (30 per cent.), 2.0 cubic centimetres, dahlia (Grübler's), one gramme, chloroform 8 drops, and distilled water, 150 cubic centimetres. In preparing the solution, 7.5

better to mix the stain with the water, rubbing down the former with a few drops of the latter first, then to add the citrate and formalin. The solution should be left for a day or two without filtering, so as to deposit all the less soluble portions of the dye. In less than one minute after the diluted blood has been placed on the slide the red corpuscles are deposited on the glass so completely that nearly all are in focus; while the refractive index of the corpuscles is so well maintained that they are very easily counted.

LA PRESSE MEDICALE.

July 3, 1907.

1. Hyperglycæmia and Hyperglycistia in Diabetics, By MARCEL LABBE.
2. The Ophthalmoreaction of Tuberculin. Its Semiological Value in Pulmonary Tuberculosis, By MAXICE LETULLE.
3. The Prognosis of Surgical Intervention in Spina Bifida, By P. LECENE.

1. **Hyperglycæmia and Hyperglycistia in Diabetics.**—Labbe divides diabetics into two classes: 1. Those in which the glycosuria is due to the ingestion of an excess of carbohydrates and is exclusively of alimentary origin. These are diabetics without denutrition, and he denominates the condition hyperglycæmia. 2. Those in which the glycosuria is produced, not only from ingested carbohydrates, but also from transformation of ingested albumin, and fat as well as of the albumin and fat of the tissues of the body, and is of both alimentary and organic origin. These are diabetics with denutrition, and he calls the condition hyperglycistia.

2. **The Ophthalmoreaction of Tuberculin.**—Letulle applauds the suggestion of Calmette to instill a drop of a solution of tuberculin into the conjunctival sac of persons suspected of having tuberculosis, as he finds that the reaction, or the absence of the same, seems to be a very good guide.

July 6, 1907.

1. Functional Relations of the Stomach to the Other Digestive Organs, By ALBERT FROUIN.
2. Clinical Forms and Diagnosis of Sporotrichosis, By MONIER-VINARD.
3. The "Œil de Perdrix" and Its Treatment, By EMEL.
4. The Bactericidal Power of the Blood and Surgical Interventions, By R. ROMNE.

1. **Functional Relations of the Stomach to the Other Digestive Organs.**—Frouin says that the usefulness of the stomach does not consist wholly in its digestive function, but manifests itself in various other ways, which may be studied on the one hand by the consequences of ablation of that organ and on the other by its relations to the other digestive organs. These studies he presents briefly and in an interesting manner.

2. **Sporotrichosis.**—Monier-Vinard gives the symptomatology of the dermatomycosis known by this name, the first two cases of which were observed in America in 1900, a description of the microorganism which produces the disease, the prognosis, and treatment. The multiplicity of the lesions renders excision of the nodules difficult, and he finds potassium very efficient in its treatment.

3. **"Œil de Perdrix."**—Emel calls by this name a painful papilloma of the skin usually found on one of the lateral sides of the toes, or between them. He recommends cauterization with nitric acid and says it rarely resists a third cauterization.

BERLINER KLINISCHE WOCHENSCHRIFT.

June 24, 1907.

1. Concerning the Electrocardiogram Under Normal and Pathological Conditions, By F. KRAUS and G. F. NICOLAI.
2. The Abdominal Extirpation of the Carcinomatous Uterus, By J. VEIT.
3. Experimental Contributions to the Diagnosis of Dis-

orders of the Pancreas. Cammidge's Pancreatic Reaction in the Urine, By F. EICHLER.

4. Concerning Acute Myeloid Leucæmia, By H. HIRSCHFELD.
5. Concerning the Causes of Sunstroke, By SENTLEBEN.
6. Concerning Pernicious Anæmia (Concluded), By A. SELIG.
7. The Surgical Treatment of Ulcers of the Stomach, By HILFBRAND.

2. **Abdominal Extirpation of the Carcinomatous Uterus.**—Veit considers the abdominal operation to be both theoretically and practically a safer operation than the vaginal.

3. **Experimental Contributions to the Diagnosis of Diseases of the Pancreas.**—Eichler finds that while Cammidge's reaction is never present in the urine of healthy animals, it was clearly evident in all of the three cases of acute pancreatitis which he had experimentally produced.

4. **Acute Myeloid Leucæmia.**—Hirschfeld states that the acute differs from the chronic myeloid leucæmia in the absence of the increase of the eosinophiles and the fatty granular cells, and gives as characteristic symptoms of the acute form the usually very great anæmia, the relatively slight swelling of the spleen and of the lymphatic glands, and ulcers of the mucous membrane of the mouth. He reports two cases, one met with in a boy, six years old, the other in a woman, sixty-six years of age.

July 1, 1907.

1. The Biological Distinction of Varieties of Monkeys and Human Races by Specific Blood Reaction, By C. BRUCK.
2. Atoxyl in Paralysis, By SPIELMEYER.
3. Pernicious Anæmia, By M. MOSSE.
4. Concerning Further Applications of the Method of Complement Fixation, By A. SCHÜTZE.
5. Clinical Observations Concerning the Vibration of the Heart, By A. SELIG.
6. Concerning the Use of Morphine in Asthma, By GOLDSCHMIDT.
7. Concerning the Origin of Sunstroke (Concluded), By SENTLEBEN.
8. Concerning the Electrocardiogram Under Normal and Pathological Conditions (Concluded), By F. KRAUS and G. F. NICOLAI.
9. Concerning a New Theory in the Doctrine of Immunity, By BEITZKE.

1. **The Biological Distinction of Varieties of Monkeys and Human Races by Specific Blood Reaction.**—Bruck asserts that by observation of the hæmolysis produced in rabbits by the injection of immune sera from the blood of different kinds of monkeys a distinction may be made between the different species of apes and between these as a class and the human race. By the use of sera from individuals of different races a distinction may be made between these races. Hence the author concludes that anthropology and zoology may perhaps use with advantage biological methods both to compare the results thus obtained with those obtained by anatomical methods, and to seek by their means the solution of questions which are difficult if not impossible to solve by other methods.

2. **Atoxyl in Paralysis.**—Spielmeyer has not found atoxyl to be of essential service in the treatment of paralysis.

3. **Sunstroke.**—Sentleben finds that sunstroke is due to a serious autointoxication of the organism which may prove fatal within a few hours in a superlatively healthy, strong, and young man.

4. **The Electrocardiogram Under Normal and Pathological Conditions.**—Kraus and Nicolai illustrate their article by twenty-six reproductions of electrocardiograms of healthy and diseased men, women, and children. They allege that they are useful and important for diagnosis in every day practice.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT.

June 25, 1907.

1. Concerning the Diphtheritic Progressing Phlegmon of the Skin, By EHRLHARDT.
2. Clinical Observations Concerning the Action of Secacornin in Obstetrics, By SCHUBERT.
3. The Present Positive Results of Treatment Under Varying Pressure (Sauerbruch), By KAUSCH.
4. Phosphaturia in Gonorrhoea, By OPPENHEIM.
5. Experiments Concerning the Use of Human Gastric Juice, By ROSENBERG.
6. Concerning New Ways to Artificially Increase and Accelerate the Natural Healing Processes of the Body in Disease, By HEILE.
7. After Treatment of the Opened Antrum in Sinusitis, By KREISCHMANN.
8. A Case of Angina at the End of Pregnancy, with Fatal Streptococcus Sepsis During the Puerperium, By MERKEL.
9. A Case of Pleuritis Interlobaris Serosa, By SEUFFERHELD.
10. A Case of Fatal Mercurialization, By VON CRIPPA and FEICHTINGER.
11. An Aseptic Catheterizator, By MARKUS.
12. Urinary Examinations and a Quantitative Test for Sugar Suited for General Practice, By ENGEL.
13. Treatment of Freezing by Means of Artificial Hyperemia, By MIRTIL.
14. Medical Speculations, By MORITZ.

1. **Diphtheritic Progressing Phlegmon of the Skin.**—Ehrhardt reports four cases of this disease, two patients of the series died. The clinical picture is to a certain extent that of an erysipelatous phlegmon, and the diagnosis is made from the detection of diphtheria bacilli in the edematous fluid. The prognosis appears to be unfavorable. The treatment in all the known cases has been surgical, but on theoretical grounds the writer favors the use of Behring's serum if a case is met with sufficiently early.

2. **Secacornin in Obstetrics.**—Schubert gives the indications for the use of this drug to be: (1) As a prophylactic after all labors after which severe hæmorrhages are to be expected; (2) in atony of the uterus; (3) after all intrauterine interventions during labor; (4) in retention of the secundines; (5) in subinvolution of the uterus; (6) after curetting on account of abortion. It is contraindicated in hæmorrhages during pregnancy and during labor.

3. **Treatment Under Varying Pressures.**—Kausch alleges that the use of increased and decreased atmospheric pressure may be said to be indispensable (a) for the avoidance of the common operative pneumothorax and its consequences; (b) in extrapleural pneumotomy, particularly in infected lungs. It is desirable in the treatment of empyema. Decreased pressure is preferable to increased.

8. **Angina at the End of Pregnancy, with Fatal Streptococcus Sepsis.**—Merkel reports the case of a woman, thirty-eight years old, who was attacked by tonsillitis during the last month of pregnancy from which she apparently recovered. Labor was normal and rather rapid, but was followed by symptoms of puerperal fever from which the patient died on the eighth day. Autopsy revealed a general streptococcus bacteræmia.

9. **A Case of Pleuritis Interlobaris Serosa.**—Seufferheld reports a case of this disease in which the diagnosis was determined by means of the x rays.

July 5, 1907.

1. Concerning Infection with Coli Bacilli, By FEHLING.
2. An Inhalation for Asthma, By Professor ADOLF FENKION.
3. Concerning the Vascular Supply of the Rectum with Reference to Operative Gynecology, By P. SEIBER.
4. Contribution to the Study of Ulcer of the Stomach with Especial Reference to Spasm of the Pylorus and Hypersecretion, By F. BERT.

5. The Early Diagnosis of Tuberculosis of the Lungs in General Practice by Means of Koch's Tuberculin Test, By O. ZIEGLER.
6. The Diagnostic Importance of the Association Experiment, By ISSERLIN.
7. Nutritive Experiments on Infants with Warm Human Milk, By KARL POTPESCHNIG.
8. Breaking Off of the Spinous Process of a Vertebra by Muscular Action, By FRANZ SAUER.
9. Pyocyaneus Infection of the Urinary Passages with High Agglutination for Bacillus Pyocyaneus and Associated Agglutination of Typhoid Bacteria, By CARL KLIENEDEBERGER.
10. A Therapeutical Experiment in Epidemic Cerebrospinal Meningitis, By RADMANN.
11. Therapeutical Contributions, By FRIEDRICH MERKEL.
12. Casuistics of Ptomaine Poisoning, By WEIKARD.
13. Theodore von Jürgensen, By DENNIG.

1. **Infection with Coli Bacilli.**—Fehling reports two cases in which during pregnancy the fetus became infected with coli bacilli. In each case premature labor in the seventh month, one spontaneous, gave birth to a living child, which died within twenty-four hours. In each case coli bacilli were found in the blood of the heart of the child. The mothers made good recoveries.

4. **Ulcer of the Stomach, Spasm of the Pylorus, and Hypersecretion.**—Best reports four cases of ulcer of the stomach in the region of the pylorus associated with spasm of the pylorus, hypersecretion of the gastric juice, motor insufficiency, and dilatation of the stomach.

5. **Early Diagnosis of Tuberculosis by Koch's Tuberculin Test.**—Ziegler gives the technique of Koch's tuberculin test in detail, and asserts that with proper precautions it is not only diagnostic, but not dangerous.

8. **Breaking Off of the Spinous Process of a Vertebra by Muscular Action.**—Sauer reports three cases in which the spinous processes of the seventh cervical, the first dorsal, and the third dorsal vertebra were fractured as the result of severe muscular exertion.

10. **Therapeutical Experiment in Cerebrospinal Meningitis.**—Radmann injected subcutaneously in the arm 8 c.c. of the cerebrospinal fluid obtained from the patient by lumbar puncture. The patient began to improve immediately and recovered. The injection into the arm produced no reaction. The cerebrospinal fluid contained meningococci. In another case, in which he says the d'ploccoccus crassus but not the meningococcus was present, no local reaction and recovery followed the same treatment.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

July, 1907.

1. Hypoparathyroidism, Status Parathyroidicus, and Transplantation of the Parathyroid Glands, By W. S. HALSTED.
2. The Interpretation of the Pulsations in the Jugular Veins, By J. MACKENZIE.
3. Bacterial Inoculation in the Treatment of Localized Infection, By E. M. VON FURER and W. H. P. HILL.
4. The Oponic Index in Diabetes Mellitus. A Preliminary Record of the Findings in Twenty-two Cases of Glycosuria, with Remarks on the Technique of the Oponin Test and on Its Clinical Utility, By J. C. DA COSTA.
5. Chronic Intestinal Autointoxication, By I. FORD DOUGHERTY.
6. The Anesthetic and Pericardial Functions of the Heart in Late Childhood, By W. J. P. WYCK.
7. Improved Method in the Successful Oblique Treatment of Clavi Fracture, By J. B. ROBERTS.
8. Osmotic Analysis, By W. N. RICHARD.
9. Toxic Anemia, By C. W. HARRIS.
10. Differences in the Diagnosis of Brain Abscess, By R. H. POTTS.

1. **Hypoparathyroidism.** Halsted gives this term to the condition in which there is partial or complete loss

of parathyroid tissue. He has studied the condition during fourteen months in a patient suffering from parathyroid destruction, and has treated it with moderately good results with the parathyroids of beees. Tetany, not infrequent after extirpation of the thyroid gland, was, in this case, prevented by the treatment adopted. A number of reported cases have resulted fatally, and in very few has there been a permanent cure. From the patient who was so carefully studied, the left lobe of the thyroid was removed in 1904, and the right one in 1906, the endeavor being made to save the parathyroids. Periodic explosions followed the operation, the symptoms described being numbness in the lips, then in the face, then in the arms, after which the numbness passed away. The mental anguish was intense. Dried parathyroids in large doses were immediately given with very good result. The treatment was continued several months, and finally discontinued, the explosions disappearing, though the patient continued to be an invalid with a wrecked nervous system. As the result of extensive experimentation, the author looks for successful treatment of this condition by transplantation of parathyroids of animals into the spleen or thyroid of human patients.

2. Pulsations in the Jugular Vein.—MacKenzie believes that it is very important for the appreciation of the functional pathology of the heart to understand the meaning of the venous pulse, and he presents numerous diagrams and tracings illustrating its different phases. He believes that when the ventricular pulse is present the heart's contraction no longer proceeds from the normal location at the mouths of the great veins, but probably at the fibres which unite the auricle to the ventricle. Investigations are being made upon hearts from which tracings were taken during life, and it is believed that important anatomical facts will be discovered which will justify the before mentioned belief. This will mean additional information concerning obscure cases of heart failure which are now vaguely denominated chronic myocarditis, fatty heart, mitral irregularity. The heart failure in such cases is due to arrhythmia, the heart no longer working in an orderly manner.

4. The Opsonic Index in Diabetes Mellitus.—Da Costa thinks the clinical value of the opsonin test may be considered in two distinct ways, as a diagnostic agent, and as a means of gauging the effect of the vaccination method of treating certain infectious diseases. As a diagnostic agent, it should not be used in diabetes, nor indeed is it necessary for this purpose. The opsonic index of a diabetic patient gives a clear idea, however, of the patient's resisting powers, of his susceptibility to secondary infection, and of the gravity of the inroads made by the disease. On the other hand, the opsonin test is very useful in the diagnosis of early tuberculosis, the index to the tubercle bacillus being very low or very high, the former suggesting predisposition, the latter showing infection against which the resisting powers are raised in defense. The most practical value of the opsonin test lies in its application to the vaccination method of treating bacterial infection, both the proper dosage of the vaccine and its effect upon the patient's powers of reaction being determined by the behavior of the patient's opsonic index during the period of treatment.

5. Chronic Intestinal Autointoxication.—Forchheimer discusses a large number of cases, and thinks that a diagnosis may be reached by consideration of the following: 1. In the gastrointestinal tract one must consider Riggs's disease, various stomach troubles, functional changes in the colon, and retention of feces. 2. In many of the cases there is an increase of indican in the urine, calcium oxalate, uric acid and urates, and red corpuscles. In a third of the cases polyuria alter-

nates with oliguria. 3. There were menstrual disorders in half of the cases in females. 4. Nervous symptoms were present more frequently than any other condition, except Riggs's disease. 5. In many cases there were cardiovascular changes, more than half being due to neuroses and to myocardial conditions. 6. In two thirds of the cases there were locomotor symptoms, gouty joints, and muscular disorders. 7. In a third of the cases there were skin lesions. The author asserts that the final diagnosis of chronic intestinal autointoxication is not easy, and in the seventy-seven cases analyzed it was finally made in only ten.

6. The Auscultatory and Percussion Findings of the Heart in Late Childhood.—Butler thinks there is no period in life in which the heart findings during physical examination are more frequently misinterpreted and misguided than in late childhood. This is due (1) to the comparatively large cardiac area, and (2) to the frequency with which murmurs are heard over the heart at this time. In the examination of one hundred children the upper border percussed in the parasternal line was most frequently found on the third rib, the right border from 0.5 to 2 centimetres to the right of the sternum, the apex in the fifth interspace inside the nipple line. The murmurs were seldom heard beyond the cardiac area, were usually loudest over the pulmonic area, but were also frequently loud over the apex. All the murmurs were cardiopulmonary. The average blood pressure was 110 millimetres of mercury. The murmurs were caused by the varying tension exerted by the heart on the overlying and adjoining lung tissue. The presence of such murmurs in childhood is devoid of pathological significance.

7. Treatment of Cleft Palate.—Roberts believes that cleft palate should be operated on as soon as possible after birth. Accompanying hare lip should not be treated until after the palate operation. When the operation is performed during the first six months of life Brophy's tiebeam method is usually to be preferred. After six months of age the Lane flap method is usually to be preferred. In some cases it may be required as a supplement to Brophy's method, especially in very young patients. Brophy's method for such cases by means of silver tension sutures and coaptation sutures with lead splints or plates applied to the inferior surface of palate flaps is a very useful one. Mechanical appliances to close the fissure are inferior to operative treatment, which has a low mortality. Instruction in speech is a necessary adjuvant in order to obtain satisfactory results.

8. Obstetric Paralysis.—Bullard divides obstetric paralysis into three forms: (1) The upper arm type; (2) the lower arm type; (3) a combination of the two in which the whole extremity is paralyzed. The upper arm variety is most common, the lower arm variety is rare. The cause of the first, as suggested by Erb, is inhibition of conduction, of the second is injury of the seventh and eighth cervical and first dorsal nerve roots, of the third is injury of the fifth, sixth, seventh, and eighth cervical, and first dorsal. The true condition was made evident (1) by conditions found in traumatic cases of Erb's paralysis in adults, (2) by experiment on the cadaver and on animals. In the large majority of cases the nerves are torn or unraveled, but the exact process by which it is done is not clear. Powerful traction with firm resistance is an important factor, also lowering of the shoulder girdle, fixation of the tip of the shoulder, and asphyxia.

THE PRACTITIONER.

July, 1907.

1. Diabetes Mellitus from the Physiological Standpoint.
By W. D. HALLIBURTON.
2. The Pancreas and Diabetes Mellitus.
By J. R. BRADFORD.

3. The Basis of Therapy in Diabetes. By I. W. HALL.
4. Diet in Diabetes, By M. LABBÉ.
5. On the Heart in Relation to Diabetes, By Sir L. BRUNTON.
6. The Carlsbad Treatment of Diabetes and Glycosuria, By F. KRAUS.
7. On the Nervous Symptoms Associated with Glycosuria, By J. TAYLOR.
8. Skin Disease Associated with Diabetes, By M. MORRIS.
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10. The Pulmonary Complications of Diabetes, By J. J. PERKINS.
11. Diabetes and Insanity, By T. B. HYSLOP.
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13. On Diabetes in Children, By H. M. FLETCHER.
14. The Urine in Diabetes, By A. P. BEDDARD.
15. Acetonuria, Its Clinical Significance and Treatment, By W. L. BROWN.
16. Clinical Notes Upon Testing for Sugar in Urine, By W. G. SMITH.
17. Gouty Glycosuria, By A. W. SKES.
18. On the Action of Certain Drugs in the Treatment of Diabetes Mellitus and Chronic Glycosuria, By R. T. WILLIAMSON.
19. The Treatment of Diabetes Mellitus by Drugs, By A. R. PARSONS.
20. Glycosuria and Life Insurance, By B. DAWSON.

1. **Diabetes Mellitus from the Physiological Standpoint.**—Halliburton affirms that diabetes is an example of a case in which both the physiologist and the pathologist derive mutual benefit from an interchange of views. Diabetic sugar is dextrose, other sugars found in diabetes are milk sugar, pentose, levulose, and some other very rare sugars. Glycosuria is the outward sign of deep seated changes in the body, the urine being the medium by which the excess of sugar is eliminated. The glycogenic function of the liver is chiefly concerned in the consideration of diabetes, though glycogen is found elsewhere than in the liver, especially in the muscles. The two theories as to the destination of liver glycogen are (1) that it is converted during life by the agency of a ferment into sugar, that the latter leaves the liver by the hepatic veins and is thus distributed for utilization in the tissues, (2) that glycogen never justifies its name, but is transformed into substances other than sugar. Physiologists at the present day hold an opinion which is a compromise between the two. Though a common cause of diabetes is the disturbance of the glycogenic function, it may be produced artificially by (1) diabetic puncture, (2) extirpation of the pancreas, (3) administration of phlorrhizin, (4) administration of adrenaline.

2. **The Pancreas and Diabetes Mellitus.**—Bradford states that in severe diabetes the associated lesions of the pancreas which are most common are atrophy and fibroid overgrowth. Less frequently the pancreas suffers from fatty degeneration, cystic disease, calculi, hemorrhage, and suppurative inflammation. Glycosuria and diabetes are occasionally associated with carcinoma of the pancreas, though this is uncommon. Though atrophy and fibrosis are regarded as the cause of glycosuria, fibrosis of the pancreas may exist without diabetes. Two forms of interstitial fibrosis of the pancreas are recognized, the interlobular with limited overgrowth and with fibroid development in the liver, spleen, kidneys, etc., and a form which is intracinar and intralobular. The first is the more common and may result from blocking the bile duct or the pancreatic duct. The second is the form which is peculiarly associated with diabetes. According to Opie the presence or absence of diabetes depends on the destruction or integrity of the island of Langerhans. They escape degeneration in the interlobular form of

chronic pancreatitis, but undergo degeneration in the intralobular form.

3. **The Basis of Therapy in Diabetes.**—Hall states that every diabetic patient shows a different degree of inability to utilize carbohydrates. Cases are divisible into: 1. Those in which the combustion of sugar and conversion into fat are defective. 2. Those in which the combustion of sugar is defective, but its synthesis into fat is normal. 3. Those in which the combustion of sugar is defective and the synthesis of fat begins to fall. The extent of undernutrition in diabetes may be gauged by the ketonuria or output of ketone. The following conclusions are taken from von Noorden: 1. Some diabetics tolerate 70 to 100 grammes of carbohydrate daily, but excrete much acetone. 2. Many develop ketonuria by changing to a diet free from carbohydrate, and this continues when carbohydrate is again given, the prognosis being bad. 3. Others, with strict diet, lose the ketonuria, at least for a time. Removal of carbohydrates improves the general condition and also the cause of the ketonuria. 4. The ketonuria shows wide variations at different periods, even when diet and carbohydrate tolerance are constant, which cannot be explained. 5. Different patients, with similar tolerance, factors and the same diet, show different degrees of ketonuria.

7. **Nervous Symptoms Associated with Glycosuria.**—Taylor affirms that diabetes in its origin and symptoms is closely related to the nervous system. Neuralgia is one of the conditions associated with diabetes, the pain being in any of the peripheral nerves, but most frequently in the lower limbs. It may also be in the trunk, the upper limbs, and the fifth nerve area. Ataxia may also be an associated condition. Neuritis of central origin is not infrequent. With it may be muscular wasting, changes in the electrical reaction, and inflammation affecting the motor neurons. Neuritis affecting the vasomotor filaments may be the cause of diabetic gangrene. Spinal cord lesions, especially in the form of tabes, with sclerotic changes in the posterior columns, are of occasional occurrence. Special nerve symptoms are observed in the form of deafness with tinnitus and vertigo. There are also disturbances of the optic nerve. Of psychical symptoms there may be depression or melancholia. Diabetic coma occurs when the brain is flooded with poisoned blood. The treatment must be subordinated to the treatment of the diabetes, rest, opium, phenacetine, massage, electricity, etc., having their proper indications.

8. **Skin Disease Associated with Diabetes.**—Morris states that these may be local affections due to the irritation of the sugar in the urine, or general dermatoses. The lesions are aggravated by scratching and the consequent invasion of various organisms. The local lesions affect the orifices of the urinary passages, the external genitals, and the surrounding tissues. Erythema, fissures, and severe ulcerative conditions are of common occurrence. The most frequent of the general skin diseases are boils and carbuncles. Other varieties are eczema, herpes, lichen, psoriasis, urticaria, thrush, seborrhoea, acne, xanthoma, etc. As diabetes affects the nutrition the skin naturally shares in the deterioration. The dry skin in this disease makes it very vulnerable to the attacks of microbes, while the diminished alkalinity of the blood diminishes its bactericidal power. The perspiration in the rosy type of diabetes causes sweat eruptions. The diagnosis is usually made by exclusion. In all cases of skin disease which do not yield to treatment, the urine should be investigated. The treatment should be subsidiary to the treatment of the diabetes. Prolonged alkaline baths are recommended, also local applications of solutions of potassium permanganate or sodium borate, soothing powders, the latter being usually preferable to liquid applications.

Proceedings of Societies.

AMERICAN THERAPEUTIC SOCIETY.

Eighth Annual Meeting, held in Washington, on May 4, 6, and 7, 1907.

(Concluded from page 93.)

The President, Dr. ROBERT REYBURN, of Washington, in the Chair.

Physiological Action, Elimination, and Therapeutic Application of Sodium Cacodylate Used Hypodermically.—Dr. SPENCER DAWES and Dr. HOLMES C. JACKSON, of Albany, N. Y., spoke on this subject. Extravagant articles had appeared extolling the use of sodium cacodylate. Frazer, in 1903, attempted to clear up the doubt and put its use on a sound basis, but did not believe it could be used hypodermically. There was every evidence to believe that it could be injected and recovered in the excretions. The experiments were conducted on patients who were given hypodermic injections of 0.05 gramme for ten days, with no reaction. Regarding the amount recovered from the amount injected there was some loss, and a small amount was eliminated unchanged. Injection of 0.330 gramme of sodium cacodylate for nine days produced but little effect, and was excreted on the second day after. One gramme was given on the twelfth day and continued daily. Inorganic arsenic could be detected after the larger doses by the usual tests. The proportions of elimination were about from 6 to 8 per cent. In the liver, bone marrow, etc., on autopsy in dogs organic arsenic was deposited. Such a small percentage was found in the urine because a quantity was found in the feces and was easily detected. This was only to be expected, since the injection of 3 grammes in dogs did not produce a fatal effect. A rabbit, weighing 2,800 grammes, was given 1.0 gramme of the solution of sodium cacodylate at 4 p. m.; next day it was found dead. The strong odor of garlic was noticed and inorganic arsenic was found in all the organs. When 0.5 gramme was injected in a rabbit no odor was produced, nor did the rabbit die. The pharmacological value of sodium cacodylate was the question to be determined. If it could be reduced to cacodylic acid or arsenious acid in the tissues it could be absorbed. Cacodyl was an active poison. It was believed that the sodium cacodylate first suffered a reduction and then united with carbon to form an organic arsenic. The large doses without toxic effects simply proved that the reduction was not complete. Nascent arsenic might be liberated and exert a desirable action. The blood changes were constant. There was an increase in the number of red blood cells, slight increase in the polymorphonuclear, and large mononuclear, but a decrease in the small mononuclear leucocytes. The hæmoglobin was increased. The possibilities of this drug were great. A course of treatment meant injection for ten days, and then an interval of rest before the next injection.

Dr. HOWARD VAN RENSSELAER, of Albany, remarked that this was the kind of paper that the society wished, as it was the aim of the society to maintain a scientific stand. Undoubtedly some of the drug came into the system probably by the inorganic arsenic. In experiments on animals he gave 0.3 gramme, and was able to receive only 0.0005 from the urine. Of all the quantity put into the system only a small amount was absorbed. Advantages were in those cases in which arsenic is not well tolerated. In hysteria the hypodermic treatment alone might be advantageous. The disadvantages were the expense, being a high priced drug, and the time required of the patient and the physician. The same effect could be produced by ordinary metallic arsenic. Should this fail, then the sodium cacodylate might be used.

Dr. SPENCER DAWES observed that the advantages of this drug over organic arsenic was that it could be given in larger doses without poisoning the patient. The technique was that the powdered drug was dissolved in hot or boiling water and injected deep into the muscles of the buttock.

The Pharmacology and Physiology of the Kidney Considered from the Point of View of Therapeutics.—Dr. V. E. HENDERSON, of Toronto, Canada, read this paper. The older theories should be discarded regarding the liver and kidney. The internal secretion of the kidney was substantiated by the experiments of tying the ureters and removing the kidney; in the latter cases death was much more rapid. Bradford showed that when five sixths of the kidney was removed there was polyuria and disturbance of metabolism. Brown-Sequard injected glycerin extract of kidney, but with conflicting conclusions. Experiments upon dogs in removing the kidney were sometimes contradictory. The experiment of injecting glycerin extract of kidney for uræmia seemed to be of little value. It needed no argument to show that uræmia might supervene when there was no urea retention. The synthetic action of the kidney was well recognized, and simple substances in the blood could be combined and excreted in urine as complex proteins. It had also an analytic action as well. Creatine was probably an example of this. The tubules played an important part in the excretion of salts. Uric acid injection into the blood stream showed decrease in flow of urine. Urine leaving the convoluted tubules was alkaline, but became acid, owing to the addition of hydrogen ions from metabolism lower in the tube. The diuretic salts, if in excess in the body, were removed by the glomeruli, but such a condition could not be produced without an osmotic change. Nitrogenous retention might last for thirty days without uræmia. Retention of the chlorides caused water retention, but the failure of the secretion of the chlorides rarely occurred. The most ardent advocates suggested the glomeruli as excretory apparatus for water. The blood pressure was higher here, and the epithelium was flat, conditions which favored it. If the blood flowed through the kidney in increased amount the amount of water was also increased. Below a certain blood pressure no ions would be excreted. This was at a pressure of about 30 or 40 m.m. in man. There was evidence that the caffeine and mercury salts caused dilatation of the bloodvessels of the kidney and increased the flow of urine. The cells of the tubules excreted urates, sulphates, phosphates, creatine. There was no secretory pressure mechanism in the kidney as in other glands.

Dr. OLIVER T. OSBORNE, of New Haven, Conn., said that the words "Bright's disease" had been dropped and now we spoke of sufficiency or inefficiency of the kidney, but we did not know when this condition was present; we only had clues. We must analyze the urine and determine by the salts what parts of the kidney were diseased. The question of internal secretion had never been settled. There might be an antitoxine produced by the kidney. A hysterical woman could go four days without the excretion of urine, but a nephritic kidney cannot.

Dr. S. SOLIS COHEN, of Philadelphia, Pa., wished to differ with Dr. Osborne in regard to his statement. A patient in his practice with contracted kidney went seventy-two hours with complete suppression of urine. She died twenty years later of tuberculosis of the lung, but no autopsy was done.

Dr. W. H. PORTER, of New York, thought that the vicarious action of the liver and kidney was not understood, but he attached importance to it, and thought work could be undertaken upon this assumption.

Dr. HENDERSON, in closing, remarked that insufficiency did not reside so much in the kidney as in some other part of the body, and was reflected upon the kidney. Where caffeine did not act as a diuretic it was too concentrated and much water should be allowed. The patient should be "moist."

The Therapeutics of Bright's Disease, Based Upon Its Etiology.—This paper was read by Dr. W. H. PORTER, of New York.

It was presumed, he said, that all medicines were intended to remove the cause, but the cause was often unknown. Under the term Bright's disease there were several varieties of kidney lesions: (1) Parenchymatous; (2) interstitial tissue lesions; and (3) a combination of the two. There was a wide range between the parenchymatous and interstitial, and several distinct pathological entities. As soon as the balance of metabolism was lost retrograde changes would occur. Such a congestion or excess of work thrown upon the kidney might produce a true inflammation. It was highly probable that different kinds of bacteria produced different kinds of action on the kidney. Their toxic products would also differ. It was the bacteria acting upon the proteids in the alimentary canal which produced the toxic material and acted after absorption upon the renal epithelium. The interstitial was more complicated, but the principle was the same. It was hard to explain the development of connective tissue, but it was known that it was due to the nutriment supply brought to the part, increasing the production of connective tissue. If the arterial capillaries were contracted or expanded beyond their physiological limits the nutriment would be insufficient. Augmentation of the blood supply might be brought about by toxins which would in time paralyze the nerve endings, dilating the bloodvessels and increasing the flow of blood to that part. There were a large number of aetiological factors coming into play. Our whole therapeutics should be worked out on these lines, and by dietetics, baths, and medication we could eliminate any one of the causative agents. Our success must depend on our ability to seek out the single aetiological factor of many possible ones and direct our medication and hygiene to this end. How Bright's disease might become surgical infection he could not comprehend, or how surgery could remove this multiplicity of toxins was irrational. Such treatment was not scientific.

Indications for the Radical Mastoid Operation and Its Results.—Dr. W. S. BEYAR, of New York, spoke on this subject. See lxxxv, page 1212.

Dr. T. E. SATTERTHWAIT, of New York, spoke of improved methods for mastoiditis, and recommended it.

Dr. W. H. PORTER said it was still a question whether it was best to wait until the hearing is completely lost and lose hearing. He believed we should wait for suppuration, and then operate, as he had known of cases to follow the operation.

Dr. FREDERICK GERRISH observed that the infection of the membranes of the brain or septic thrombosis was to be borne in mind, and the operation was needed at once. Delay was dangerous.

Dr. S. S. COHEN, of Philadelphia, said that we took a great responsibility in waiting for the condition and the radical mastoiditis was worse than a neglected appendix. He gave a case of a young man every patient to an ear, nose and throat specialist, such a case, and he concluded with a patient he really could not find from which to remove the cause.

Dr. W. S. BEYAR, in concluding the discussion, said that the radical mastoiditis was due to suppuration early and not late, and that the cases were two kinds of operation. (1) If the disease was early, then

ther than removing the inner table and perform an operation of great magnitude.

The Nonsurgical Treatment of Exophthalmic Goitre, read by Dr. S. SOLIS COHEN, of Philadelphia, Pa. The author said that in a recent paper upon this subject, read before the College of Physicians in Philadelphia, from a surgical point of view a mortality of 30 to 50 per cent. was considered a good result, while 10 per cent. mortality was considered phenomenal. One physician advocated a very early operation to diminish the risk. No reliable statistics of cases treated by the physician were at hand, especially as the early cases escaped recognition, but he did not believe it approached 10 per cent. The first element was the diagnosis, and by this he did not mean vasomotor ataxia, thyreoidism, but a sufficient group of symptoms to call it Graves's disease. The mild cases of vasomotor ataxia were excluded. The early diagnosis was paramount. He was recently consulted by a physician about a case of "heart disease" of fourteen years' standing. The patient had suffered with effusion and oedema. The doctor thought there was no organic disease of the heart. The patient was pale, hæmoglobin, 40 per cent., red blood cells 4,448,000, white blood cells 42,000. She had a dilated heart, relative murmurs of insufficiency, and pulse of 120 to 140. A goitre was found for the first time by him, although only a small one. The patient was conscious that she had a large neck, but was not aware of the goitre. She was sent to the hospital. She was unable to lie down, owing to a pleural effusion. After a few days' rest and getting weaker he injected the Roger and Beebe serum, and the patient felt better in ten minutes. She remained in the hospital fourteen days, and was able to return home to continue the serum treatment four or five weeks. She got up and went around for one month. The symptoms returned and the serum treatment was again instituted. The relapse and improvement upon use of the serum again occurred. There was certainly a symptomatic recovery under the Roger and Beebe serum.

If exophthalmic goitre was seen early it required no serum treatment. Rest and hygiene, ergot, picROTOXINE, strophanthus, thymus and adrenal glands were the remedies to be relied upon. If adrenalin failed thymus gland might be tried with confidence. There were many symptoms and annoyances in the course of this disease. The treatment by quinine hydrobromate had much to commend it, and he was impressed with the amelioration of the heart symptoms, although exophthalmus and the goitre remained. In connection with quinine hydrobromate an antithyreoid serum was used. Only Roger and Beebe serum had been valuable in his hands.

Dr. PHILIP KING BROWN, of San Francisco, said that he had had an opportunity to use the serum treatment. All the cases that had come to operation had not been successful. The amount removed in one case was not sufficient, and the remainder of the gland hypertrophied. In another case too much was removed. The only death was due to a thyroid intoxication. He had had bad results in the use of serum. In another case he used ten times the average dose without effect. The dosage seemed undetermined. The x ray had produced thyroiditis. In one case a 15 cc. tube for fifteen minutes showed steady decline of pulse.

Dr. J. J. HARRISON, of Toronto, said that he had found from a group of thyroid glands which had been removed that the thyroid gland was not so large as the thyroid was supposed to be. The percentage of cures and improvement.

Dr. S. S. COHEN, in concluding, said that he was not sufficiently conversant with the preparation of the serum to give it, and that it was necessary to have

serum produced from animals as an antibody of human thyroid. Milk from thyroidectomized goats was not a success in his practice, and when the dose was increased exacerbation occurred. The natural remissions of the disease were perplexing conditions; the tendency in 75 per cent. of the cases was to get well, but the 25 per cent. remaining were liable to tuberculosis, etc. Surgical indications were only present early in the disease, and only in extreme cases could an operation be justified or in a case of acute thyroid intoxication. The relapses he could only speak of from his own experience. The conjoint use of the thymus and adrenal glands had been recent. The original use of the thymus was purely accidental, as a butcher delivered thymus instead of the thyroid gland which a physician had ordered, and it was administered by mistake. After the long use of adrenalin alone several cases failed to improve, and then the conjoint use of thymus and adrenalin was introduced with happy results. Adrenalin could be given in tablet form, from $\frac{1}{100}$ to $\frac{1}{10}$ grain placed upon the tongue and allowed to dissolve. About 10 grains of thymus was given, three times a day. Naturally a slow regression was to be expected.

Dr. THOMAS E. SATTERTHWAITE, of New York, stated that with all the symptoms of severe exophthalmic goitre a patient was cured under the use of the thyroid extract. He wished to know how Dr. Cohen accounted for the cure in his case.

Dr. COHEN replied that he had a similar case and could not account for it, nor did he know if any experimental work which would explain it entirely.

Ten Years in the Treatment of Valvular Diseases of the Heart.—Dr. THOMAS E. SATTERTHWAITE, of New York, read this paper. He believed that the Nauheim baths were the ideal method of treatment of a great number of people who annually took the baths, and one half of the patients were cases of valvular disease of the heart. The Nauheim method had been elaborated and was now in use all over the country. Of especial use was the Nauheim exercise of power. The average person had in mind the Swedish massage method, and would readily fall into the error of using this system. The system was greatly in use in Germany. These baths were especially useful when there were joint and muscular complications. The object of the baths was to dilate the capillaries and abstract blood from the heart to the muscle. While the heart muscle retained the tone compensation went on, but when the tone was lost compensation was also lost. Under the baths tone was given to the whole system, the heart was benefited, and some persons even stated that some of the fibrous thickening of the valves was absorbed, but the speaker did not believe this. Among some of the difficulties experienced in the treatment was the one of the operator, who was apt to be too active in his treatment. The physician should superintend and see that the baths and exercise were started gradually. Massage, especially abdominal massage, was not wanted. Mitral regurgitation was the lesion that responded best to this treatment. A number of diabetics were also improved. The baths were used warm or at different temperatures, and should contain carbon dioxide gas, common salt, and calcium chloride, and have as one of its first effects the dilatation of the capillaries. He believed the artificially prepared bath was superior to the natural, as the physician could regulate to a nicety the proportion of the constituents. The baths did occasionally fail, as did any other treatment, but as a rule the reason was because the patient had not allowed the physician to dominate him. Institutional treatment was by far the best, if it could be used. The cure was not permanent unless the patient followed directions. He should not go back to

hard labor, but should change his vocation if it interfered. The treatment could be carried out in any house which contained a faucet and tub.

He believed cardiac massage, that is, stroking and tapping the chest wall over the pericardium, to be beneficial. The dietary should receive particular attention. Carbohydrates should be diminished, and alcohol and tobacco stopped. All patients with cardiac lesions should under eat rather than over eat. Heart failure and heart weakness called for drugs. In the former active and prompt treatment was called for, in the latter tonic treatment. Strophanthus was being used more. He used the glucoside of strophanthus. In heart failure he recommended suprarenal gland in capsule as a powerful stimulant, but did not believe adrenalin to be reliable. Nitroglycerin still held its place in the treatment of these cases. Care should be taken in using digitalis on account of its accumulative action. For the insomnia of heart disease he preferred paraldehyde.

Dr. F. S. STEWART believed that cause of dissatisfaction with adrenalin was owing to its different strengths, varying from 1 to 500 to 1 to 1,000. Unless suprarenal extract was standardized this difficulty would continue. He called attention to the fact that some fluid extracts and some tinctures deteriorate in time. The matter was being investigated to enable the physician and the pharmacist to know when a drug had deteriorated.

Dr. ELI H. LONG commended Dr. Satterthwaite on his paper, and wanted to approve of the baths as carried out in hospitals and sanatoria. He had seen patients improve daily under this treatment, and believed the key note was heart nutrition.

Dr. HALL wished to know how often the baths were given.

Dr. H. B. SMALL asked what interval existed between acute heart conditions and starting the baths. He believed the chief value of baths consisted in the temperature of the water, and that the only rational way to treat them was in an institution. Drugs were useful to meet certain conditions, and he believed camphor to be one of the best drugs in these cases.

Dr. O. J. OSBORNE did not believe in any inherent value of certain waters. He cautioned against the use of digitalis in continued dosage on account of the cumulative effects. He knew that a great deal of digitalis was on the market in a poor and uncertain quality. Strophanthus deteriorated with age. Physicians had a right to know whether the drugs they were using were reliable.

Dr. J. M. TAYLOR believed that physicians should know more of the action and influences of the vasomotor control. The baths were a small part of the Nauheim method, as there were so many auxiliaries. The Nauheim baths had been so exploited that every one was familiar with them and could carry them out.

Dr. S. L. DAWES commended Dr. Satterthwaite's paper. He believed that adrenalin deteriorated from being opened, when the color began to change.

Dr. KOLIPINSKI thought that rest in bed and pure air should be given more consideration in the treatment.

Dr. VAN RENSSLAER did not believe that salts in baths had any therapeutic effect, as no salt in solution passed into the system. He told of an experiment of placing men in a bath containing potassium iodide, and then examining their saliva for the salt; also in lithium baths he had had the urine examined spectroscopically for the lithium. In both tests the results were negative.

Dr. REYBURN believed that the strict régime required at Nauheim constituted a tower of gold.

Dr. SATTERTHWAITE expressed his belief that baths were especially indicated in patients whom we could trust or dominate, and by placing them in an institution we would receive good results. The Nauheim system was not applicable to acute cases, but only selected chronic cases. Baths were given every other day and exercise given at another time in the day. He believed that the regulation of the temperature of the water was very important.

Restoration of Tissue Tonus in the Abdominal Supports.—Dr. JOHN MADISON TAYLOR, of Philadelphia, said in his paper that the abdomen was a weak and unprotected place in man, and that it was necessary that the abdominal muscles should be healthy and strong in order to support and keep in proper place the contained viscera. In ordinary civilized life these muscles were not used and through neglect became weak and sag. The natural shape of man whose abdominal muscles and tissues were stronger than normal and whose backbone was erect, was that of a slim waist and broad shoulders. It was the rule to see persons about middle age with drooping chest and protuberant abdomen, thus allowing the abdominal viscera to fall outward and sag down. Thus it was of great importance to keep the muscular support up to the standard. This could be done by first using artificial abdominal support rightly adjusted until the muscles were able to do the work themselves by instituting proper exercise.

Dr. REYBRUN wished to know what the movements were in more detail.

Dr. TAYLOR, in answering this question, stated that visceroptosis was very important and a too common condition. He believed that a surgical treatment of these conditions was often ill advised by many. He recommended treatment by exercise. Patients should have the motor sense or be taught it, and use the method of pushing the abdominal walls out and then retracting them, then lifting the viscera up against the diaphragm and allowing them to fall, until they could get full control of their muscular movements and the tone was restored to the tissues.

A Study of the Modern Drug Business and Its Relation to Medical Practice.—This paper was read by Dr. F. E. STEWART, of East Orange. He said that the introduction of new medicinal products was one of the most important branches of pharmacological practice. There was a necessity for the profession of pharmacy cooperating with the chemical and medical profession in the work of standardization and extension of the field of physiological testing. The maintaining of standards and the physiological testing of drugs required accurate persons and precise instruments. It was impossible to dissociate science from commerce in this connection, and the attempt had resulted in injury to both. Those who practised the medicinal arts were bound by professional obligations to report the results of discoveries to the common fund of knowledge. The practice of pharmacy, as well as drug therapeutics, should be restricted to properly qualified and licensed practitioners. It was even more important that manufacturing houses be licensed. The manufacturer with his skilled chemists made great discoveries and brought out new products.

Dr. H. C. WOON, Jr., of Philadelphia, took issue with Dr. Stewart. He believed that very few useful drugs had been put out by the manufacturing chemists, and that we would be better off if Perkins had never discovered coaltar products. The aniline dyes were cheap and gaudy, and did not last, and the coaltar drugs were in the same class. He believed that the good that coaltar products had done was being neutralized by the harm.

Dr. KEBLER of the Bureau of Chemistry, thought that the standardization was a most laudable undertaking. The new Federal law would control many of

the patent medicine frauds, the preposterous claims of which in "cure alls" attracted the public. They had no standing when brought into court, and fraud orders could be issued by the post office.

Comparative Clinical Observations of the Results of Different Iron Preparations.—Dr. ELI H. LONG, of Buffalo, N. Y., in reading this paper, stated that he had made a series of tests to determine whether the peptonates or the organic salts of iron as exploited by various persons were any better than the official inorganic salts. Nine patients were treated for chlorosis and anæmia. There were fourteen observations from two to thirty days. There were two classes; in the first class were seven patients who showed little or no improvement, while the seven patients of the second class showed marked improvement. In the first class the organic preparations were used in six cases and the official in one case. In the second class the organic salts were used in two cases and the official salts in five. From these tests he reached the conclusion that official salts were far superior to the organic salts.

Dr. H. C. WOON, Jr., commended Dr. Long's paper. He said that the reason for the belief in the superiority of organic salts was due to a misconception of the action of iron in the intestines.

Dr. O. T. OSBORNE decried the exploiting of so many new drugs. What we needed was a curtailing of the pharmacopœia. We needed and should use simple drugs. Personally he did not use these new preparations. He had obtained good results with thyroid and iron in chlorosis.

Dr. D. OLIN LEECH, of Washington, D. C., used the official salts, especially the tincture of iron chloride.

Dr. H. B. SMALL depended on the tincture of the chloride and Blaud pills, and did not use the advertised organic salts.

Dr. KEBLER commended the fair way in which Dr. Long carried along his experiments and gave his results. He asserted that men in the profession should be careful in reading papers before societies recommending any of the new products, as the manufacturer read these papers and used them as evidence of the value of their product. This embarrassed the Post Office Department in case a fraud order was to be issued against the house making preposterous statements for one of their products, to have the firm bring a paper from some one eminent in the profession extolling the drug. The Bureau of Chemistry should have the backing and cooperation of the medical profession in order to make it most effective.

Dr. WILSON said that some of the proprietary preparations of iron were good, but no better than official salts. He did not see anything to take the place of the syrup of iron iodide. He had had excellent results in gonorrhœal arthritis with this preparation. The inorganic salts were indispensable.

Dr. LONG was pleased that his deductions had met with the general approval of the meeting.

Book Notices.

The Control of a Scourge, or How Cancer is Curable.
By CHARLES P. CHILDE, B. A., F. R. C. S., Surgeon,
Royal Portsmouth Hospital. New York: E. P. Dutton & Co., 1907. Pp. 202. (Price \$2.50.)

There are certain widespread diseases with important social relations which it is generally recognized can be successfully combated only by educating the public and by rousing a popular interest in the campaign against them. The first to be attacked in this way was alcoholism and it is to be regretted that the medical profession has lost an opportunity for leadership and effective public service in its lack of interest in this

movement. It cannot be doubted that the comparatively slow progress of the crusade against intemperance in this country is due in great measure to the ignorant zeal of sentimental lay leaders and the unscientific character of much of their literature. The second in chronological order of the great social diseases to be combated by a systematic campaign of popular education is tuberculosis, and the results already achieved constitute one of the triumphs of modern medicine. There are now indications in the programme of the Society for Sanitary and Moral Prophylaxis, and of like organizations abroad, of an effort to take up in a similar way the question of venereal disease. Mr. Childs would add cancer to the list of diseases which can be effectively dealt with only by popular agitation and instruction. He justly deplores the melancholy results of treatment, due to the late period at which most patients are operated upon. He emphasizes the essential curability of cancer by proper surgical treatment when the disease is still confined to its local origin, the importance of the early diagnosis is insisted upon, and in plain, simple language he describes the symptoms of incipient malignant disease, which every one should know. His work is written with enthusiasm, but is throughout temperate and judicious, its teaching is sound, and it is a model of the kind of medical book, not easy to write, which may be safely placed in the hands of the public.

Epilepsy and Epileptics. Transactions of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics. Sixth Annual Meeting, held at New Haven, Conn., November 8, 1906. Volume IV. Edited by WILLIAM P. SPRATLING, M. D., Permanent Editor of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, Medical Superintendent of the Craig Colony for Epileptics, etc. 1906. Pp. 322.

The National Association for the Study of Epilepsy is doing good work if the appearance of the present fourth volume of its *Transactions* is any criterion of the quality of its performances. Here are presented in an available and handsome volume of over 300 pages the best thought on the recent advances in the study of epilepsy and also an excellent summary of the progress that is being made in the furtherance of the custodial care and treatment of the epileptics in this country. Transactions of this kind, we believe, are worth while and deserve commendation. The volume itself should be in the hands of all those interested in the subject, and it is a powerful argument urging more physicians in the country to ally themselves with an association doing such excellent and progressive work. Not a little credit is due to the industrious and indefatigable secretary, Dr. W. P. Spratling.

Modern Medicine; its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by WILLIAM OSLER, M. D., Regius Professor of Medicine in Oxford University, etc., assisted by THOMAS McCRAE, M. D., Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University. Volume II. Infectious Diseases. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. x-17 to 828. (Price, cloth, \$6; leather, \$7; half morocco, \$7.50.)

It is gratifying to note that this great work is proceeding rapidly to its completion. It is but little more than two months since we reviewed the first volume, now we are called upon to notice the second, and it is announced that the third is already in press. This second volume is of peculiar interest to the general practitioner because it deals with the diseases with which, most of them, he comes in contact most frequently.

The volume opens with an instructive Introduction to the Study of Infectious Diseases, by Dr. Ludvig Heiktoen. Then the individual diseases are treated of—typhoid fever (in five chapters), by Dr. Thomas McCrae; typhus and relapsing fever (in two chapters), by Dr. McCrae; smallpox, by Dr. William T. Councilman; vaccination (vaccinia), by Dr. George Dock; chickenpox, by Dr. Councilman; scarlet fever, by Dr. John H. McCollom; measles, rubella, "the fourth disease," and erythema infectiosum (all in one chapter), by Dr. John Ruhrah; diphtheria, by Dr. McCollom; whooping cough and mumps (in two chapters), by Dr. Ruhrah; influenza, by Dr. Frederick T. Lord; dengue, by Dr. Thomas D. Coleman; epidemic cerebrospinal meningitis, by Dr. Henry Koplik; erysipelas, by Dr. James M. Anders; lobar pneumonia (in three chapters), by Dr. John H. Musser and Dr. George William Norris; toxæmia, septicæmia, and pyæmia (in one chapter), by Dr. Richard M. Pearce; acute rheumatism, by Dr. Frederick J. Poynton; Asiatic cholera, by Dr. W. P. Dunbar; yellow fever, by Dr. James Carroll; plague, by Dr. W. J. Calvert; and bacillary dysentery, by Dr. K. Shiga. Though this is not a full list of the infectious diseases, it is sufficiently comprehensive for a volume.

We have no hesitation in saying that Dr. McCrae's chapters on typhoid fever constitute one of the most satisfactory treatises on that subject. The author has the happy faculty of always keeping the needs of the practitioner in mind. Dr. McCrae is necessarily conservative regarding the practice of protective inoculation against typhoid fever, and he prudently cautions us against resorting to it during an epidemic, because for the time being it seems to impair the natural resisting power of the system. He thinks that such protection as it does give appears to last for about two years. "It would certainly seem wise," he says, "to carry it out among troops who are going to infected districts." Equally uncertain thus far, according to Dr. McCrae, are the results of the various forms of serum treatment of the disease.

Naturally the most interesting feature of an article on smallpox by Dr. Councilman is found in the section devoted to the ætiology, for his own investigations of that subject have been exceptionally thorough. The relations between smallpox and vaccinia, as regards the lesion following inoculation, are given with great clearness.

Dr. Ruhrah's remarks on the "Koplik spots" of measles are exceedingly judicious, and we are inclined to admit the justice of his statement that "the most valuable recent contribution to measles has been made by Koplik." Concerning Dukes's "fourth disease," Dr. Ruhrah remarks that Ker "renders what he calls the Scottish verdict of 'not proven,' which is very generally accepted." Dr. Ruhrah concludes with an interesting description of a disease thus far unknown in America, first described by Escherich in 1896 and named by Stricker erythema infectiosum.

Dr. Koplik speaks hopefully of the therapeutic results of lumbar puncture in cases of epidemic cerebrospinal meningitis characterized by a sudden onset with symptoms of complete collapse. He says: "When lumbar puncture is made twenty-four hours after the onset, after such a period of collapse as has been described, the fluid sometimes spurts several feet. In such cases the relief of the intraventricular pressure is really a life saving procedure."

Dr. Musser and Dr. Norris agree with all unprejudiced observers that at present we have no specific for pneumonia, but they add the declaration that "such a specific must come through the development of serum therapy." They heartily approve of Northrup's fresh air treatment.

Apart from its intrinsic value, particular interest attaches to Dr. Shiga's chapter on bacillary dysentery by reason of the fact that, with "as few changes as possible," the English is his own. It is certainly very clear to have been the work of an Oriental.

We have thus mentioned only the features of the volume that have attracted our special attention, but every chapter contained in it is of distinct value. Though Dr. Osler's own writing does not figure formally in it, his watchful supervision is evident throughout, especially in the foot note on page 693. We have noticed but very few typographical errors and slips of expression, and they are such as will readily be corrected by the reader. The volume is a worthy successor to the first one, and we must again express our opinion that the completed work will take its place as one of the classics of medical literature.

BOOKS, PAMPHLETS, ETC., RECEIVED

Practical Fever Nursing. By Edward C. Register, M. D., Professor of the Practice of Medicine in the North Carolina Medical College, etc. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907.

Transactions of the American Dermatological Association at its Thirtieth Annual Meeting, held in Cleveland, Ohio, May 31 and June 1 and 2, 1906. Official Report of the Proceedings, by Grover W. Wende, Secretary.

Talks to First Year Nurses. By Alfred T. Hawes, M. D. Boston: Whitcomb & Barrows, 1907.

Transactions of the Obstetrical Society of London. Vol. XLIX, for the year 1907. Part II, for March, April, and May. Edited by Herbert R. Spencer, M. D., and Robert Boxall, M. D. London: Published by the Society, 1907.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending July 20, 1907:

Smallpox—United States			
Places.	Date.	Cases.	Deaths.
California—San Francisco.....	July 6-13.....	2	
Illinois—Dundas.....	June 10-30.....	3	
Illinois—Tolono.....	June 1-19.....	5	
Indiana—Indianapolis.....	July 7-14.....	1	
Indiana—La Fayette.....	July 8-15.....	2	
Indiana—South Bend.....	July 6-20.....	1	
Kentucky—Covington.....	July 13-20.....	1	
Kentucky—Louisville.....	July 11-18.....	3	
Louisiana—New Orleans.....	July 11-18.....	1	1
Massachusetts—Boston.....	July 13-20.....	1	
Massachusetts—Lawrence.....	July 6-17.....	1	
Michigan—Detroit.....	July 6-20.....	3	
Minnesota—Stillwater.....	June 1-30.....	1	
Missouri—St. Joseph.....	July 6-13.....	2	
Missouri—St. Louis.....	July 6-13.....	1	
North Carolina—Greensboro.....	July 13-20.....	12	
Tennessee—Memphis.....	June 29-July 13.....	1	
Texas—San Antonio.....	July 6-13.....	1	
Virginia—Richmond.....	July 6-13.....	1	
Washington—Tacoma.....	July 6-13.....	1	
Wisconsin—Milwaukee.....	July 6-13.....	1	
Smallpox—Insular			
Philippine Islands—Manila.....	June 2-9.....	1	varioid
Smallpox—Foreign			
Africa—Lourenço Marques.....	May 1-31.....	1	4
Austria—Vienna.....	June 22-29.....	1	
Brazil—Bahia.....	May 25-June 29.....	36	
Brazil—Para.....	June 24-July 6.....	11	5
Brazil—Pernambuco.....	May 1-15.....	1	18
Brazil—Pernambuco.....	May 1-31.....	1	64
Brazil—Rio de Janeiro.....	May 25-June 16.....	5	1
China—Hankow.....	June 1-8.....	2	foreign
China—Hongkong.....	May 25-June 1.....	5	3
China—Nan-hwang.....	June 1-8.....	2	foreign
China—Shanghai.....	June 1-15.....	16	foreign
China—Shanghai.....	June 1-8.....	56	natives
China—Shanghai.....	June 1-8.....	2	foreign
Denmark—Copenhagen.....	June 22-29.....	1	
France—Marseilles.....	June 1-30.....	136	
France—Paris.....	June 24-July 6.....	6	
Great Britain—Liverpool.....	June 24-July 6.....	1	
Greece—Piræus.....	June 24-July 6.....	1	
India—Bombay.....	June 11-18.....	1	
India—Calcutta.....	June 1-8.....	1	
Italy—General.....	July 1.....	10	

Italy—Turin.....	June 24-30.....	70	11
Madeira—Funchal.....	May 31-June 7.....	7	
Mexico—Aguas Calientes.....	June 6-13.....	1	
Poland—Lódz.....	June 22-29.....	7	
Russia—Odessa.....	June 22-29.....	2	
Russia—Riga.....	June 22-29.....	7	
Spain—Barcelona.....	June 20-30.....	1	
Spain—Madrid.....	May 1-15.....	1	
Turkey in Europe—Constantinople.....	June 20-30.....	1	
Turkey in Asia—Bagdad.....	June 1-8.....	Present.	
Turkey in Asia—Bassorah.....	June 1-8.....	Present.	
Turkey in Asia—Damascus.....	June 15-22.....	Present.	

Yellow Fever—Foreign			
Brazil—Mannao.....	June 30-July 6.....	1	
Brazil—Para.....	June 29-July 6.....	3	1
Brazil—Rio de Janeiro.....	May 26-June 16.....	10	6
Chile—San Nicolas.....	July 22.....	1	

Cholera—Foreign			
India—Bombay.....	June 11-18.....	2	
India—Calcutta.....	June 1-8.....	40	
India—Calcutta Province.....	June 3-10.....	2,293	1,315
India—Rangoon.....	June 1-8.....	1	

Plague—Insular			
Hawaii—Honolulu.....	July 22.....	1	1

Plague—Foreign			
Brazil—Rio de Janeiro.....	May 26-June 16.....	5	6
China—Hongkong.....	June 1-8.....	10	9
India—General.....	May 25-June 1.....	12,705	38,392
India—Bombay.....	June 11-18.....	27,148	25,002
India—Calcutta.....	June 1-8.....	1	68
India—Madras.....	June 1-8.....	1	58
India—Rangoon.....	June 1-8.....	1	1
Persia—Bahrein Islands.....	June 8-15.....	Present.	
Persia—Bushire.....	June 8-15.....	Present.	

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the seven days ending July 31, 1907.

CREELE, R. H., Assistant Surgeon. Relieved from duty in the Philippine Islands and directed to return to the United States, reporting his arrival at San Francisco.

HALL, L. P., Pharmacist. Granted leave of absence for fourteen days, from July 28, 1907.

HOLT, J. M., Passed Assistant Surgeon. Leave of absence granted for two months, from June 20, 1907, amended to be effective from July 7, 1907.

KING, W. W., Passed Assistant Surgeon. Directed to proceed from Tuckerton to Atlantic City, and return for special temporary duty.

LYALL, R., Acting Assistant Surgeon. Granted leave of absence for three days, from July 11, 1907, under paragraph 210 of the Service Regulations.

McMULLEN, JOHN, Passed Assistant Surgeon. Granted extension of leave of absence for seven days, and a further extension for five days.

MORRIS, G. A., Pharmacist. Granted leave of absence for fourteen days, from August 10, 1907.

OWEN, H., Acting Assistant Surgeon. Leave of absence granted for thirty days, from June 1, 1907, amended to be effective from August 1, 1907.

RODMAN, J. C., Acting Assistant Surgeon. Granted leave of absence for fifteen days, from July 1, 1907.

SEAVEY, L. T., Acting Assistant Surgeon. Granted leave of absence for twenty-one days, from August 15, 1907.

STANSFIELD, H. A., Passed Assistant Surgeon. Granted leave of absence for three months, from July 12, 1907, with permission to go beyond the seas.

STONER, G. W., Surgeon. Directed to proceed to El Paso, Texas; San Diego, Cal.; and other ports on the Pacific Coast and Canadian border, for special temporary duty, upon completion of which to rejoin station at Ellis Island, N. Y.

VOSSE, C. W., Passed Assistant Surgeon. Relieved from duty in the Philippine Islands, and directed to return to the United States, reporting his arrival at San Francisco, Cal.

VOSSE, EDWARD R. H., Passed Assistant Surgeon. Granted leave of absence for two days.

WATSON, M. H., Pharmacist. Granted leave of absence for eleven days, from July 21, 1907.

WILSON, R. S., Acting Assistant Surgeon. Granted leave of absence for thirty days, from June 1, 1907, amended to be effective from July 1, 1907, and granted leave of absence for thirty days, from July 1, 1907.

Appointment

Dr. Harry M. Friedman appointed acting assistant surgeon, for duty at Philadelphia, Pa.

Dr. Louis A. Thunig, appointed acting assistant surgeon, for duty at Stapleton, N. Y., declined appointment.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending July 27, 1907.

DAVIS, W. B., Lieutenant Colonel and Deputy Surgeon General. Granted nine days' leave of absence.

JONES, P. L., Captain and Assistant Surgeon. Assigned to temporary duty as surgeon of the transport *Kilpatrick* during the trip of that transport leaving Newport News, Va., about August 15, 1907, for Havana, Cuba, and return. Upon returning to Newport News will rejoin station at Camp Captain John Smith, Jamestown Exposition, Va.

LAMBERT, S. E., Captain and Assistant Surgeon. Resignation accepted, to take effect July 27, 1907.

KIRKPATRICK, T. J., Captain and Assistant Surgeon. Ordered to Washington Barracks, D. C., for observation and treatment at the Army General Hospital.

REYNOLDS, F. P., Major and Surgeon. Granted thirty days' leave of absence, to take effect upon arrival in the United States.

SHAW, H. A., Major and Surgeon. Granted thirty days' leave of absence.

SMITH, H. M., Captain and Assistant Surgeon. Ordered to report in person to the Medical Superintendent, Army Transport Service, San Francisco, Cal., for duty as surgeon of the transport *Warren*, to sail from that place August 3, 1907, and upon arrival at Manila to report in person to the commanding general, Philippines Division, for duty.

WINTER, F. A., Major and Surgeon. Granted five days' leave of absence.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending July 27, 1907:

ANGWIN, W. A., Assistant Surgeon. Detached from duty with the marines at Camp Columbia, Cuba, and ordered to the *Scorpion*.

BACKUS, J. W., Passed Assistant Surgeon. Detached from the *Amphitrite*, when placed out of commission, and granted leave of absence for one month.

BAKER, M. C., Assistant Surgeon. Ordered to the Midway Islands.

BELKNAP, J. L., Assistant Surgeon. Detached from the *Kentucky* and ordered to duty with the marines at Camp Admiral Harrington, near Williamsburg, Va.

BERTOLETTE, D. N., Medical Director. Ordered to the Naval Recruiting Station, Philadelphia, Pa.

BOLAND, M., Assistant Surgeon. Ordered to duty at the Naval Hospital, Norfolk, Va.

CASTO, D. H., Assistant Surgeon. Ordered to the naval recruiting station, Indianapolis, Ind.

CURTIS, E. E., Assistant Surgeon. Ordered to the Naval Hospital, Norfolk, Va.

DOLLARD, H. L., Assistant Surgeon. Ordered to the Naval Hospital, Newport, R. I.

DONELSON, M., Assistant Surgeon. Ordered to the *Stringham*.

EVANS, S. G., Surgeon. Detached from the Naval Hospital, Charleston, S. C., and ordered to the Naval Hospital, Washington, D. C.

HEINER, R. G., Passed Assistant Surgeon. Detached from duty with the marines at Camp Admiral Harrington, near Williamsburg, Va., and ordered to the *Wasp*.

HERMESCH, M. R., Assistant Surgeon. Ordered to the Naval Hospital, New York, N. Y., for duty.

HOEN, W. S., Passed Assistant Surgeon. Detached from the *Philadelphia* and ordered to the *California*, when commissioned.

WULFOWAY, J. H., Passed Assistant Surgeon. Detached from the *Indiana* and ordered to duty with the ma-

ries at Camp Columbia, Cuba, sailing from New York, N. Y., about August 3rd.

HUFF, E. P., Assistant Surgeon. Ordered to the naval proving ground, Indian Head, Md.

HULL, H. F., Assistant Surgeon. Detached from the naval station, Culebra, W. I., and ordered home to await orders.

JOHNSON, M. K., Surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Station, Charleston, S. C.

KELLEY, H. L., Assistant Surgeon. Detached from the Naval Hospital, Washington, D. C., and ordered to the *Constellation*, and to additional duty at the naval training station, Newport, R. I.

MCGUIGAN, J. H., Pharmacist. When discharged from treatment at the Naval Hospital, New York, N. Y., ordered to the Naval Hospital, Port Royal, S. C.

MCGUIRE, L. W., Acting Assistant Surgeon. Ordered to the Naval Hospital, Boston, Mass., for duty.

MUNSON, F. M., Passed Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Philadelphia*, and to additional duty at the navy yard, Puget Sound, Wash.

MURPHY, J. A., Surgeon. Commissioned a surgeon, from March 20, 1907.

MURPHY, J. F., Passed Assistant Surgeon. Detached from the *Scorpion*, and ordered to the naval station, Culebra, W. I.

RENNIE, W. H., Passed Assistant Surgeon. Detached from the *Wasp* and ordered to the *Kentucky*.

SMITH, H. L., Assistant Surgeon. Ordered to the naval recruiting station, Omaha, Neb.

STEADMAN, W. G., JR., Assistant Surgeon. Ordered to the *Franklin*.

WALDNER, P. J., Pharmacist. Ordered to the Naval Hospital, New York, N. Y.

Births, Marriages, and Deaths.*Married.*

DONNELLY—BROWN.—In Philadelphia, on Wednesday, July 24th, Dr. Daniel J. Donnelly and Mrs. Jennie J. Brown.

GALLIVAN—CONWAY.—In Philadelphia, on Thursday, July 25th, Dr. Daniel L. Gallivan and Miss Pauline Birchman Conway.

MCCABE—MOYER.—In New York, on Thursday, July 25th, Dr. Thomas Sheridan McCabe and Miss Edyth A. Moyer.

Died.

BALLARD.—In Hampden, Massachusetts, on Thursday, July 18th, Dr. George Tyler Ballard, aged sixty-six years.

BISHOP.—In Bloomington, Illinois, on Saturday, July 20th, Dr. Samuel Bishop.

BOLTON.—In Joliet, Illinois, on Saturday, July 13th, Dr. William T. Bolton.

DESEAY.—In Ruston, Louisiana, on Wednesday, July 17th, Dr. Alphonse Deseday, aged fifty-four years.

HOPKINS.—In Scranton, Pennsylvania, on Monday, July 22nd, Dr. Benjamin C. Hopkins, aged seventy-eight years.

MCLEROY.—In Elizabeth, New Jersey, on Friday, July 26th, Dr. Lee McElroy, aged thirty years.

MCGONIGLE.—In Belleville, New Jersey, on Friday, July 26th, Dr. William H. McGonigle, aged thirty years.

PHILLIPS.—In Omaha, Nebraska, on Sunday, July 21st, Dr. A. C. Phillips, aged fifty-two years.

RADIKE.—In Burlington, Vermont, on Friday, July 19th, Dr. August J. Radike, aged fifty-one years.

STONE.—In Chicago, on Thursday, July 18th, Dr. Carl D. Stone, aged thirty-five years.

STRONG.—In Reading, Michigan, on Friday, July 26th, Dr. Benjamin G. Strong, of Long Island City, N. Y.

WEBB.—In Chicago, on Wednesday, July 24th, Dr. Frank S. Webb, aged sixty-five years.

WEBER.—In Milwaukee, Wisconsin, on Wednesday, July 17th, Dr. Frederick R. Weber, aged forty-three years.

New York Medical Journal

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WHOLE No. 1497.

Original Communications.

THE URINE OF PREGNANCY.*

By J. CLIFTON EDGAR, M. D.,

New York.

We may well ask ourselves the question, What does the study of the urine of pregnancy offer us? Has it any decided value? We believe such study has, first, a certain diagnostic value, and, secondly, such study points the way to the prognosis and treatment.

During pregnancy urinalysis, to-day, enables one to determine that the urine is nontoxic in character; that a given case of persistent vomiting is toxæmic in character; that a patient is in the preeclamptic state of the toxæmic or nephritic variety; that a given eclampsia is nephritic or toxæmic; and, finally, that after delivery it is possible to forecast the tardy or prompt recovery from a toxæmic or nephritic condition. Possibly, however, urinalysis enables one to determine the presence of a complex disturbance or toxæmia, namely, where the symptoms of toxæmia due to faulty metabolism and those due to nephritic lesions are combined.

Nine months ago I presented to this society, in a paper upon the *Clinical Manifestations of the Toxæmia of Pregnancy*, a study of sixty-two complete urinalyses in twenty-four patients in hospital and private practice, together with the accompanying clinical symptoms. To-day I can add to these twenty-four analyses, making eighty-six in all, which have come under my personal observation. I have had, moreover, the opportunity of studying many in addition in the practices of my colleagues, but which I do not include in this number.

My conclusions to-day, while somewhat modified, are practically those of nine months ago.

Although we have as yet too little data to establish a normal pregnancy urine as regards the urea output, the total quantity in the twenty-four hours, a trace of albumin, and the departure from the normal standard, as shown by the urinary nitrogen, still we have enough to enable one to fly the danger signal, the red flag, as the result of pregnancy urinalysis.

Normal pregnancy urine must not be persistently small in quantity; the urea output must not be persistently low; it should not contain albumin, casts, or excessive quantities of indican. Moreover, the total nitrogen should be presented by proper pro-

portions of the nitrogen compounds, as in the following table taken from Folin.

	Per cent.
Proportion of total nitrogen excreted as urea nitrogen.....	61.0 to 88.0
Proportion of total nitrogen excreted as ammonia nitrogen.....	13.6 to 2.9
Proportion of total nitrogen excreted as kreatinin nitrogen.....	17.2 to 2.7
Proportion of total nitrogen excreted as uric acid nitrogen.....	2.5 to 0.7
Proportion of total nitrogen excreted as undetermined nitrogen.....	11.1 to 4.0

Low urea percentages I have failed to find reliable indices to kidney failure or faulty metabolism.

I. For the presence of serum albumin in the urine, especially when accompanied by casts, I have the utmost respect. It has greater significance to me than when appearing in the nonpregnant state. The belittling of the importance of albumin and casts found in the urine of pregnant women, so commonly heard to-day, has, in my opinion, cost the loss of many valuable lives.

Study of the urine of pregnancy leads one to believe that the presence of albumin and casts in the urine has a two and possibly a three fold significance:

(1). First, it may be the only diagnostic sign of the presence of a defective kidney condition, a chronic or an incipient nephritis, a danger signal that the preeclamptic state is already upon us, or that eclampsia itself is already imminent. Allow me to illustrate by citing a case in brief:

CASE.—Mrs. D. S. W. I saw four years ago, in consultation with Dr. W. B. McBean, of this city, in the last month of her first pregnancy, and in the midst of an eclamptic attack. This attack had come on suddenly and unexpectedly, without previous symptoms of a toxæmic condition, as headache, giddiness, excessive vomiting, slight jaundice, mental and physical torpor, itching of the skin, etc. High arterial tension was present at the time, the urine was nearly solid with albumin, and contained quantities of hyaline and granular casts. I dilated the cervix, extracted a living child, and the patient apparently made an uninterrupted recovery.

In November of the present year this patient was again seen by me, in consultation, in the third or fourth month of her second pregnancy, the question being as to the advisability of permitting the gestation to continue. The urine at this time had a specific gravity of 1.012; urea, 1.30 per cent.; indican increased; albumin a trace; glucose none; few hyaline casts and leucocytes; no red blood cells; acetone and acetoacetic acid

* Read before the Medical Society of the County of New York, December 28, 1906.

tion. An examination for the urinary nitrogen showed:

Total nitrogen	0.710	8.122	percentage of total
Urea nitrogen	0.6180	80.0	total nitrogen
Ammonia nitrogen	0.0292	4.0	total nitrogen
Protein nitrogen	0.0229	3.0	total nitrogen
Uric acid nitrogen	0.0078	1.0	total nitrogen
Indican nitrogen	0.0037	0.9	total nitrogen

This urine showed a slightly defective renal condition and a normal metabolism for urinary nitrogen, as indicated by 80 per cent. urea nitrogen, and 5 per cent. and 6.9 per cent. of ammonia nitrogen, and undetermined nitrogen, respectively. At this time also no symptoms of a toxic condition were present, such as headache, giddiness, excessive vomiting, jaundice, mental or physical torpor, and not even was there excessive tension to Mrs. W.'s pulse.

The case was one apparently of a slightly defective renal condition, and I advised against the terminating of pregnancy, but that the urine should be examined every two weeks and attention be paid to the stimulation of the liver, bowels, and the skin, and that the diet should be restricted.

It must be granted that in the case of Mrs. W. and others similar to it, that possibly in her first and even in her second pregnancy there may have been an underlying toxic condition peculiar to pregnancy, but which did not appear in the clinical picture. The clinical symptoms and urinalysis, however, are against such a supposition in this particular instance.

(2). In the second place, albumin and casts in the urine appear to be the result of a pregnancy toxæmia, as indicated by a faulty urinary excretion of nitrogen. In other words, the nephritic condition appears to be the result and not the cause of the toxæmia. In toxæmic vomiting of pregnancy albumin and casts do not usually appear until the terminal stages of the disease, and then without any accompanying cedema. (Cases IX to XIV.) In six of my cases of toxæmic vomiting albumin with casts only appeared in one instance, and this case required the termination of pregnancy. (Case XIII.)

(3). Possibly, again, large quantities of indican in the urine may result in nephritic changes and the appearance of albumin and casts in the urine. In other words, the nephritic condition may be the result, and not the cause of the intestinal intoxication.

The persistent decomposition of carbohydrates in the stomach or proteids in the intestinal canal, and the absorption of toxic material therefrom may undoubtedly give rise to the symptoms of an intestinal toxæmia. Or, on the other hand, a large excess of acetone, diacetic acid, and an excess of ammonium salts in the urine may point to the excessive formation and presence in the blood of betaoxybutyric acid and other acetone bodies producing an acid intoxication or acidemia. Both of these conditions, namely, intestinal and acid intoxication, may be of sufficient degree of severity to produce (acid) vomiting and even the existence of coma.

My observation does not lead me to attach much importance to the presence of an acid or an intestinal intoxication as causative factors in the production of pernicious vomiting or coma. (Eclampsia without convulsions.) Only two of my cases studied could in any sense of the term be classed as instances of acid or intestinal toxæmia. The acid intoxication was Case IV, reported to the American Gynecological Society, May 25, 1905, and the intestinal intoxication was Case XIV, reported to the

New York County Medical Society on March 27, 1906. In both of these cases there was a defective renal condition, as indicated by albumin and casts. The acidemia case had cedema of the ankles and three years previous had an artificial delivery by a colleague after several eclamptic convulsions. The intestinal intoxication case was relieved of the indican in the urine and the more acute symptoms of toxæmia, but albumin was contained in the urine, and the undetermined nitrogen in two examinations was high, namely, 22.0 per cent. and 15.45 per cent. respectively. While the second case was readily relieved of the symptoms of intestinal toxæmia, still the symptoms of defective renal and hepatic condition persisted, and she miscarried with triplets at the seventh month.

II. Another sign in the urine of diagnostic value and one which often points the way to the prognosis and treatment, is the relation of the nitrogen of the nitrogenous compounds of the urine to the total nitrogen, or in other words, the various percentages of the total nitrogen, excreted as urea nitrogen, ammonia nitrogen, creatinin nitrogen, uric acid nitrogen, and undetermined nitrogen, and the comparison of these various nitrogen ratios with the clinical symptoms observed in pregnancy and the puerperium.

Of these nitrogenous compounds ammonia and undetermined nitrogen (aminoacid nitrogen), both of which are probably the result of faulty metabolism and possibly of hepatic origin, are in themselves poisonous in character.

Along this line of research, I have already reported eight cases of nontoxic pregnancies; six instances of toxæmic vomiting; seven of preeclamptic state, and three of eclamptic toxæmia.

The present status of the subject is, briefly, as follows: (1). The persistent vomiting of pregnancy is with few, if any, exceptions toxæmic in character, as shown by faulty urinary excretion of nitrogen. While not denying the possibility of a purely reflex or neurotic vomiting of pregnancy, still I believe that cases which at first sight appear to come under one or another of these causative factors will eventually be found to be associated with an underlying toxæmic condition which will sufficiently explain the persistent vomiting.

(2). Clinically, I believe, we can usually distinguish between two varieties of preeclamptic states; the first, largely toxæmic (hepatic, peculiar to pregnancy) in character, and the second nephritic. In the toxæmic variety we have nausea and vomiting, headache, giddiness, jaundice, mental and physical torpor, usually high pulse tension, and itching of the skin. There is no cedema of the face or extremities. Albumin and casts and a diminished amount of urine are not prominent urinary symptoms, but the proportion of ammonia nitrogen and undetermined nitrogen is high, and that of urea nitrogen is low. In the second variety of the preeclamptic state the symptoms are largely nephritic in character. There are headache, disturbances of vision, little or no vomiting, always a high pulse tension, an increasing amount of albumin and casts in the urine, a diminished twenty-four hour amount of urine and cedema of the face and ankles; on the other hand there is little if any change in the urinary nitrogen, the various proportions of the total nitrogen ex-

creted as urea, ammonia, and undetermined nitrogen being within normal bounds, or in some cases the urea nitrogen may be slightly decreased with a consequent increase in the other forms of nitrogen excreted. Either of these two preeclamptic states, namely the toxæmic or hepatic, and the nephritic, may result in eclampsia with nothing clinically to distinguish between the two varieties, except that the nephritic more readily yields to treatment and gives a better prognosis.

(3.) Clinically, and possibly pathologically, it is impossible to distinguish between persistent toxæmic vomiting and the toxæmic preeclamptic state, although it is stated that such a line can be drawn. Cases XV and XVI reported to this society in March, 1906, are examples of this toxæmia peculiar to pregnancy. Allow me to quote one of my recent cases in further illustration.

Mrs. B., aged thirty-four, no miscarriages, pregnant for the third time, youngest child ten years, a very high liver, and of a bilious temperament, became pregnant in May last, 1906. She was at the time taking the cure at Karlsbad. Persistent nausea and vomiting set in early in pregnancy. Mrs. B. was treated by competent physicians without relief. Finally a retroversion of her uterus, from which she had formerly suffered, was con-

The urea nitrogen was low and the ammonia nitrogen and undetermined nitrogen high. It will be noted, also, that the total amount of urine for twenty-four hours was persistently low, and that there was but a trace of albumin and no casts.

The clinical symptoms and chemical analyses caused me to give a guarded prognosis. Upon December 3, 1906, this patient, without apparent cause aside from the toxic condition, miscarried, and the fœtus, although nearly seven months, could not be made to breathe more than a few times, although its heart action at delivery was good. The patient began to improve from the time of delivery and now, three weeks from that event, shows none of the clinical symptoms of the pregnancy toxæmia.

I am compelled to view this case as well as the others referred to as those of toxæmia peculiar to pregnancy.

Occurring early in pregnancy these cases offer us the clinical picture of persistent pregnancy vomiting, the patient has the physical symptoms already referred to, with a high ammonia and undetermined nitrogen percentage and a low urea percentage.

Early in gestation, there is usually no albumin or casts, the urine is not diminished in amount, and there is no edema of the face and ankles. We often

NITROGEN PARTITIONS IN CASE OF MRS. X.

Amount in 24 hours.	June 9.	June 11.	June 12.	June 18.	July 12.	July 16.	July 27.	July 30.	Nov. 12.	Nov. 13.	Nov. 14.	Nov. 17.	Nov. 19.
Urea	31	24	28	18	24	60	56	55	40	50	33	40	93
Albumin (serum)	Faint tr.	Faint tr.	Faint tr.	Faint tr.	Faint tr.	Faint tr.	Faint tr.	Faint tr.	Yes	Yes	Yes	Yes	Much.
Casts present	None	None	None	None	None	None	None	None	Yes	Yes	Yes	Yes	None.
Total grams of nitrogen	11.87	11.91	9.25	13.68	11.89	10.044	8.74	12.6	8.8	8.4	6.09	8.57	21.9
Total grams of nitrogen	185.98	185.07	113.37	214.83	184.29	155.71	135.47	192.3	126.4	130.2	91.35	132.83	339.4
Urea nitrogen, per cent.	78.6	76.7	76.6	85.8	72.44	81.7	69.7	72.6	72.4	75.3	72.5	67.5	79.5
Ammonia nitrogen, per cent.	5.2	7.04	7.5	6.76	7.45	4.6	5.9	8.4	14.1	9.0	8.1	23.1	7.2
Urea and ammonia nitrogen, per cent.	2.25	1.87	3.2	1.16	2.83	3.09	1.24	3.0	3.9	7.3	9.6	5.7	5.2
Urea and ammonia nitrogen, per cent.	4.65	4.39	4.7	3.97	5.60	5.8	7.16	11.8	5.1	5.2	4.8	2.7	3.1
Rest of nitrogen, per cent.	9.3	10.0	8.0	2.0	11.59	6.7	16.4	12.8	4.3	3.2	4.4	9.8	5.0

¹ November 12th, two days before convulsion.

² November 13th, day before convulsion.

³ November 14th, twelve hours after convulsion.

⁴ November 17th, twenty four hours after delivery.

⁵ November 19, seventy-two hours after delivery.

sidered to be the cause of the vomiting, and this was replaced under chloroform by Dr. Bernard in Switzerland and held in place by a soft rubber pessary. The reposition of the uterus did not affect the vomiting either one way or the other, and under my advice she sailed for New York in October in charge of a trained nurse, and very much against the wishes of her family. She arrived the first part of November in very poor condition and extremely emaciated. She was confined to her bed some days after her arrival and presented a typical picture of a moderate pregnancy toxæmia, viz., pulse persistently over 90, jaundice of the eyes marked, and of the skin slight in amount, almost persistent nausea, with occasional vomiting twice or three times a day, the mental and physical labors were marked, and she passed rather a small amount of urine, namely, 30 to 40 ounces a day. The first sample analyzed, November 17, 1906, showed a dark brown urine, highly acid, specific gravity 1.025, urea 4, per cent; no indican, no acetone, no diacetic, and no bile pigment, albumin trace, no glucose, some oxalates of lime crystals, no casts, no red blood cells and a few leucocytes. An analysis of the urinary nitrogen showed:

Urea	10.6 per cent of nitrogen
Ammonia	4.6 per cent of nitrogen
Urea and ammonia	15.2 per cent of nitrogen
Rest of nitrogen	11.59 per cent of nitrogen
Total	26.79 per cent of nitrogen

find large amount of acetone bodies and indican in the urine. This picture ends in death, pernicious pregnancy vomiting being given as the cause, or the patient is fortunate enough to miscarry or be artificially delivered before the late stages of the disease set in. Occurring in the last half of gestation the clinical picture is very similar, the urine shows the same faulty nitrogen percentages, but in addition, we now find the total twenty-four hour amount diminished in quantity, and albumin and casts begun to appear in the urine. Occurring at this time the termination is miscarriage, spontaneous or artificial, or eclampsia. Possible toxæmia may supervene without eclampsia, and without even the mental and physical labors mentioned.

Permit me to close with the case of an apparently normal pregnancy, in further illustration of a toxæmia in which this case is included. (See Case C, p. 240.)

Mrs. X, the wife of a physician, thirty years, married three years, in April, 1906. She was in good health at the time, but from the onset of her pregnancy there were persistent vomiting, and from the third month up to the fifth month of time, and with the exception of return upon the first and second occasions, there were fainting attacks.

tion to the nausea there was considerable mental and physical torpor. Thirteen complete urinalyses were made in this case by Dr. Hastings, of the Cornell Laboratory. As will be seen from the chart, no casts appeared in the urine until November 12th, which was two days before her first eclamptic convulsion. Also that albumin was practically absent before this date. From the beginning of Mrs. X.'s pregnancy a faint trace of serum albumin could be obtained, but could only be demonstrated by salting the urine and then boiling with acetic acid. Upon November 12th the albumin jumped to 5.5 per cent. In the last week in July you will observe occurred the first decided danger signal in the urinary nitrogen. At this time, although Mrs. X. was passing between 50 and 60 ounces of water, the urinalysis at two examinations showed a high ammonia and undetermined nitrogen and a low urea nitrogen. The symptoms of toxæmia were at this time more pronounced. It was at this date that I was consulted regarding the prognosis and treatment, and I advised the induction of premature labor. The family, however, chose an expectant treatment.

No casts were found in the urine until the November examinations, the urine being examined regularly every two weeks. Up to the beginning of November there was no oedema whatever, or other signs of a nephritic condition, other than the faint trace of albumin. A marked change occurred during the first part of November. Within a day or so the whole picture changed. Large amount of albumin was found in the urine, together with many hyaline and granular casts. There was marked oedema of the extremities and face. After this had continued for a week or so convulsions occurred, followed by artificial emptying of the uterus. After the emptying of the uterus, the patient gained rapidly, all signs of the toxæmia disappeared, and she now has but a trace of albumin with a few casts.

This case of Mrs. X. is an excellent illustration of the value of the changes in the urinary nitrogen, giving us the first danger signal, the first red flag of trouble ahead. A low urea nitrogen and high ammonia and undetermined nitrogen, together with exacerbation of the clinical symptoms of toxæmia, in the last week in July was (in my opinion) a sufficient warning of impending disaster. It will be noted that up to this time there were no casts and practically no albumin as danger signals, that apart from the faulty urinary nitrogen the urine was what we term normal in pregnancy. Mrs. X. partially reacted under treatment from this July attack, but November 12th, three months afterwards, suddenly had marked nephritic symptoms, 5.5 per cent. albumin, abundant casts, and oedema, and two days later all but lost her life from eclampsia.

The clinical and chemical data in this case of Mrs. X. are, I believe, most valuable, and I commend them to the careful consideration of the members of this society.

50 EAST THIRTY-FOURTH STREET.

THE CEREBRAL LOCALIZATION OF APHASIA AND ITS CLASSIFICATION ON AN ANATOMICAL BASIS.*

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The discussion aroused by Marie is the exciting cause, no doubt, of this present article, but I must claim this merit, that the views here presented, and the facts upon which they are based, were mostly

prepared three years ago, so that, in so far as I agree with the distinguished observer, it is a matter of independently reaching similar conclusions.

I have long felt the relative uselessness of the old classifications of aphasia in the practical teaching of students. The theory, indeed, is simple and beautiful, and the didactic lecture is an easy piece of diagrammatic exposition. But to make a student understand that a patient who cannot speak a word has a "sensory" aphasia, or a patient who cannot speak, but who also cannot read, or write, or understand very well, is affected with "motor" aphasia, is very difficult. And the usual conclusion of a lecture on the average case is that most aphasia is "mixed," leaving the patient, the student, and the situation in about the same condition.

The Clinical Diagnosis.—This being the case, I have sought for some simpler way of teaching aphasia practically to students. In describing other morbid conditions of the brain we teach the student to make first a clinical diagnosis, then an anatomical or localizing diagnosis, and, finally, a pathological diagnosis. I have been making the experiment of applying this method to aphasia. To establish the clinical diagnosis, we first determine that an aphasia, or defect of language function, is present. This, of course, as a rule, is easy. We have to exclude simulation, hysteria, mental disease, and defect of the peripheral organs of speech or dysarthria. Then we must qualify this general clinical diagnosis to show what factors in language are injured. For this purpose, one tests the patient for defects in the various factors that go into the make-up of human language, both on the side of understanding and emitting its symbols.

In testing the capacity of an individual to understand others, or to express himself in all possible ways, we examine:

- 1, Voluntary speech; 2, exclamatory speech; 3, responsive speech; 4, associative speech, such as counting, saying alphabet, repeating familiar lines; 5, quality of speech, such as paraphasia and confusion; stereotypy, jargon; 6, repeating spoken words; 7, indicating the number of syllables in a word (to show that the patient knows that it is a word); 8, writing; 9, writing to dictation; 10, copying; 11, singing (humming tunes); 12, gesturing; 13, understanding gestures; 14, understanding spoken words, sentences, and complex directions; 15, naming things seen, also felt, heard, touched, smelled, or tasted; 16, naming abstract things and qualities; 17, recalling to mind objects named; 18, reading understandingly, aloud or silently; 19, reading letters or numerals; 20, reading aloud without understanding; 21, praxia or knowledge of the use of things; 22, general intelligence.

In going over these tests we get various special symptoms by which we qualify the aphasia. The principal symptoms are these:

Inability to speak at all, or to say but a few words = aphemia.

Difficulty in speech = paraphasia, = confusion, = jargon, = stereotypy.

Inability to write = aphagraphia.

Inability to sing = amusia.

Inability to name objects = anomia.

* Read at the 11th Annual Association of Physicians.

Inability to understand words, sentences, complex directions = verbal aphasia, mind deafness.
Inability to recognize or understand the use of things seen = mind blindness (visual apraxia).
Inability to read = alexia.

All these factors are usually easily elicited, and the aphasia is characterized accordingly. We detect other characteristics also, such as inability to copy, to repeat, to read letters or numerals, inability to understand or read music, loss of gesture language, but these are of less importance for our purpose.

Of these qualifying characters of aphasia, it is really only a few which are important in reaching a diagnosis, i. e., such a diagnosis as I shall try to show is a practical one as distinguished from a metaphysical one, for it indicates the location and size of the lesion and the vessels affected by it.

These important qualifying symptoms are: 1, Aphemia; 2, paraphasia, jargon, etc.; 3, agraphia; 4, anomia; 5, mind deafness and verbal deafness; 6, alexia; 7, inability to repeat or copy; 8, the presence or absence of word concepts.

We must determine not only the presence or absence of these symptoms, but the *degree in which they are impaired*. This is an extremely important and rather neglected phase of the study of aphasia. For while aphasia often causes almost complete loss of speech, it equally often causes impairment of reading and understanding language, but in a less marked degree. Aphasia may be said to impair the different functions of language: 1, Totally; 2, seriously; 3, very slightly. In other words, we can usually qualify the injury as total, or first, or second or of third degree of severity. And in most cases the injury is either total or serious, i. e., first or second degree.

But we need not only the data thus obtained by a study of the aphasia, but also the *physical symptoms* accompanying the disorder. These, if present, consist of paralysis (hemiplegia in varying degree), dysarthrias, and various sensory disturbances, such as anæsthesia, ataxia, astereognosis, hemianopsia, and hemideafness.

The Anatomical Diagnosis.—We have now a record of the special symptoms of the aphasia, and the degree of intensity of these symptoms; in making the study we have noted the impairment of intelligence if present, and the physical symptoms, such as paralysis, anæsthesia, etc.

We next proceed to use these clinical facts in order to make a local, or anatomical, diagnosis. And we have not had to introduce the terminology of "motor" and "sensory" types.

Pursuing this method in a series of carefully recorded personal cases, I made a diagrammatic arrangement of them upon charts in the way indicated here. And I found that they grouped themselves in a rather definite manner, so that all my cases fell into four different types. These types can easily be assigned to an anatomical lesion in one or other part of the zone of language, and we can use the terms frontal lobe aphasia, occipital lobe aphasia, etc., or a clinical term, as we wish; and as we may say that a patient has a hemiplegia, or a lesion of the internal capsule.

1. FRONTOCAPSULAR APHASIA (APHEMIA).

Summary (see Chart I). The first diagram represents the type of pure aphemia or aphemic aphasia, usually called pure subcortical motor aphasia. The patient cannot say a word, or repeat, or ejaculate, or count. But he writes, reads, understands, and has good general intelligence. He has a very marked right hemiplegia, and no sensory symptoms. Such cases are very rare, but I have three in my list. Slight variants from this pure type show ability to swear and repeat words (ejaculatory lan-

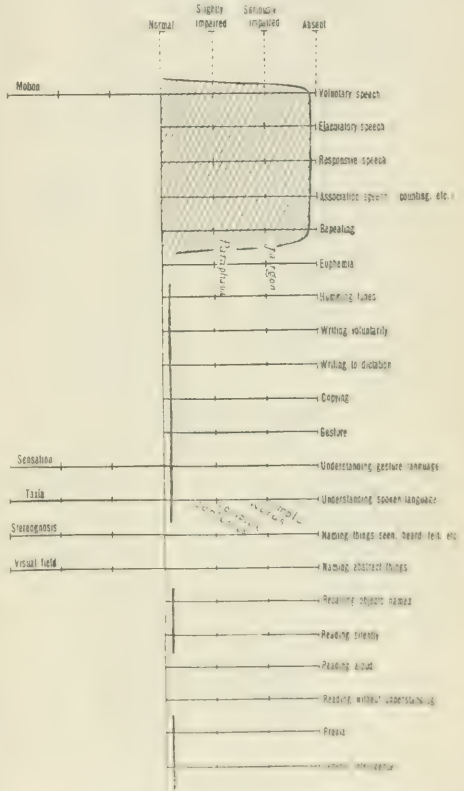


FIGURE 1. Diagrammatic representation of symptoms in pure aphemia. The shaded area represents the frontocapsular aphasia. The unshaded area represents the normal line.

guage), and some involvement of writing and reading.

Detail of symptoms. There are aphasias in which the patient is completely aphemic, or almost so. He is unable to say more than one or two short words. Yet the patient can write, read, understand perfectly spoken language, and retain good intelligence. I have such a patient under observation now. He has marked hemiplegia, without sensory symptoms. He is right handed. Such cases, known as pure motor (or subcortical) aphasia, can only be caused by a frontal lobe lesion.

tending into the lenticular zone on its inner side, not involving the upper or outer part of this zone or the superior longitudinal fasciculus. They are frontolenticular lesions, and must be due to a lesion of one of the ganglionic arteries, probably the lenticulo-optic, which does not supply much of the corpus striatum. It is essentially a frontocapsular lesion or aphasia. Diagram I represents the curve.

I do not think that there are aphasias characterized by similar symptoms, but without the hemiplegia. They must be very few. When lesions of the third frontal lobe occur they are due to an

frontal alone, not extending back into the lenticular zone. So far, I agree with Marie.

Pure cortical frontal lobe lesions cause only a temporary aphasia, because owing to the vascular supply they are too small. When a permanent aphasia occurs from lesions in this region it is due to involvement of the subcortical white matter, and usually thereby involves fibres to the capsule, causing a hemiplegia, or fibres of the association tracts in the lenticular zone, causing a mixed aphasia.

II OCCIPITAL OR A PARIETO-OCCIPITAL APHASIA (PURE ALEXIA).

Summary (see Chart II). This second group is one of *pure alexia*. The patient can talk well and understand, and write well, but he cannot read except a few words, or letters, and, naturally, he cannot copy well. He has hemianopsia always and the alexia is sometimes wrongly attributed to this. There is sometimes hemiataxia, or anaesthesia, or hemiparasthesia, which may be temporary. The intelligence is good. These cases are rare. I have records of three, and one is now under observation.

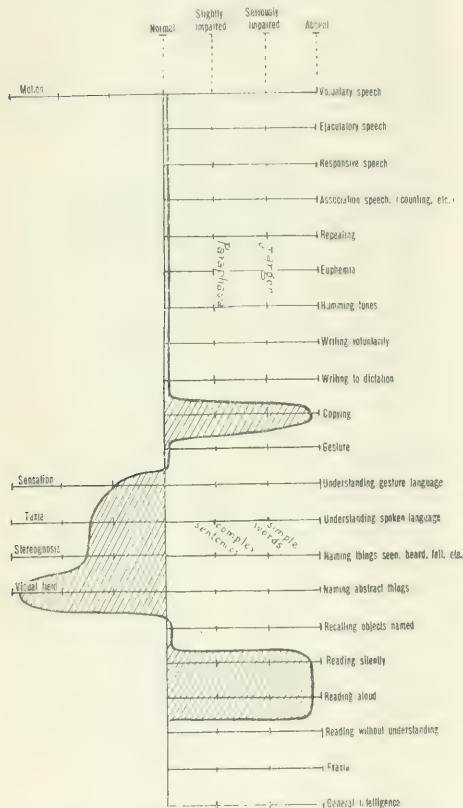
Detail of Symptoms. The occipital lobe is supplied by the posterior cerebral artery. When lesions occur in it, they involve the intermediate visuopsychic centres concerned in reading. These are situated in the angular and in the second occipital gyri. With lesions which injure this area or the tracts connecting it (inferior longitudinal bundle, etc.) loss of power of reading occurs. Alexia may be caused by lesions of the Sylvian artery also, since it supplies the angular gyrus, but generally in such cases we get some injury of the temporal cortex and with it anomia and mind deafness.

But cases of pure alexia occur in which there is no loss in power of speaking or of writing, or of understanding, but the patient is entirely unable to read what he has written. A patient of mine could write a long, intelligent, and well composed letter, but after writing it could only read the very last word written. After a long period of training she only could learn to recognize letters and numerals, and read a few familiar words.

Physically, this type is usually accompanied with some hemiataxia or hemianesthesia, perhaps a very slight temporary hemiplegia, and always with a hemianopsia. Such cases are probably even rarer than the pure aphasias, or frontal lobe type, but they are easily recognized, and it is quite definitely known that the lesion must involve only the angular gyrus, or else part of the second occipital and extend deep enough to involve the association tracts.

III TEMPORAL OR PARIETO-TEMPORAL APHASIA (SENSORY APHASIA OF WERNICKE).

Summary (see Chart III). The patient has some voluntary and responsive speech, and eventually he uses words freely, but with paraphasia, or confusion, or repetition. He cannot name objects shown him, and usually not objects heard, felt, smelled, or tasted, or he has defects in grammar and cannot use verbs. These symptoms of anomia, of paraphasia, without much or any hemiplegia, are the most striking, but they are not all. The patient cannot read well or write well; practically not at all. He has no or only temporary hemiplegia. He has



II. Temporo-occipital aphasia (pure alexia)

injury of a cortical artery to this part, and one artery does not, as Campbell shows, supply all this speech zone area. Hence cortical lesions of Broca's convolution are not large enough to cause much aphasia. If, however, there is a large and deep lesion cutting off all the cortical fibres as they converge toward deeper parts, we get involvement of the capsule and lenticular zone. If, as in Bramwell's case, it affects the outer and upper part of the lenticular zone it destroys the superior longitudinal and arcuate bundles and causes some symptoms of sensory aphasia as well as aphemia. It is not probable, however, for a mixed aphemic and sensory aphasia to occur from a lesion in the third

some sensory symptoms, as a rule, such as hemianopsia, anæsthesia, ataxia, astereognosis. The intelligence is fair, but is somewhat impaired. This type is rather common, and it may be considered the representative type of aphasia, for in it the chief seat of language is involved.

Detail of Symptoms. The artery of Sylvius in its terminal branches supplies the first and part of the second temporal convolution, and the inferior parietal, including the supramarginal and angular gyri. When this artery is affected we get lesions

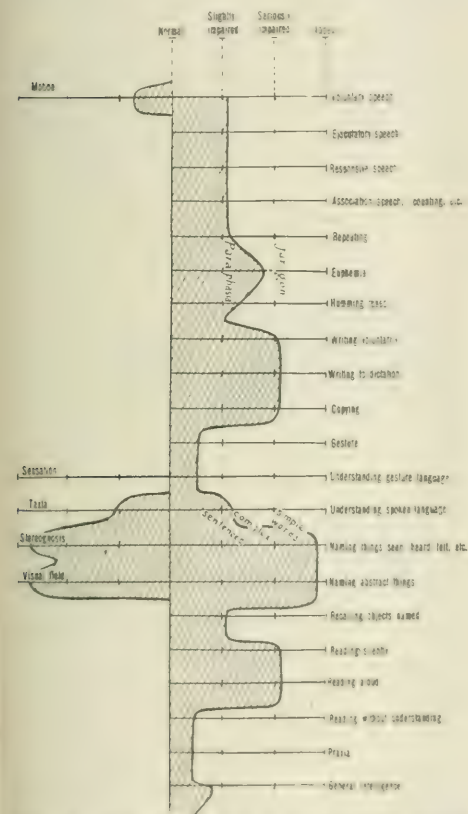


Fig. 311. Temporal lobe, lateral view, showing the distribution of the Artery of Sylvius.

of the essential language centre. We would expect to get word and mind deafness as the dominant symptom, but this is not the case, or, at any rate, in a partial extent. It does give, however, a definite type of aphasia characterized by the loss of the ability to name objects seen, or use verbs and sentences properly. This is not, by any means, the only symptom or perhaps even the most distressing, but it is the most striking and obvious, for these patients talk for a time rather fluently, though they are somewhat paraphrastic, and after a time get confused; they may speak only jargon. They can read a little, but very poorly, and they write a little and can copy, but they do this also very badly. They can

sometimes understand questions and simple directions, but they do not understand complicated directions, and there is in these cases probably some loss of general intelligence. They act sometimes rather childishly and emotionally.

The physical symptoms associated with this type vary. There may be a temporary hemiplegia, but this is not always present. There is usually some hemianæsthesia, or ataxia, or astereognosis, but this does not always last. They have sometimes a hemianopsia, which also may not be permanent. It is rare to find symptoms of important involvement of the pyramidal tract. Such patients in a hospital ward are fairly useful as helpers, but have to be supervised rather carefully. They do not show symptoms of any true dementia. The lesion in these cases is no doubt in the auditory psychic area of Campbell, that is to say, in the posterior two fifths of the first temporal convolution, extending, in severe cases, into the parietal lobe or into the second temporal. There must be here a cutting off, to some extent, of the association tracts between the auditory psychic area and the visual area. An explanation of why lesions here cause an inability to read and write and copy, can be worked out by those who love such problems, but it seems to me that the simplest view is that we have injured, in these cases, the most important of the areas concerned with the function of language, and the more recently acquired parts of that function, namely, that of reading and writing, would naturally go when the machine is badly injured. This is a pure temporal or temporoparietal aphasia. It is the sensory aphasia of Wernicke.

There are two variants of ordinary temporal aphasia:

1. When this type of aphasia has added to it some hemiplegia, when the speech is jargon, the lesion is more extensive, the artery of Sylvius involved nearer its origin, the lenticular zone is encroached upon, and we have a temporolenticular lesion, a type of mixed aphasia with symptoms more especially of temporal lobe involvement. The type is characterized by great defect in voluntary speech and by the violent and nonsensical use of certain exclamatory words or sentences, a violent jargon or stereotypy. The patient understands poorly, he can read a little, and can write a little. He has decided hemiplegia with no sensory symptoms and much defect of intelligence.

The dominant symptoms then are: Jargon and stereotypy, dyslexia, dysgraphia, some mind deafness, hemiplegia.

2. Pure anomia, or optic aphasia. Here the patient can talk well, reads, writes, and understands, but he cannot name objects seen, and often he can not name objects felt, heard, smelled, or tasted. The lesion here is a smaller one, involving a small branch of the Sylvian artery supplying the temporal lobe.

IV. TEMPOROPARIETAL OR LENTICULAR ZONE AFFECTION (MIXED APHASIA)

Summary (see Chart IV).—This group is characterized by defective ability to speak with almost or dyslexia, aphasia or dysgraphia, some word deafness, a good deal of hemiplegia and in some cases some loss of general intelligence or intelligence.

This is the very common type of *mixed aphasia with hemiplegia*. In the less marked forms there is some ability to speak or repeat, and considerable ability to read, write, and understand, but these functions are all sadly crippled. The type includes the elements of No. I and No. III.

Detail of Symptoms.—Most aphasias are due to lesions of the lenticulostriate artery. This supplies the corpus striatum, internal capsule, and the fibres converging into it from the third and second frontal (anterior part of internal capsule) and from the

causes their difficulty in reading and understanding language.

All these four types are readily recognized clinically.

The pure aphemic No. I, and pure alexic No. II, and pure temporal No. III, are the rarest and most easily distinguished by the clear cut separation of the special symptoms and the presence of intelligence with certain physical defects. The fourth or mixed type is not so simple, and has variations in the degree of loss of speech and of power to understand, to read, to write, but all are involved.

SUMMARY.—Thus, we have:

I.—Frontocapsular aphasia or aphemic and agraphic aphasia (pure motor aphasia), due to lesion of a ganglionic branch of the midcerebral, and characterized by aphemia, very complete; with (or without) agraphia; without alexia, or mind deafness, or mind blindness; with hemiplegia; without sensory symptoms, and with good intelligence.

II.—Occipital aphasia (or pure alexia), due to lesion of the posterior cerebral, or a terminal branch of the Sylvian artery, characterized by complete alexia; without agraphia, or aphemia, or any difficulty in understanding language; without hemiplegia; but with hemianopsia.

III.—Temporoparietal aphasia, sensory aphasia of Wernicke, due to lesion of the Sylvian artery, or its branches, characterized by paraphasia, confusion, jargon, anomia, some alexia and agraphia, and difficulty in understanding language. Very little or no hemiplegia, some sensory symptoms usually.

a. When the lesion is larger and the lenticular zone is involved, there is added greater difficulty in speech, jargon, and hemiplegia, and we have a mixed temporal aphasia.

b. When the temporal lesion is very small, we may have only anomia, or pure temporal lobe aphasia (optic aphasia).

IV.—Frontolenticular aphasia, mixed aphasia, due to lesion of a ganglionic branch of the midcerebral, usually the lenticulostriate, with aphemia, not always complete, with or without agraphia, with impairment of reading, with impairment of understanding language, slight impairment of intelligence, hemiplegia, and no sensory symptoms. This is the common *mixed type*.

I have given diagrams showing the different types. They represent special individual cases. The lines of course are only approximate, but in tracing out several cases on the same sheet they fall into very much the same general configuration.

THE LANGUAGE ZONE.

It is well agreed that there is a zone of language, involving the third frontal and adjacent part of the intermediate psychic area of Campbell, the first and part of the second temporal in its posterior three fifths, some of the supramarginal and angular gyrus, and the second or perhaps more of the occipital. Beneath these areas are association tracts, including especially the superior and inferior association bundles. Meyer seems to have shown conclusively that the inferior longitudinal bundle is a geniculate cuneus tract, but there certainly must be some association bundles connecting the occipital and frontal cortex. They all converge eventually and indirectly upon the pyramidal

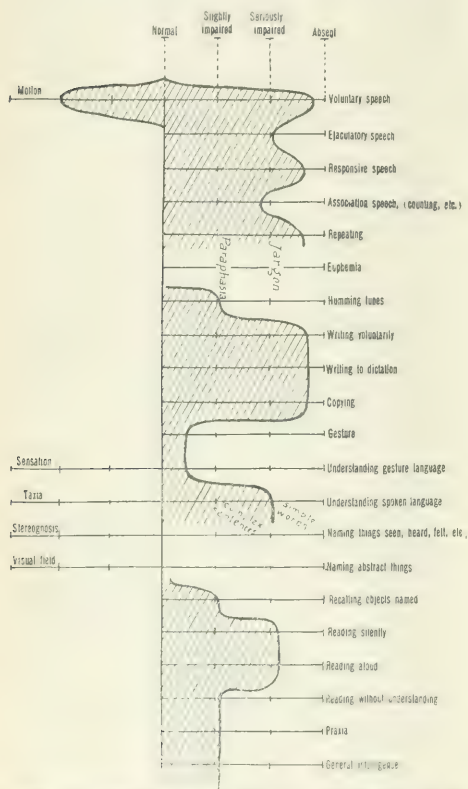


FIG. 14. Frontolenticular or lenticular zone aphasia (mixed aphasia).

præcentral convolution. In such lesions we get aphemia, generally very complete, some alexia, and some difficulty in understanding language. With it is a decided hemiplegia and no sensory symptoms. This is clinically a mixed aphasia and anatomically a lenticular zone aphasia. It is called by Marie *anarthria plus aphasia* of Wernicke. I think his use of the words *anarthria* and *dysarthria* is unfortunate, for the patients can say some words and say them plainly. They cannot speak, because of the loss of articulatory memories (if one wishes to use a conventional word, abhorred by some psychologists), and also probably because of the severe injury to the association tracts from the temporooccipital cortex (superior and inferior longitudinal fasciculi). This

viz., *ataxic aphemia*, indicating a frontal lesion, *amnesic aphemia* indicating a temporal lesion, the two types being often mixed in large lesions and the mixed aphasias.

Association speech, such as counting, saying the letters, repeating familiar lines, is relatively a characteristic of temporal lobe lesions, the memory of words is impaired. The associations are numerous here and associations help the memory. If in frontal lobe troubles the patient can speak at all, he cannot count much better than he says other things. But in temporal lesions the patient counts better than he talks.

Loss of the power to read letters in alphabetical sequence is a sort of associative defect of reading, analogous to that of speech, and goes to some extent with the alexia due to parietooccipital lesions. But letter reading, or, rather, alphabet reading, is better done than ordinary reading of words.

Paraphasia, confusion of speech, continuous repetition of sentences or words, violent incoherent jumbling of words or jargon, belong to lesions of the temporal lobe. But the worse the condition, i. e., the more it approaches stereotypy and jargon, the more the lesion extends into the lenticular zone and involves tracts from the frontal lobe.

Inability to write, or *agraphia*, occurs in lesions of all parts of the language zone. If it occurs, as it does very rarely, without any other symptom of aphasia, it means a frontal lobe lesion. It is, however, often very complete in connection with alexia and anomia; in other words, with lesions of the temporoparietal and occipital lobes. The absolute abolition of writing is not seen, however, in temporal lobe lesions, at least, only in the early phases of the condition soon after the "stroke" has occurred. Its total and permanent absence means a frontal lobe lesion or frontolenticular.

The presence of exclamatory speech or ejaculatory language is associated with loss of voluntary speech, and occurs with frontal lobe lesions. The patients either with or without some emotional excitement swear or utter milder forms of emotional expression. Ejaculatory language is not to be identified with jargon, in which profane words are constantly uttered without relevancy or sense of their meaning. This is a temporolenticular symptom.

Responsive speech, or the power to speak better when a question is asked or written, is also relatively more marked in frontal lobe lesions or frontolenticular. In temporal lobe lesions, where there is some lessening of the capacity to understand spoken language, the responsive language of the patient is relatively less. But the practical applications of this test are not great.

Repeating and Copying.—The diagnostic importance of being able to repeat or copy is rather exaggerated, except for the finer differentiations of the special aphasiographer. In aphasia with word deafness or even some sentence deafness, a patient might speak freely, yet not repeat easily, words or sentences, sentence repetition being more important than word. Loss of repeating power goes, then, more with temporal lobe lesions, assuming the patient can speak at all. So with inability to copy. If a person has complete alexia, he naturally cannot do it. Inability to copy, then, goes with pure alexia, and indicates a

special variety of alexia. Complete alexia with complete inability to copy, but with ability to write, indicates an occipital angular gyrus lesion. Aside from this, the ability to copy would vary only with the greater or less degree of ability to write. So that the copying symptom is one of use in studying parietooccipital aphasia, while the repeating symptom has value in diagnosing temporal lobe and frontal aphasias.

If a man indicates that he knows what the word "parasol" is by indicating the object, and if he shows that he knows the number of syllables in this word, and indicates it by some gesture, we assume he has a concept of the word in his mind, even though he cannot speak it or write it. This is a test for some of the finer subdivisions of a frontal lobe lesion. Such a degree of aphasia is rare in any lesion of the language zone elsewhere.

The power to sing, i. e., hum tunes without words, is present in pure frontal lobe aphasias and in temporal aphasias, but not in aphasias involving the lenticular zone. I have a patient who can read writing and understand perfectly, but he is completely aphemic and hemiplegic. He can sing (hum a tune) well.

The loss of power to make gestures or understand gestures is extremely rare. I have never seen a case, except in the very demented. The test is usually put in for completeness, and would, of course, be very important in the aphasia of deaf mutes.

Anomia.—The loss of power to name objects seen, or felt, or heard, though the patient can speak fairly well, is called "anomia," and goes with temporal lobe lesions.

Mind Deafness.—The loss of power to understand words, sentences, and complex directions, or verbal and mind deafness, also goes with the temporal lobe lesions. It is present in some degree in the lesions here always, but complete mind deafness means probably an involvement of the temporal lobe on each side of the brain.

Agraphia.—Inability to read is found in all forms of aphasia, but when it exists without other symptoms of aphasia, except perhaps agraphia, and when there is with it a hemianopsia, it indicates an occipital lobe lesion.

Apraxia, or mind blindness and deafness, means generally a loss of intelligence, and is probably not present except in bilateral lesions and extensive cortical injury.

BY STARLING LOVING, M. D.

ANGEONEUROTIC OEDEMA.*

BY STARLING LOVING, M. D.,
Columbus, Ohio.

Angeioneurotic oedema is not a common or very important malady, but has of late attracted the attention of several distinguished investigators. Within a few years many cases have been reported and lengthy discussions in regard to the aetiology, symptomatology, and treatment of the disease have occurred. Descriptions have been written by Quinke, Osler, Hare, Graham, Stelwagon, Tyson, and others.

Until 1893, though many cases of urticaria had been reported, the disease was not generally recognized as a distinct entity. The first case of the disease was reported by the German physician, Dr. Quinke, in 1893. Since that time it has been reported by many other physicians, and is now generally recognized as a distinct entity.

passed under my observation, I had never seen one of angioneurotic oedema and knew nothing concerning it more than is to be found in the textbooks on general practice and dermatology. Since that year four cases have come under my observation and care and a fifth has been reported to me by a friend. I have become so much interested that I have selected the disease as the subject of this paper. I can add little or nothing to what has been written, and shall confine myself in the main to a description of the phenomena of the cases which I have seen and treated.

CASE I.—The first was that of a young woman of twenty, who at the time of seizure, July, 1905, was but recently convalescent from an attack of streptococcic pneumonia complicated with subacute tubular nephritis, pericarditis, and left side pleuritis with effusion. When the new disease appeared inflammation had subsided, effusion had been absorbed from the pericardium and the pleura, but the kidneys were still inflamed and the urine contained a large percentage of albumin with many epithelial and brown granular casts. On the first of the month she went to Lakeside, where the family spends the warmer weeks of the summer. Within a week after her arrival there, while walking at some distance from home, she was caught in a sudden storm of rain and before being able to reach shelter got thoroughly wet, chilled, and fatigued. Shortly after reaching her room and before getting warm she was seized with pain in the abdomen, followed by looseness of the bowels, fever, and prostration. Being alarmed, she immediately returned to Columbus. I found her still suffering from pain in the abdomen, with rather frequent mucous and bloody stools, followed by tenesmus. The pain was more or less constant, not relieved by posture, and increased somewhat by pressure. There was elevation of temperature to 101° F. The abdomen was distended, I thought at first by effusion, but, as proved by careful examination in the main by accumulation of gas. There was no decided change until the second day, when she complained of discomfort in the lower part of the left lumbar region. Examination showed an oedematous swelling, irregularly circular, with rather sharply defined borders, six inches in diameter, and distinctly elevated above the surrounding parts. At the end of twenty-four hours the swelling on the lumbar region had disappeared, but another, similar and of nearly equal proportions, had developed on the inner side of the right thigh, near the body, and after a few hours still another on the left side of the face, involving the circumorbital tissues and eyelids. These disappeared in turn, but one developed on the left thigh just above the knee, and at the end of a few hours there was a large patch on the right arm. The dysenteric symptoms continued, the abdomen was more protuberant, and it was evident that with much gas there was now some effusion. For nearly a week there was no great change. The eruption disappeared at one point and reappeared at others, until a large portion of the cutaneous surface had been involved, but the points presented the same general character, never coalesced, and no two were ever in the same stage of development or decline. There was a degree of tenderness on pressure, with a sensation of burning, but little pain and very slight discoloration. On the eighth day the dysenteric symptoms had subsided; the abdomen had become less protuberant and, whether from the influence of treatment I am not able to state, the eruption had almost disappeared, leaving the patient, I stated, more comfortable than before, and apparently emaciated. The nephritis continued, and the patient eventually had convalesced with nothing. Treatment failed and discontinued in December.

The case from the beginning had perplexed me, and my perplexity was not lessened by the appearance of the eruption. My first thought was that the swelling of the abdomen and the eruption were the forerunners of general dropsy consequent upon the condition of the heart and kidneys, but I remembered that dropsy from cardiac and renal disease is never confined to restricted areas in the less dependent parts of the body and never definitely bounded. While the abdomen was protuberant and the patches of eruption were so prominent upon the back and thighs, there was no swelling of the ankles or of other dependent parts. There was not at any time the slightest discoloration of the parts of the skin involved by the eruption, nor was there complaint of itching. After thinking over the original seizure and the order in which the symptoms had appeared, I concluded that the abdominal distress and the eruption were due to the same cause, and that the case was one of angioneurotic oedema consequent upon disorder originating in the intestines intercurrent with nephritis. It was certainly not the form of oedema common as a result of derangement of the circulation incident to organic disease of the heart, or of nephritis, acute or chronic.

At the request of the family Dr. Thomas C. Hoover was called in consultation. He was, of course, given ample opportunity for examination, and stated that he thought the case one of angioneurotic oedema complicating, or intercurrent with, dysentery and nephritis.

CASE II.—The subject of the second case was a male of thirty-five years, by occupation a tailor. His general history had been uneventful, though for a year or more prior to the time he came under my observation he had suffered somewhat from dyspepsia incident to gastric catarrh of mild form, and he thought "from excess of uric acid." Two days prior to the time he consulted me he had, while in usual health, and without assignable cause, a slight rigor followed by nausea without vomiting or diarrhoea, but with gripping pain. The evening before he had been annoyed by an uneasy sensation on the left side of the face, involving the forehead, temple, and the cheek, and within a couple of hours the affected parts became swollen to such degree as to close the eye. When I saw him the eye was still swollen and the affected parts of the skin, though smooth and glistening, dense and brawny, were not discolored and did not pit on pressure. The swelling was distinctly outlined and separated from the sound skin by a raised border. The patient complained of tension, but of very little pain. He was still suffering from pain in the abdomen, which was somewhat distended and tympanitic. There was elevation of temperature to 101° F. Twenty-four hours later the swelling of the face had in large measure subsided, but had been followed by another on the left side of the chest over the pectoralis muscle, extending downwards to the lower border of the mammary region and somewhat into the axilla. Within twenty-four hours another of the same type had appeared on the right thigh. Meantime, though the bowels had been thoroughly moved by a cathartic, distention and pain of the abdomen, though less, remained, and the fever continued. Within the next two or three days points of eruption appeared on various parts of the body, but none as large as those which have been described. On the fifth day the eruption had almost disappeared. Since it had subsided, there was very little intestinal distress, and in a few days the patient had regained his ordinary health.

CASE III.—Within a few days after I had dismissed the tailor Dr. Clement Jones reported a case under his observation. The patient was a clergyman, aged sixty-five, whose health had generally been good, but who had suffered on two or three occasions from what he had been told was hepatic colic; but, so far as could be learned, he had sustained no attack similar to that which brought him under Dr. Jones's notice. Like the tailor, he was seized suddenly with pain in the abdomen, a sensation of distention, nausea with vomiting, and swelling of the scrotum and of the prepuce, which within a few hours attained enormous proportions in both parts. There was also in the lower left quadrant of the abdomen a patch of eruption not connected with the swelling on the penis and scrotum. Within fifteen hours there was swelling also of the lips, and of the fingers of the left hand. A physician who was called soon after the seizure, but prior to the appearance of the eruption, made a diagnosis of hepatic colic and, with the probable necessity for operation in view, had the patient transferred from his residence to a hospital where Dr. Jones saw him, and declared the case to be one of angeioneurotic oedema.

CASE IV.—The subject of the fourth case is a female of forty years, somewhat anæmic and dyspeptic, but otherwise in fair health. In her case the eruption appeared suddenly after gastric and intestinal disturbance incident to fatigue and over eating. It involved the left labium majus, and, successively, various points on the trunk, the legs, and arms, but not the face.

CASE V.—The subject of the fifth case is H. S., an attorney, aged twenty-five or twenty-six years, tall and slender, with dark eyes, dark hair, and dark complexion. The day before seeking my advice, while engaged in official duties, he had a chill followed by fever, headache, muscular pains, a sense of weariness, and general depression; sore throat, cough, and abdominal pain with slight diarrhoea. The temperature was 102° F.; the fauces were hyperæmic and tumid, but not ulcerated, nor was there any false membrane. The cough was annoying, but there was little expectoration. The sounds of the heart were normal. I made a diagnosis of influenza of catarrhoenteric type. On the morning of the ninth day there was a nodular swelling of half the size, and nearly the shape, of the smaller end of a hen's egg, which had appeared during the night. It was rather accurately bounded, rather firm, and almost painless. There was no discoloration of the skin, but there was slight itching. On the anterior and inner aspect of the right leg, midway between the ankle and the knee, there was another swelling of the same character, somewhat larger and perhaps less defined, also somewhat tender, but not painful. Both extended during the day, and by evening that on the forehead had increased so greatly as to close the eye and puff the cheek, but there was no increase of pain or tenderness. On the tenth day, by afternoon, the swellings had measurably subsided; the throat was not so sore, but the cough had increased and there was more expectoration. I decided that I had in charge a case of influenza complicated with mild angeioneurotic oedema.

These reports include a description of the phenomena of five cases of angeioneurotic oedema. It will be noticed that in all, though the histories of the patients prior to the appearance of the eruption varied, the symptoms immediately preceding and attending its development were in one important particular practically the same; in each there was abdominal distress, with more or less distention, due in the first partly to serous effusion, but mainly in that case, and in all the others, to accumulation of gas, followed in a few hours by the eruption, which,

though it appeared in different parts, presented in each essentially the same features. None of the patients had suffered previously from a similar attack, no evidence of heredity could be traced in any, and so far none has had a return. The skin was but slightly reddened, and there was but little itching.

The malady was formerly and by some is still called giant urticaria, the name angeioneurotic oedema having come into use seemingly because of doubt in regard to its identity. Whether of the same nature as urticaria, angeioneurotic oedema certainly has some features in common with that disease, which, as everyone knows, in the majority of cases begins in disorder of the functions of the stomach or of the entire alimentary canal. I had nearly said always, but urticaria does occasionally originate from direct irritation of the skin alone, as proved by those cases in which the eruption appears after exposure to cold, and by a case which came under my observation a few years since. The patient, a young woman, applied for vaccination, which was performed in the ordinary way. Within fifteen minutes after the insertion of the virus there was itching in the neighborhood of the incisions, quickly followed by the characteristic eruption, which soon spread over the arm and in a few hours over nearly the entire body.

So far as my observation extends, and as I have been able to ascertain from the recorded observations of others, gastrointestinal disturbance precedes the eruption in nearly, if not all, cases of angeioneurotic oedema, antedating the eruption in some so long as to lead to the impression that the sole trouble is in the intestines; now and then so severe as to cause obstruction simulating that incident to invagination, torsion, and neoplasms. Thus, Dr. Harrington, of Boston, in a letter which I received from him some months ago, mentioned a case in which there was obstruction and, notwithstanding the presence of the eruption, laparotomy was performed and revealed oedematous thickening of the transverse colon without other lesion.

In the first of my cases there were dysenteric symptoms; in the second, nausea and pain without diarrhoea; in Dr. Jones's there was vomiting and intense pain with constipation. In most cases of urticaria, whether acute or persistent, the eruption is preceded by acid eructations, vomiting, and occasionally diarrhoea, pain or other symptoms of indigestion, but, as has been stated, one sees a case now and then in which there is no appreciable disorder of the digestive apparatus.

Though Hare and others think it possible, there is no positive proof that angeioneurotic oedema is ever caused by the influence of special articles of food, such as strawberries and the like, so often the cause of urticaria. But while not due to the influence of such articles, or to the toxins formed outside the body found in sausage and ham, in decomposing and diseased meats, from the order in which they appear and their uniformity, I am inclined to the belief that they are due to the influences of a specific agent generated in the intestines through reaction between vitiated secretions and the food, or by reaction between the ordinary intestinal bacteria and articles of food normally free from irri-

tating qualities and wholesome; in other words, I think the disease a type of autointoxication.

If we separate angeioneurotic oedema from urticaria, it would seem that in both diseases the pathological changes, however they may originate and whatever their nature, involve the vasomotor alone or the vasomotor almost to the exclusion of other parts of the nervous system. The irritation, at first local and confined to that portion supplying the intestines, extends through reflex influence or absorption, and involves the entire system. No structural change has been discovered, and it would appear that the disease is properly classed as a functional vasomotor neurosis, but one in observing its phenomena naturally inclines to the belief that it is not identical in aetiology with that of urticaria, erythema multiforme, or erythema nodosum. The doubt seems to be shared by many and probably, as has been seen, suggested a new name for the malady under consideration. Contrary to what is often observed in urticaria, the subjects of angeioneurotic oedema are mostly of adult age. In all of the cases, which have passed under my observation the patient has been an adult, and I have not been able to find the history of one in which the subject was a child. In this country, at least, more males are affected. While it is probably not general, all of the sufferers who have come under my observation have been persons of dark complexion, anæmic and neurotic, but without other peculiarity. Facts recorded by several writers go to prove that the tendency is sometimes inherited and transmitted through several generations.

The eruption varies in severity and extent, but is essentially the same in type. In all of my cases it was more prominent on the trunk and face, but it often appears on the hands, fingers, lips, ears, the scalp, or the genital organs, and now and then in the throat and larynx. Death has occurred in more than one case from the rapid development of the eruption in the fauces and larynx.

The points vary greatly in dimensions; they may not exceed those of the more common urticaria, but are ordinarily much larger. In some cases an entire extremity is implicated and the swellings, as in those mentioned by Dr. Osler and Dr. Milroy, of Omaha, are more or less permanent. In Dr. Milroy's cases the disease affected twenty-two individuals of six generations and appears to have been inherited. The oedema was congenital, more or less permanent, and confined to the legs. It was not attended with gastroenteric disturbance or by itching and burning. From such notable variations in the symptoms of these and the two cases mentioned by Dr. Osler (in each of which the swelling, which did not appear suddenly, was confined to an arm, permanent, but increased by exertion) and those which I have described, it may be questioned whether they were typical cases of angeioneurotic oedema.

There was no great change in the color of the affected parts of the skin in any of my cases, and I am inclined to think that discoloration is less common in angeioneurotic oedema than in urticaria, erythema nodosum, and some other maladies, but in some there is a very decided change in the direction of redness or pallor. Hare states that the hue of the area affected may be deep red or that of intense

congestion, while in others it is so pallid as to be cadaveric.

Itching is a constant and prominent symptom of urticaria and of many but not every case of angeioneurotic oedema. Stelwagon, Hare, and Tyson assert that itching may be intense, which is undoubtedly true, but while my patients all complained of tension, tenderness on pressure, and slight pain, none suffered severely from itching.

The disease is uncommon, but one which any practitioner may encounter at any time. Because uncommon and the phenomena unusual one may hesitate to announce a diagnosis, and for this, if for no other reason, familiarity with the symptoms is as important as familiarity with those of many other maladies to which higher rank has been assigned. The symptoms are distinctive and with a moment's reflection the nature of the malady may be quickly understood. The invasion is sudden. The points of eruption differ in size and appearance from those of any other disease. They resemble somewhat those of local oedema from other causes, but differ in that they appear without antecedent local irritation, in being multiple, and appearing in successive crops on different parts of the surface. Oedema from local causes has a history of injury and the swelling is uniformly confined to a single part or locality. Further, in acute oedema from local irritation, there is more of pain and tenderness on pressure, frequently with more or less redness, which in many cases of angeioneurotic oedema is absent.

In ordinary or true urticaria the eruption appears rather more suddenly, is more abundant, spreads more rapidly, covering often in the course of an hour or two the larger part of the cuticular surface. It consists at first of circular or elongated wheals slightly elevated and of the same color or paler than the normal skin, quickly becoming pink, and is uniformly attended with intense itching, a symptom often absent in angeioneurotic oedema. The eruption of urticaria is symmetrical, or quickly becomes so, and sometimes attended with articular pain or arthritis, while that of angeioneurotic oedema rarely appears simultaneously on opposite sides of the body, and the joints are never involved.

There is some resemblance also between the eruption of angeioneurotic oedema and that of erythema nodosum, but the resemblance is not strong. In the larger number of cases of the latter malady the subjects are children or young adults, the eruption (always symmetrical) is confined to the anterior aspect of the legs or of the arms. The points are not so numerous, or are closer together, uniformly reddened, firmer, more resisting, excessively tender, and in most cases accompanied with pain and swelling of the larger joints like the pain and swelling of acute rheumatism, and there is higher and longer continued fever.

The eruption of erythema multiforme of the marginate or "patchy" type may appear upon any part of the body, but occurs more frequently on the trunk or thighs, and does not develop so suddenly, is not so much elevated, and has more the appearance of contusions, whereas in angeioneurotic oedema, though there are many exceptions, the skin is not discolored. In erythema multiforme of the

type mentioned there is little local discomfort, while in angeioneurotic oedema there is complaint of tension and weight, with or without burning and itching. This marginate or patchy type of erythema multiforme is associated in many cases with the vesicular or bullous, while in angeioneurotic oedema, though the points vary in dimensions, the type is uniform. The eruption of erythema multiforme is of long duration, while that of angeioneurotic oedema is ordinarily evanescent.

Swellings having some resemblance to the eruption of angeioneurotic oedema are seen sometimes in hysterical women. They are not attended by intestinal disturbance, or abdominal pain, are single, more or less permanent, and may be accompanied by paralysis of motion or anæsthesia and by muscular contractures, or both.

Rarely, in tertiary syphilis, nodes having the general appearance of the points of eruption of angeioneurotic oedema may appear at one or another point, but more especially on the forehead, above the orbits, or over a malar prominence. The swellings develop more slowly, are rarely or never multiple, and while the skin is perhaps paler than natural it is not so tense or glistening as the eruption of angeioneurotic oedema.

The prognosis, except when the faucial and laryngeal mucous membrane is involved, as regards life is good, but one attack predisposes to others.

There does not appear to be any remedy which exerts specific control. In other words, the treatment is symptomatic and empirical. In most cases relief follows free purgation; the diarrhœa and other abdominal symptoms subside and the eruption disappears soon after the action of the purgative. Local applications of soothing nature bring a degree of comfort but do not modify the eruption. In the management of the cases which have come under my observation I used antipyrine, cocaine, morphine, and a solution of lead diacetate as local remedies, but I cannot state that material benefit accrued from any one or other of those remedies. I did not prescribe infusion of ipecac, which often affords quick relief in the more common nettle rash. Following the recommendation of Dr. Osler, I prescribed nitroglycerin in two cases and got better results than from aconite and acetphenetidin, which I prescribed in the others. Possibly gelsemium or veratrum viride might prove beneficial.

229 EAST STATE STREET.

HYSTERIA. NATURE OF THE MALADY.

*Diagnostic Significance of Its Motor, Sensory, and Psychic Manifestations. Its Medicolegal Relation.**

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The study of hysteria and the appreciation of its multiple phenomena present one of the most delicate problems of neurology. The morbid manifestations of hysteria have been a source of great interest to all accurate observers.

At that period of history when the views of Plato

and Hippocrates agreed the hysterical disturbances were attributed to the genitalia and particularly to the uterus. The uterine theory to which hysteria owes its name has had its almost unbelievably stronghold upon the medical mind until comparatively recently. Observers, like Boerhave, Hoffmann, and others soon recognized the fragility of the uterine theory and instead advanced a nervous theory, but they believed in it only in a vague manner; to them hysteria was due to a vicious condition of the nervous spirit. In 1618 Lépous and in 1681 Sydenham were at first the only two men who broke into the old Hippocratic view and placed the cause of hysteria in the brain. They were soon followed by others.

In view of these multiple theories one can readily see why hysteria could not be properly recognized. Skepticism entered the field; manifestations of hysteria were either ignored or considered as being simulated; finally, all varieties of peculiarities of human acts were considered as belonging to hysteria.

The advent of the school of the Salpêtrière with Charcot at its head made an epoch in the history of hysteria. The disease was given the first proper interpretation and placed upon a solid scientific basis. This great work can be summarized as follows:

Hysteria is a well defined morbid entity which, in spite of the multiplicity of symptoms, presents its special physical and psychic stigmata which by virtue of their constant presence are characteristic. Charcot said that hysteria was essentially a psychic malady, and this was practically accepted by all. This view led to formation of a special philosophical school which endeavored to find an explanation for each of those multiple manifestations of the neurosis from the medical and psychological points of view. The modification of conscience and of the personality, of the anæsthesias, of the amnesias, and of other various phenomena observed in hysteria presented a very large field for speculation in the domain of cerebral functions. As the question stands now, one fact is definitely accepted, viz., that hysteria is in reality a psychic affection which in view of a special irritability of the nervous centres, reproduces to an exaggerated degree various manifestations of nervous activity whether in motor, sensory, or psychic spheres.

The imperfect knowledge of the brain not only from the point of view of its intimate structure, but also of its morphology and physiology constitutes an insurmountable obstacle, for the present at least, to the proper appreciation of the phenomena of thought and of various sensory and motor reactions dependable upon the thoughts.

It is not my intention to enter before you into a fine psychological discussion of the hysterical manifestations and of their relation to normal psychic and physical phenomena. As the subject has no material basis in the sense of a well defined pathological substratum, such a discussion will be only encroaching upon your valuable time without scientific means of substantiating the arguments. I will, therefore, confine myself exclusively to the practical side of the study.

It has been a matter of common observation that the essential characteristics of hysterical individuals

* Read before the Philadelphia County Medical Society, December 10, 1900.

is the extreme impressionableness and susceptibility of their nervous centres. This fact offers at once the key for the explanation of the innumerable physical and mental manifestations of hysteria. It explains the influence of a provoking agent upon the development of the malady, also the great mutability of the stigmata from time to time in the course of the affection. But this peculiar reaction of the nervous system is possible only when the latter is especially prepared for it. The question of *predisposition*, therefore, plays a paramount rôle. A special make up of the nervous system is usually inherited. Briquet indicated long ago that half of hysterical mothers give birth to hysterical children. Batault, in his studies on hysteria in males, found also 56 per cent. of a similar heredity. The transmission from the mother is apparently the most frequent. A special neuropathic taint is created not only by hysteria in parents, but also by insanity, general mental deficiencies, chronic infectious diseases (tuberculosis), chronic intoxications, particularly alcohol, arthritic disposition, and other disturbances of nutrition.

The just mentioned degenerative predisposition remains in a latent state until an exciting cause will awaken the abnormal nervous system and force it to respond to stimulation. The reaction will of course be also abnormal. The exciting causes are traumatism, emotion, or any physical and mental shock. But whatever the *primum movens* may be, the basis of this affection is a hereditary predisposition, a state of degeneracy.

Let us now enter into the practical side of the subject and consider the clinical manifestations of hysteria. They are *sensory*, *motor*, and *psychic*.

Sensory Disturbances.

They affect the general sensations as well as the special senses. *Anæsthesia* is the most frequent occurrence. It is usually limited and it is apparently paradoxical, as the patient writes, sews, takes a good hold of very fine objects, and, generally speaking, is not inconvenienced by this symptom. Hysterical anæsthesia is decidedly different from the loss of sensations in organic diseases. In the latter the patient complains of the inability to appreciate objects; he sustains burns, dislocations, or fractures without pain. Nothing of this sort is observed in hysteria. Moreover, in a serious material affection of the nervous system the loss of sensation is either permanent or disappears gradually in proportion with the degree of improvement of the affected organ. Hysterical anæsthesia is characterized by its mobility; it disappears and reappears, becomes altered in its intensity under the influence of the most insignificant cause. The seat of hysterical anæsthesia presents a great variability; it may be confined to very small areas on the limbs, or, what is more frequent, to geometrical segments, and we speak then of glove like or stocking like anæsthesia. Finally, an entire half of the body may be affected and we say *hemianæsthesia*. Among other regions in which the loss of sensations is frequently observed is the pharynx. The anæsthesia may not be absolute; we then deal with a diminished sensibility or *hyperæsthesia*. Lost or decreased sensation may be observed as regards to all forms of sensations—touch, pain, and temperature.

The special senses also suffer sometimes in hysteria: Taste, smell, audition, and vision, are not infrequently involved. We know of perverted hysterical taste or smell. Hysterical deafness is a well known occurrence. Special mention must be made of the visual disturbances. Total amaurosis is rare, but contraction of the visual fields, disturbed perception of colors, and disturbed accommodation are quite frequent. As to the contracted field, it is concentric in the majority of cases; it is more often bilateral than unilateral. To this symptom is frequently added disturbance of color perception; it may be dyschromatopsia or achromatopsia. In hysteria the anæsthesia may be associated with or substituted by *hyperæsthesia*. Excessive sensibility is rarely generalized; it is usually confined to a limb, to a segment of a limb, to a very small area. It is also characterized by its mobility, disappearance, and reappearance. There are certain zones which are quite constantly found hyperæsthetic, viz., the spinal column, the inframammary regions, the sternum, and the groins. The spinal hyperæsthesia may simulate Pott's disease, but the integrity of the reflexes will at once eliminate the latter.

Hysterical *headache* is not infrequent, and may assume the form of migraine or syphilitic headache by its exacerbations at night. If vomiting is present, cerebral tumor may be thought of instead of hysteria. I have at present a case in point:

A middle aged woman of the higher strata of life, whose heredity was distinctly neurotic and whose personal previous life was full of provocative incidents, such as late dinners, parties, and other exciting elements, such as admiring Don Juans, while entertaining one of her visitors, fell accidentally and struck the back of her head. Screaming followed, and since then she had been spending her time in groaning, complains of excruciating pain in one limited silver dollar area of the scalp. She was given the advice to undergo an operation, as her family physician thought of a cerebral hemorrhage. Three weeks later I saw the patient and revealed a multitude of hysterical stigmata and the painful area was not at all painful when engaged in a rapid conversation. The patient is now about and is able to take her daily drives in the park and go to the theatre.

Hysterical pseudomeningitis is a well known syndrome; general malaise, anorexia, insomnia, headache, and delirium are present. What will differentiate it from true meningitis, is the persistent absence of fever.

Hyperæsthesia of the epigastrium accompanied by pains may simulate gastric ulcer or tabetic crises, but the special signs of the latter will enable to make a correct diagnosis. Localized pains at the level of the various organs may simulate organic affections of the latter; there will be no difficulty in diagnosing them by a thorough examination of the patient.

MOTOR SYMPTOMS.

Paralysis and contractures are very frequent. Palsies of a segment of a limb, monoplegia, hemiplegia, and paraplegia may occur. Hysterical palsies and contractures vary considerably from the standpoint of their onset, duration, and mode of disappearance. They may last but a few minutes or persist for years. Their essential feature lies in

complete absence of objective disturbances of organic manifestations. Never will you find total absence or exaggeration of reflexes, toe phenomena, muscular atrophies with the reaction of degeneration or other special characteristics which we are accustomed to observe in organic diseases of the nervous system:

A woman of twenty-five had for two years a contracture of the last two fingers of the right hand. Surgeons examined her repeatedly and an operation was suggested. I was asked for an opinion by a very conservative surgeon. The patient presented an array of hysterical stigmata as described before. I engaged her in as interesting a conversation as might be to a young woman well cognizant of her attractive appearance, and whose ideals were not of very solid order. I could, then, without the slightest difficulty extend the contracted fingers. As soon as the conversation ceased, the fingers returned immediately to their former position.

A man of thirty-five, being frightened by a runaway horse, fell. When he attempted to get up, a left hemiplegia was noticed. The diagnosis was made of cerebral hæmorrhage. For four months he was kept on a diet, consisting mainly of potassium iodide, with this result that gastric intolerance to any organic food became very marked. Disheartened, the physician appealed for assistance. Upon examination I found that not only the typical, but also the secondary symptoms of an organic hemiplegia were totally absent; the patient presented a typical hemianæsthesia, pharyngeal anæsthesia, etc. The affected limbs were flaccid, reflexes absolutely normal, the power of individual muscles well preserved. A brief treatment with a static breeze removed completely the hysterical paralysis.

Besides the limbs, other portions of the body may become paralyzed or contracted. *Blepharospasm* and *facial hemispasm* are not very rare. Hysterical *torticollis* is differentiated from a genuine *torticollis* by this manipulation that the head in the former can be easily placed in a straight position, but it returns as soon as it is abandoned. Hysterical *coxalgia* can be recognized by the absence of swelling and of increased local temperature, of pain when the great trochanter is percussed and by the absence of crepitation, of subluxation when the patient is anæsthetized. An interesting motor phenomenon occurring in hysteria is *astasia abasia*. It consists of a functional impotence in gait and station; the patient cannot stand or walk, but when seated or bedridden he is able to perform all movements with his limbs.

Hysterical individuals may be affected with choreiform movements or present special tremors. The latter are essentially polymorphous in character; they may be slow, rapid, slight, or pronounced.

The viscera are not exempt from hysterical disturbances. The larynx may be the seat of various symptoms. Aphonia is not infrequent; patient is unable to raise his voice. The laryngoscope will reveal total absence of palsy of laryngeal muscles. Various laryngeal noises are also observed. Hicough more or less loud, and sometimes resembling the barking of a dog is occasionally observed. Hysterical dysphagia consists of an intermittent spasm of the pharynx and œsophagus. Anuria, retention of urine, and polyuria are symptoms observed in hysteria. I refer you to a very interesting case published by me in the *Medical Record*, August, 1900,

of a woman who became anuric after an emotion and who recovered after a brief course of suggestive treatment.

A specially interesting chapter of the study of hysteria constitute the psychic symptoms.

In order to understand the various mental phenomena, it is necessary to take into consideration the underlying basis of the hysterical make up. The peculiar predisposition emphasized at the beginning of the present study paves the way and prepares the individual for a very important phenomenon, viz., *suggestibility*. Hysterical subjects are easily influenced to change their thoughts, to do certain acts, to acquire certain sensations in the general sensorium or in the sphere of the special senses, to execute or to adopt certain motor phenomena. The history of the experimental palsies, amnesias, anæsthesias, contractions, and hallucinations, modifications of the personality, are the best illustration. Complex suggestions containing a large number of associated movements or images are as well characteristic of hysteria. The old magnetizers and modern hypnotizers understood well these phenomena and obtained brilliant results from their treatment. Suggestion presupposes absence of personal perception; the hysterical subject is not conscious of the suggested act, he does not understand it, he does not connect it with his own personality; the suggested ideas develop in him automatically without the controlling power of the will. For the same reason self-suggestion is also observed. By means of a curious association of images, through the remarkable tendency to reproduce what they see or hear, thanks to the exquisite sensibility and extreme impressionableness of their psychic centres, hysterical individuals may create real hallucinations which in their turn may become the point of departure for delusions. In a case reported by me in the *American Journal of the Medical Sciences*, April, 1906, numerous psychic phenomena of autosuggestion developed under the influence of reading or seeing:

The patient once read a novel in which the heroine was persecuted by another woman who fell in love with her lover, the persecution consisting of plotting, putting poison in food. Two days after she got through reading the book, she became very suspicious of everybody about her; began to lock her door, armed herself with knives, refused to eat food prepared by her mother. The condition lasted two days, when the persecutory delusion began to disappear. On another occasion she read a novel containing a description of a marriage and a trip abroad. Some time later she came to my office, and showed me a wedding ring on her finger; she told me that she got married and described the places she visited during her trip abroad.

I refer you to my original article on this subject for further details of this remarkable case of autosuggestion.

Briquet and Charcot long ago pointed out disturbances of memory in hystericals. The latter are often accused of simulation because they contradict themselves. Their untruthfulness and variability of their answers are the result of temporary amnesia. The latter also explains the capriciousness and inconsistencies in their mode of living and conduct.

I now call your special attention to so called *hysterical paroxysms*, or attacks in which there is a combination of physical and mental manifestations.

They are observed quite frequently in the course of hysteria. The evolution of the symptoms reminds us of epileptiform seizures, but they differ essentially from the latter.

An attack is usually preceded by prodromal symptoms, which are of a psychic order. The patient becomes sad, depressed, or else very excitable; sometimes he has visual or auditory hallucinations. An aura is present, but it is slow in coming on; it is usually the well known "globus hystericus," which gradually ascends from the epigastrium to the throat. When the patient becomes unconscious or rather semiconscious, he is seized with tonic and clonic twitchings which, unlike epilepsy, are of a wide range and last longer. They may be succeeded by or replaced by contorsions. The latter may be various; flexion or extension of the trunk and of the limbs, rotation of the head, passionate attitudes, or other most improbable positions. At this period the patient cries and screams, has hallucinations. When relaxation takes place, the patient becomes delirious, makes gestures, talks in a low tone of voice. Gradually, and sometimes suddenly, the patient awakens and the crisis is over. An attack usually lasts from ten to fifteen minutes.

Alongside of hysterical delirium there is another psychic manifestation deserving proper interpretation, viz., *somnambulism*. It occurs usually in children. It is essentially a hysterical symptom; the patient gets up in his sleep, opens his eyes, which are fixed and without expression, and executes functions which he is accustomed to perform in waking state, but he does not hear or see anything else. Awakened he has no recollection of the past.

Medicolegal Aspect of Hysteria.

A problem of high importance presents itself to the general practitioner when he is called upon to pass an opinion upon some questions relative to functional disturbances of the nervous system. In cases of railway or other injuries caused by neglect of those who have in charge the management of transportation cars, it is no more than just that the injured person should get remuneration for disability. If, as sometimes happens, the disability is not real and only feigned in all its manifestations, the individual should be condemned for his unjust claim. In both cases the physician is indispensable to the law, and his truthful opinion should have the utmost weight in the minds of the jury and judge.

There is a general belief with the laity and with some physicians that the nervous manifestations in cases of this nature are so vague and so ill defined that they cannot and should not be taken into consideration, and that any physician who will express an opinion based upon a few symptoms is an accomplice of the plaintiff. This is correct only in very rare cases. On the other hand, in some cases an off hand diagnosis of hysteria is made. This, of course, leads to diametrically opposite diagnoses. The evil growing out of the inability of the physician to recognize a traumatic neurosis lies, of course, in the lack of preparedness. Nobody should ever forget that no unusual symptom, however mild, is to be neglected, because it is always the expression of a disturbed function. When a tremor is

present, pharynx and conjunctiva are anæsthetic, when the visual fields are distinctly contracted, can all these symptoms be considered normal, or, otherwise, is any individual capable of feigning them? They are all manifestations indicative of damage done to the nervous system, for this simple reason that normally they do not exist. The fact that pharyngeal anæsthesia, a contracted visual field, etc., do not resemble gross symptoms, such as fractures or lacerations, is not a sufficient, at least not a scientific, reason to reject them, as having no pathological meaning. It is true, we have no pathology of the neuroses; nevertheless we must realize their existence, if only for this common sense reasons that they always present the same symptomatology. Examples of diseases clinically well known but without a distinct pathology are not wanting. Take for example the history of some insanities; no pathology as yet, and still the remarkable regularity in the clinical manifestations of each individual case is striking.

There are two categories of symptoms in hysteria; subjective and objective. The first are usually ignored, as the plaintiff's word about pain, numbness, etc., which it is difficult to ascertain is not material before the law. It is mainly the objective evidences that we are requested to bring forward and explain. It is our solemn duty, in the name of justice to either litigating side to detect or at least not to ignore, any symptom, however mild it may be; it is our duty to make a thorough study of each individual case and give an impartial account of all the symptoms found, irrespective of our personal interest.

The question of prognosis, so often asked in court, can be answered only if an absolutely impartial view is taken of the case; it can be answered in every case, if only each symptom is weighed in relation to others, and none is neglected.

I may add that if the opposing parties would give their medical testimony in conformity with the true interpretation of the symptoms, our reputation would not suffer the constant reproach: "Doctors always disagree."

Conclusions.

From the foregoing pages it follows that hysteria is a distinct and well defined malady with its autonomous and always the same characteristics, the stigmata of which constitute its exterior manifestations. The mental state of such patients varies infinitely; their extreme mobility turns their life into a perpetual succession of false events. The rapidity and the instantaneity of creation of ideas, of impulses and acts, makes them abandon themselves to impulses which appear in them spontaneously without any preliminary reflection.

From the standpoint of physical manifestations hysteria imitates almost all possible affections, for occurring in any portion of the body it produces symptoms peculiar to this area. If the physician is not prepared and does not possess a sufficient amount of sagacity, grave errors will ensue, a functional disease with a favorable prognosis will be taken for organic affection with an unfavorable or irremediable outlook.

1130 PINE STREET.

CLINICAL ASPECTS OF RECENT DEVELOPMENTS IN THE PHYSIOLOGY AND PHARMACOLOGY OF THE URETER.

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Few organs have been subjected to so little experimental investigation as the ureter. Engelmann published the first results in this connection thirty-eight years ago. His paper consisted of a careful description of the peristalsis of the ureter *in situ* in the dog, cat, rabbit, and rat. Since then related observations have been made by Fagge, Frey, Sokoloff and Luchsinger, and Stern. Henderson and others have observed the behavior of the ureter

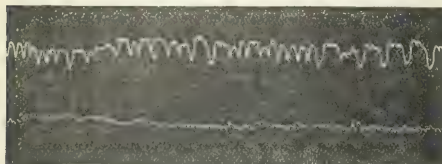


FIG. 1.—Upper tracing from the middle portion of the ureter. Lower tracing from near the renal pelvis. Morphine narcosis.

during investigation of the secretory activity of the kidney.

Although researches have been carried out to determine the effect on the secretion of urine of various artificial pressures acting on the kidney *through* the ureter (the effect of the contractions of the ureter being eliminated, either by paralyzing its musculature by excessive pressure, or by mechanical means), I am unable to find any record of experiments to determine the normal *intraureteral* pressure.

I have also been unable to discover any reference to experimental observations on the pharmacology of the ureter. The lack of this pharmacological knowledge makes desirable a study of the effects on the ureter itself of various drugs and remedies, such, for instance, as are employed for the relief of renal colic due to ureteral obstruction by calculi, etc. It is obvious that we should know something definite about the possible effects on the ureter of anesthetics and of various substances that stimulate or retard muscular activity, since changes in the rate and vigor of ureteral peristalsis may have appreciable influence on the flow of urine. Clinicians, as well as laboratory workers, seem to have ignored these matters.

Feeling that investigation of the functional activity as well as the pharmacology of the ureter has been gravely neglected, I have given considerable attention during the past three years to experimental investigations of several problems related to the ureter.¹

The first series of experiments was undertaken to determine the relation between intraureteral pressure and the peristaltic movements. Sokoloff and

Luchsinger extirpated the ureter and found that under such experimental conditions a direct relation existed between the intraureteral pressure and the rate of contractions. Henderson confirmed this discovery in a few observations made during the investigation of the so called ureter pressure.² Previous experimenters used methods which placed the ureter under very abnormal conditions. My aim has been to disturb the animal and ureter as little as possible.

In the first series of experiments the animals, being anesthetized with ether, an ordinary glass T cannula was placed in a ureter and held in position by means of ligatures. Two new facts were made apparent in these particular experiments:

(1) That ether had a marked influence on the contractions of the ureter; and (2) that a ligature completely encircling the ureter at about the middle of its length, produced a block, beyond which the peristaltic wave did not pass (as is the case in the œsophagus under similar conditions, according to Meltzer, the waves being propagated beyond the block by the central nervous system), a fact indicating deficient control of the middle third of the ureter by the central nervous system. However, the distal end ultimately developed rhythmic contractions, which were entirely independent of and much less frequent than the contractions of the upper part. It will be noted that this is in accordance with the observation of Engelmann, viz., that the middle of the ureter has no nerve cells, or a less number than either end (Dogiel and others).

In the second set of experiments a modified Ludwig-Spengler cannula was retained in the ureter without ligatures, and did not materially interfere with the peristaltic motions, or the flow of urine, thus affording conditions which permitted study of the relations between normal urinary flow and peristalsis. However, the ureter proved so sensitive to the anesthetics employed that it was difficult to find a drug that would produce anesthesia and not at the same time influence ureteral conditions. On

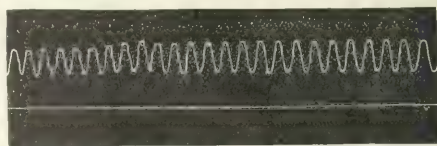


FIG. 2.—Ureteral peristalsis of the middle of ureter. Straight line represents the base line for the ureter pressure. Morphine narcosis.

this account, the original plan of investigation was suspended until the effects of anesthetics on the ureter could be ascertained. It was found that chloroform affected the peristalsis more profoundly than ether, entirely abolishing peristalsis in the middle portion of the ureter even when only a moderate amount was administered, although the secretion continued even if the pressure was somewhat increased in this portion. Thus it became apparent that drugs affecting muscular activity and tone else-

¹In many of the investigations thus termed it was not the pressure of the ureter that was studied, but the pressure of the kidney secretion as observed in a manometer tied in the ureter. The term "ureter pressure" so used, as pointed out by Henderson, is a misnomer.

²For a more complete citation, *Proceedings of the Society for Experimental Biology and Medicine*, 16, p. 61, 1905; also *Science*, 1906, p. 711; *American Medicine*, 33, p. 714; *Medical News*, 1906, p. 17. A more detailed description of the early experimental work given in *The Ureter* presented in partial fulfillment of the requirements for the Ph.D. degree of M. A. at Columbia University, 1905.

where exhibit marked effects on the ureter, the influence being exerted not only by the anæsthetic brought to the ureter in the blood, but probably the action is increased by the drug's excretion by the kidney and the exertion of its direct retarding power as it passes along the ureter in the urine.

The following anæsthetics were studied in this connection: Ether, chloroform, morphine, morphine with atropine, and magnesium sulphate in subcutaneous injections. Control tests were made by intraspinal cocainization and by decerebration. In making the tests with chloroform, it was noticed that not all parts of the ureter were affected alike; the upper part and especially that portion contained in the renal pelvis was least affected. In experimentation in which two cannulas were inserted in the same ureter one near the renal pelvis, another about the middle of its length, it was discovered that the peristalsis of the ureter did not consist of the one simple contraction wave described by Engelmann, but that the upper part of the ureter also exhibits contractions of another type,³ which are smaller, of shorter duration, and occur more frequently (every two or three seconds) than those described by Engelmann. The contractions of the middle of the ureter occur at intervals of six to fifteen seconds, and are much larger (Fig. 1). The

the peristalsis occurred, which phenomena could also be elicited by sudden irritation of the nostrils with a probe, an observation very strongly suggestive of a reflex.

Moderate doses of caffeine caused various effects in the different parts of the ureter, the portion in the renal pelvis regularly contracting in a somewhat tonic manner and causing thereby a very pronounced rise in pressure for a short time. This

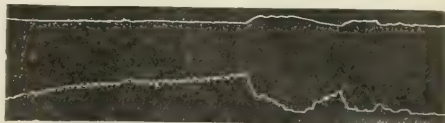


Fig. 4.—Upper tracing from the middle portion of the ureter. Lower tracing from the renal pelvis. Immediately after venous infusion of a weak caffeine sulphate solution.

pressure appeared to be attainable through the agency of a sphincter like action of the isthmus of the ureter, which prevented the urine from escaping. The pressure in the straight portion did not exhibit a simultaneous change (Fig. 4). It seems from these observations that the ureter undoubtedly consists of at least two physiologically different portions; one, which is characterized by greater activity and greater susceptibility to nervous impulses; another, a more automatic, sluggish, unnerved portion.

The automatism of the middle portion of the ureter is in many respects surprising. Contractions of this portion of the ureter of a dog killed by pithing were observed two or three hours after the heart beats and respirations had ceased and the voluntary muscles were in a state of rigor mortis. It is even possible after this period of time has elapsed to obtain tracings on a smoked drum by making the usual connections and placing the kidneys, ureter, and adjacent portion of the bladder in warm physiological salt solution. In fact, the effects of drugs, such as caffeine and chloral, or conditions of heat, cold, etc., on the ureter from which all secretory action of the kidney had been eliminated, were studied in this way by suffusion and perfusion (Fig. 5). The observed influences of these drugs on this portion of the ureter in the living animal were thus confirmed.

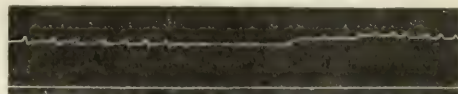


Fig. 5.—Tracing from the middle part of the ureter, one hour after the animal had been killed by pithing, with kidney, ureter and adjoining portion of the bladder, washed, and in warm Ringer solution. Shows stimulating effect of caffeine, temporary cone contraction caused by it, and subsequent marked increase in rate. Time, six seconds.

results in animals anæsthetized with cocaine or by decerebration were so similar to those in which morphine was used that for the sake of convenience most of my experiments have been carried out on animals under morphine narcosis. When the animal was in this condition the intraureteral pressure observed with the aid of an improved cannula in the middle of the ureter remained very slightly positive, the peristaltic waves occurring at regular intervals (Fig. 2). Under these conditions the administration of chloroform caused marked decrease of both the extent and frequency of the contractions of the middle part of the ureter (Fig. 3), and if continued completely abolished them. Sometimes when the administration was brief, the deteriorating effect did not set in until a little while after the use of the anæsthetic was discontinued. Shortly after recovery from the evil effects of the anæsthetic in some of these cases another period of deterioration set in as a second after effect.

Frequently when ether was suddenly exhibited in the respired air (inhaled per nares, not by tracheal cannula), a temporary change almost instantaneously appeared in the curve representing the peristalsis of the renal pelvis, or entire cessation of

A more detailed description of the contractions of the different parts of the ureter was published in the *American Journal of Physiology*, vol. 1, p. 292, 1906, which study I continued last summer at the Rockefeller Institute for Medical Research under the direction of Dr. S. J. Mott.

In experiments on the ureter *in situ*, in which it was suddenly occluded below the distal cannula, the contractions of the middle portion became more and more frequent and of larger size. The urine accumulated and the pressure became greater. The peristalsis increased until a point was reached when apparently, from fatigue, the ureter relaxed, the pressure fell, and the waves disappeared for a short

time from the middle portion and appeared in the pelvis, after which the record was repeated (Fig. 6), the whole phenomenon taking place in a manner very suggestive of clinical renal colic due to calculi or other obstructions, in which the pain, moderate at first, steadily increases to an almost intolerable degree, then suddenly ceases, shortly to recur. When chloroform was administered during these experiments, a marked depression of the contractions of



FIG. 6.—Upper tracing from the pelvis, lower tracing from the middle part of the ureter. Two fifths the original size. A rise in the pelvis curve corresponds to a drop in the ureter curve. Oscillations in the pelvis curve are hardly visible. Straight line represents base line for lower curve, horizontal part of upper curve the zero pressure. Time, six seconds.

the ureter was elicited, even by small amounts of the anæsthetic. This fact indicates a mode of action of this drug besides that of pure anæsthesia when it is used for alleviating the pain of renal colic. It markedly disturbs the pressure relations in the different parts of the ureter (Fig. 7).

Schmiedeberg observed in kidney perfusion experiments that "any obstruction to the flow of the fluid separated into the ureter, either by compression of the ureter or by other unknown causes, makes passage of blood through the kidney vessels difficult." He stated, further, that it is desirable, therefore, to assist in the removal of this exudate or excretion in kidney perfusion experiments by introducing a glass tube into the pelvis of the kidney. In a few of my experiments in which an oncometer was applied to the kidney at the same time that investigation of the ureteral pressure and peristalsis was being carried on, phenomena were observed which indicated that under normal conditions slight variations in pressure in the renal pelvis have a very pronounced effect on the blood flow throughout the kidney vessels. Feeling that more data are necessary before an accurate account of this difficult problem can be given I will refrain from further discussion of it at present. Nevertheless having determined the fact that heat and cold affect the muscular activity of the ureter as it does muscle tissue elsewhere, it seems that this effect should not be lost sight of when considering the mode of action of heat in relieving renal congestion or cold in causing it.

To recapitulate: The ureteral curve, after brief administration of chloroform, shows two distinct periods of retarded peristalsis; one occurs almost immediately after beginning the administration, the second, more pronounced in character, follows shortly after the first, and indicates very strongly that drugs act on the ureter through (a) the blood (see Fig. 3), and by way of (b) the urine.

The different parts of the ureter exhibit contractions which differ in character and persistence and, although brought about in like manner by drugs, the effect differs in degree in the various parts.

The pelvic portion of the ureter maintains a definite pressure condition in the renal pelvis, which pressure as nearly as can be made out at present, is zero. It certainly is not normally positive. The function of the ureter below the pelvic portion is to carry the urine to the bladder. Pressure in this portion varies much more, and may become quite positive without being transmitted to the pelvis; unless pressure sufficient to overcome the musculature is attained (see Fig. 6) or drugs lowering muscular tone are used (see Fig. 7).

It is impossible to express my gratitude to Professor William J. Gies for opportunity to take up my researches, for every facility to carry them out, and for means to continue in research as well as for constant instruction and encouragement. I am also indebted to Dr. S. J. Meltzer, Professor Stanley Coulter, Professor Torald Sollmann, and Dr. A. N. Richards for valuable assistance in my work on the ureter.

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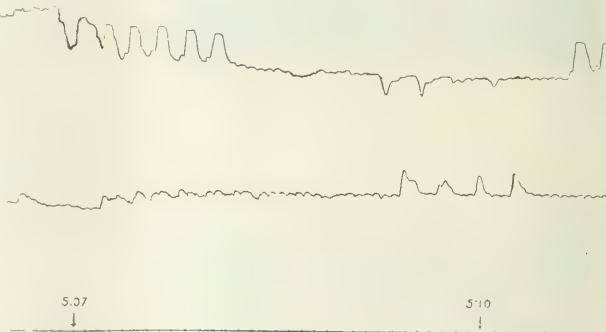


FIG. 7.—Upper tracing from the middle of the ureter, lower tracing from the renal pelvis. Shows the effect of chloroform. (The large elevations on the pelvis tracing correspond to relaxations in the ureter tracing. See Fig. 6.) Time, six seconds.

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ADDISON'S DISEASE IN CHILDREN, WITH THE REPORT OF A CASE.

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New York.

(From the Montefiore Hospital.)

About half a century ago Thomas Addison published a careful study of the disease which now bears his name. Since then, with the accumulation of a

great wealth of literature and many thorough and scientific investigations from the clinical and experimental aspect, the profession can easily recognize this malady; however, the true nature of the causation of the disease remains still obscure in many instances.

The best studies on morbus Addisoni originated with the English. The classical work of Addison, the careful studies and collections of Greenhow, and in more recent times the well known clinical work of Bramwell stand as monumental works of the English. The experimental work of the Germans upon the physiological effects of the adrenals, and their investigations as to the causation of the most characteristic pathological condition in the disease of the adrenal, e. g., bronzing, by such authors as Neusser and Nothnagel, are well known facts to the medical profession.

Notwithstanding this, very little attention has been given to the disease as it occurs in children, perhaps mainly on account of its unusual rarity. The only two important contributions in this respect were made by Monti (22) and Dezirol (13), but since these authors have included cases in their studies in individuals over thirteen years of age, after which age the disease is not at all unusual and resembles exactly the adult form, we believe that their data do not give a true picture of this malady in the child.

As the disease before puberty, i. e., under thirteen years, presents considerable differences from that above this age, and as it is so extremely rare, we have collected and analyzed all the cases at this age and below that we were able to find reported in the literature.

Before taking up the peculiarities of the disease and as a background to our study, we wish to describe a case that came under our own observation, which showed a typical picture of the disease as seen in children, besides some interesting complications from the diagnostic standpoint; this case, as far as we were able to ascertain, is the only case ever reported in America.

CASE.—Helen S., age twelve, born in Hungary, entered the Montefiore Hospital on June 25, 1906, previous to which she came for some time daily as an out-door patient.

Family History: Mother and maternal grandmother died of pulmonary tuberculosis. A brother died of meningitis in a recent epidemic. Father and remaining brother were healthy.

Personal History: Patient had had measles when a baby; otherwise her life had been uneventful. She was reared in a tenement house under very poor sanitary conditions. She had not yet menstruated. Appetite and bowels had always been normal.

Present Illness: Her present illness began in December, 1905, with distress in the stomach and a feeling of weakness coming on in attacks, during which she was prostrated and felt very sleepy. Occasionally she would vomit. Bowels were always regular. Since April, 1906, her skin began to turn brown, gradually getting darker. She never had attacks of syncope or convulsion.

Status Præsens: Girl of average height and development. General nutrition below par. Except for pigmentation of the skin and a slight listlessness she appeared comparatively normal. The skin of the entire body, with the exception of the palms and soles, was deeply pigmented, the color being typically bronze. The pigmentation was much more marked on the ex-

tensor surface of the joints and the waist line, where there was an exceedingly dark band encircling the body about four inches in width. The nails were of a normal pinkish color, contrasting markedly with that of the skin. There were many small patches of pigmentation irregularly distributed over the body that were darker than the surrounding skin. The scalp swarmed with pediculi, the hair felt like oakum, was of a muddy color, in streaks; and hosts of ova were clinging to them. On the outer aspect of the arms, the nape of the neck, and the back, there were numerous scratch marks and parallel lines of dark pigmentation. On the mucous membrane of the lips, gums, and cheeks there were irregular patches of a brownish black color, varying in size from a pea to a small bean. The posterior cervical lymph nodes were enlarged. Heart and lungs were normal, pulse small and weak. Contour of abdomen was normal. The walls were held very rigid. Liver and spleen were not palpable. Lymph nodes of groin were slightly enlarged. (Laboratory reports later.)

Subsequent History: The first diagnosis to suggest itself was Addison's disease, but on account of the pediculosis and general dirty condition, the possibility of vagabondism was thought of. To eliminate this it was decided to cut off her hair and treat the scalp. Her clothing was naturally changed upon her admittance into the hospital, and she was given frequent and careful washings; but still to see whether discoloration was a true melanosis or not, a poultice of soap was applied to the lumbar region for twenty-four hours, but without any change in the color of the skin. Hydrogen peroxide was applied daily for two weeks to the hands with absolutely no effect. Her diet the last few days of life was restricted entirely to milk. On casual observation she appeared quite normal, with the exception of some apathy. Her gait was slow and tired like. At times during the last two or three weeks she was restless and irritable, quarreling with the other children, and although naturally a well behaved child, was now abusive to the nurses and visitors. Her sleep at night was very restless, and during the last week of life she was entirely changed, complaining of loss of appetite, cramps, while the bowels remained normal, sleepiness by day and weakness at night. A day before her death she was found sleeping in a baby carriage in the corridor. On awaking she appeared dazed and bewildered. Under the presumption that her stomach was upset, a cathartic was given and she was put to bed.

On account of the absence of some of the classical symptoms of Addison's disease, severe gastric disturbances, marked asthenia, and attacks of syncope, the diagnosis of morbus Addisoni was still held with reserve, but the mode of termination proved the diagnosis to be the correct one. It is this which makes the case more interesting. Without any apparent cause the child was taken with the most violent and nearly continuous convulsions, succumbing after eight hours.

Mode of Termination: The prodromal symptoms described in the preceding, although when looked at retrospectively, were of great significance, still were not grave enough at the time to warn one of the approaching fatal termination.

July 15, 1906. The first convulsion took place at 7 a. m. This was of the tonic type, followed by clonic contractions of the muscles of the face and upper extremities. Each convulsion lasted about one minute, after which she became comatose. The seizures were repeated at intervals of ten to fifteen minutes. From the first the pulse was barely perceptible. The pupils were dilated and equal, they reacted well to light. The extremities were cold, the finger tips cyanotic. The face was flushed in a pretense perspiration while the skin of the rest of the body was the dirty grey. Com-

perature was 91 F. per rectum, respiration regular. After a few attacks the pupils became contracted, the left more than the right, but later in the course of the convulsions the right pupil became smaller than the left.

8:40 a. m.: A very severe general convulsion, lasting about five minutes, was controlled by a few whiffs of chloroform. The child passed into a deep coma. Hot packs were now begun and repeated every half hour. Still the patient continued having convulsions, during some of which she was in marked episthotonus. Hot rectal irrigations were also given.

10:30 a. m.: At times she appeared conscious, did not, however, respond to questions. She was dazed and restless and tossing about continuously. From time to time there were athetoid movements in the fingers. Both knee jerks were exaggerated, no Babinski, no Kernig. Extremities were, however, continuously rigid.

11:30 a. m.: Chloral hydrate, gr. 15, was given by rectum, convulsions still continued every fifteen to twenty minutes. Hot packs were ineffectual, as the skin did not respond.

12:05 p. m.: By catheter a few drops of clear urine were obtained. No albumin.

1:00 p. m.: Temperature 107° F. Packs discontinued, cold sponges substituted.

1:30 p. m.: Coma deepening, respirations were stertorous, and in the next half hour became of the Cheyne-Stokes type.

2:35 p. m.: Lumbar puncture, dry tap; although several punctures were made.

2:40 p. m.: Saline infusion. (Hypodermoclysis.)

3:15 p. m.: Exitus after a mild convulsion.

After death, examination of the abdomen revealed numerous small oval masses, from one to two inches in length, which were movable and deeply situated, giving the impression of enlarged retroperitoneal lymph nodes. These were not felt during life, owing to constant rigidity of the abdominal muscles. Unfortunately no autopsy was permitted.

Laboratory Notes: Urine of June 30th showed nothing abnormal, except an increase in the amount of indican. This was increased in nearly all examinations. On July 4th, only an excess of chlorides was present. Sp. Gr. 1.014 to 1.015. Diazo reaction proved negative. Blood examination was as follows: July 12th, hæmoglobin, 95 per cent.; red blood corpuscles, 4,500,000; white blood corpuscles, 11,000.

The following is an average of three differential counts:

Neut. pol.	Eosinophils	Small L.	Large L.	Large M. L.
67	19	7	8	6

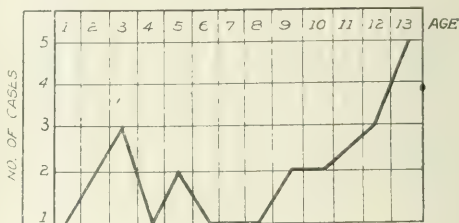
The eosinophilia in the three differential counts at once directed our attention to an examination of the feces, which revealed a very interesting and unusual picture. Each microscopical field showed a great number of oval egg like bodies, measuring about four times the size of a red blood corpuscle. The sytoplasm appeared as a thin but distinct rim around a large oval nucleus, giving the impression of encysted protozoa. To determine the nature of these ova numerous tests were made upon the feces by our resident pathologist, Dr. Kaplan, to whom we wish to express our indebtedness. Various well known pathologists from other laboratories also examined and studied the feces, but were not able to determine the nature of these bodies.

In a survey of the literature we have succeeded in collecting twenty-five cases, including our own. Among these we have found that two cases have been reported by four different authors in different journals; i. e., Bennett's case (7), also reported by Hutchinson (20); and Wilkes' (34), reported by

Aldis (2). We include all cases reported as Addison's disease, but we must state that some of these are rather doubtful, especially that reported by Zinnis (36), in a child of three years, which is said to have been cured. In our opinion it seems to have been merely a case of so called *café au lait*, which is so frequently seen in malnutrition of children. The cases of Coulon (12), Miller and Fleming (14), are also somewhat doubtful, but as these are quoted by other authors we have included them. (Vide table of cases.)

The relative frequency of the disease in children and adults may be judged from the statistics of Monti (23) and Greenhow (16). Monti found among two hundred cases, six in children below thirteen, while Greenhow in three hundred and thirty found it four times, in other words 1 to 62.

With our data at hand we will attempt to establish a clinical picture and describe the peculiarities of the disease in children. One would believe that the condition would resemble to a great extent the adult form, which to a certain degree is true, but there are some striking differences characterizing the malady in the child; for instance, in one case only were we able to find attacks of syncope, and in



only two cases were severe gastric symptoms present.

Etiology: The etiology, as in adults, is in the majority of instances obscure. The main factor is tuberculosis, as it is the most frequent pathological condition found in the adrenals; a tuberculous family history or tuberculosis in the patient is therefore of great significance. However, as Rolleston (21) says of children: "It is of interest to note that in cases of tuberculosis of the other organs of the body, the adrenal glands seem remarkably immune to infection." In children with Addison's disease, suffering from evident tuberculosis of other organs, we would be justified to infer a tuberculous lesion in the adrenal glands. This, however, is not always so, as the patient of Anglade and Jaquin (3) showed no such lesion in the adrenal glands, although extensive tuberculosis in the lungs and spinal cord was present.

Age: Of the twenty-five cases twelve occurred between the ages of ten and thirteen years, four cases between five and ten, while nine occurred below the age of five. The youngest case on record is that of Belyayeff (6), of a child seven days old. It has been noticed before by other observers that, as we approach puberty, the frequency of the disease is increased. The occurrence at the various ages can be readily seen from the curve.

Sex: The generally accepted statement found in

modern text books on pediatrics that the disease occurs far more frequently in boys than girls we have found not to be the case. In our series of cases the occurrence in males and females is about equal, twelve boys and thirteen girls.

Family History: Tuberculosis occurred as a family taint in four cases; in one instance there was marked rheumatic history. There is one instance on record of a mother and four children having had the disease, thus showing the possibility of heredity. See Fleming and Miller (14).

Previous History: In thirteen cases where this was obtained pulmonary and tuberculosis of other organs occurred in three, measles without complications in two, scarlet fever in two, tonsillitis and chorea one, chronic diarrhoea in one, and in two cases the patients were healthy before the onset.

Symptomatology: The disease for practical purposes may be divided into two groups of cases: 1, Typical; and 2, atypical. The onset in all forms is usually insidious. Occasionally it may begin suddenly with acute symptoms, as in one case (Netter, 25), simulating closely acute peritonitis, and was of a fulminating character. In another case (Monti, 22) the onset was like an acute infectious disease.

Typical Form: Is characterized by a slow course with pigmentations, gastrointestinal symptoms, such as distress in the stomach usually coming on in attacks, diarrhoea or constipation, often alternating, prostration, and gradually increasing asthenia. Of our collection of cases fifteen were of this variety, i. e., 60 per cent.

Atypical Form: This includes all cases in which some of the pathognomonic symptoms are absent or which present some very unusual features. Of this type we found seven cases. They may be classified as follows: 1, Acute fulminating type; 2, those with irregular course; 3, doubtful cases; 4, those cases without symptoms were found accidentally at autopsy. In our series there were three such. It does not seem logical to call such accidental findings Addison's disease, when no symptoms described by him as characteristic of the disease are present, even though the adrenals show tuberculosis. However, as such cases are referred to by other authors as Addison's disease we have included them.

Individual Symptoms: Melasma adrenaie. This is the most conspicuous and characteristic sign of the malady, the diagnosis of Addison's disease never having been made where this symptom was absent, even though pathological changes in the adrenals being found accidentally at autopsy. It was the first symptom noticed in nine cases. The color is described by most authors as typically bronze, in one instance a dirty gray, and in another it was the color of a light mulatto. The most frequent site was the face, back of hands, axilla, groin, knees, abdomen, especially the waist band, and genitalia. Usually there is a universal staining of the skin with darker irregular patches varying in size distributed over the body, especially on the face, chest, and abdomen. The mucous membranes, especially the lips and gums, have spots of pigmentation in four cases. We wish to impress here the importance of pigmentation of the mucous membranes, as this is even of more diagnostic importance than the skin, and it seems to have been overlooked by some of the authors. The conjunctiva was found pigmented in one case. On this

occasion we may mention the condition of the hair, which in our own cases and in that of Smith-Shand (33) had a peculiar dirty, streaky appearance, which has been beautifully characterized by the latter "as if stained with silver nitrate." This we think is perhaps of some diagnostic importance.

Gastrointestinal Symptoms: All typical cases show some gastroenteric disturbances; however, in most instances surprisingly mild in character. Only two cases had real violent gastric symptoms. It is very significant that the symptoms come on in attacks independently of the ingestion of food or indiscretion in the diet. Of the fifteen cases in which gastrointestinal symptoms were present, nausea, vomiting, and diarrhoea occurred most frequently, while constipation was rather rare. Most of the cases showed loss of appetite and often a sense of oppression in the stomach; frequently this is the only symptom and usually occurs in attacks. Constipation in a few cases has alternated with diarrhoea. Gastric or intestinal symptoms may precede the pigmentation, as in our own case.

General Symptoms: In almost all cases there was a general weakness, which in eleven of the fifteen typical cases reached the point of prostration. This progresses either gradually or in attacks, after each of which the child is left a little weaker than before, until it finally becomes asthenic. The pulse is small, soft, and feeble, and usually somewhat accelerated. The temperature is usually normal, although occasionally it may be elevated or even subnormal. The blood and urine are, as a rule, normal in uncomplicated cases.

Course: In the typical forms the disease may last from a few months to a few years; rarely it runs a rapid course. There are a few cases on record where there was an intermission of a shorter or longer duration up to one year. As a rule, however, the course is progressively down.

Termination: In children death by convulsions is not at all infrequent. Out of the fifteen typical cases seven died in convulsions. Such seizures may last from a short time to many hours, as in our case eight hours, and in Henoch's (19) convulsions lasted twelve hours. Delirium has preceded the attack of convulsions in a number of cases. A peculiarity seen in children is the sudden fatal termination of the disease with very little premonition, as shown in our case. In one instance a child died suddenly during the night, in another the patient was brought into the hospital moribund. Death in asthenia occurred in four cases, this coming on insidiously until the child finally was completely exhausted.

Pathology: In seventeen cases autopsies were performed; of these sixteen showed a pathological condition, while one, a typical case of Addison's disease, was without any demonstrative change in the adrenal or semilunar ganglion (Richon 30). The following lesions were found in the adrenals: 1, Tuberculosis (10); 2, cancer (1); 3, possible tuberculosis (1); 4, absence of any, with sclerosis of the other (1); 5, sclerotic atrophy (1); 6, abnormal, without any definite statement of the condition in 1 (Smith-Shand, 33).

It is not our intention to give a detailed description of pathological findings, as they have been thoroughly described by many authorities, but we wish to draw attention to the fact that together with tuber-

2. Complicated by vagabondism.
3. Unusual findings in the stool.
4. Eosinophilia.
5. Termination by severe convulsions and coma lasting eight hours.

We wish to express our sincerest thanks to Dr. S. Wachsmann, resident physician of the Montefiore Hospital, for permission to publish this case and for his many valuable suggestions.

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AN UNPLEASANT EXPERIENCE WITH ETHYL CHLORIDE.

By J. TORRANCE RUGH, M. D.,
Philadelphia.

On May 21, 1907, a boy, aged sixteen years, was taken to the Montefiore Hospital for the purpose of removing a sequestrum from the lower end of the femur. A resection of his knee had been done three years previously on account of tuberculous arthritis. This operation was followed by extensive phlebitis with

infection and widespread abscess formation in the thigh and leg, and this in turn by gangrene of the foot resulting in the loss of all the toes and the inner anterior third of the foot. A secondary hemorrhage also occurred at the site of one of the abscess openings which almost proved fatal to him. He, however, rallied and made a slow recovery with a stiff leg and with two thirds of his foot. Several small openings persisted about the knee where there had been extensive femoral involvement, and recently the discharge from these sinuses had become much more profuse. A probe discovered a large sequestrum in the lower end of the shaft of the femur, extending downward to the line of union between the femur and the tibia. It could be moved by pressure, but was too large to be withdrawn through the sinus openings, and it was decided to give nitrous oxide gas to allow incision and curettement for removal of the dead bone. The anæsthetist preferred ethyl chloride, and after the patient was placed upon the table and the leg prepared for operation, the anæsthetization was begun. The general condition of the boy was excellent. His pulse rate was 68, temperature was normal, and respirations 18. An Esmarch chloroform inhaler was covered with six or eight layers of gauze, and the two sides of this again covered with adhesive plaster, a longitudinal separation being maintained for the administration of the anæsthetic. Narcosis proceeded without incident and was complete in two minutes. When surgical anæsthesia was obtained, there were clonic spasms of the legs and arms. The anæsthetic was continued, and these ceased, but the respirations became very rapid, though not shallow, and there was no change in the pulse rate or in the pupils. Immediately following this and just prior to the cessation of respiration, there occurred fifteen or twenty extremely rapid and shallow respiratory movements. As soon as the patient was anæsthetized, the incision to the bone was quickly made and the opening enlarged with a curette to allow the sequestrum to be seized with forceps. Difficulty was experienced in accomplishing this, and it was suggested that a few drops of chloroform be given to prolong the anæsthesia. This was made ready, but had not been given when the patient ceased breathing. The pupils were contracted, the pulse was excellent and not rapid, and the jaw muscles were in a state of spasm. The head was flexed posteriorly, the chin elevated, but no effort at inspiration was made. Cyanosis became marked, the eyes were fixed and staring, but the pupils remained contracted. The jaws were quickly pried open, and the tongue seized and drawn out. The head was lowered and the foot raised. The face became congested, and the lips were a deep blue and somewhat thickened. The muscles of the jaws and neck were still set in tonic spasm. Artificial respiration was instituted according to Laborde's method. Ether was poured upon the chest, and after about eighteen or twenty movements in the work of artificial respiration with rhythmical traction of the tongue, there was a very slight attempt at inspiration, and in two or three more movements this became more pronounced and was soon thoroughly established. The color was quickly restored by the aid of oxygen. The operation was then resumed and completed under ether narcosis. The pulse was but slightly affected during the entire period, and the pupils did not change at all. The time occupied by the whole accident was about five minutes, and that of actual suspension of respiration about three minutes. Very clearly the accident was the result of the ethyl chloride, and it was only by the most strenuous and prompt work that respiration was reestablished and the patient's life saved. In twenty-four hours he was in a normal condition and felt no ill effects from the experience.

The impression has been rather generally gained

from the writings of several men that ethyl chloride is an extremely safe anæsthetic for short operations but the experience of several operators in this city has been such as to restrict its use very greatly. Several deaths have followed its use in different hospitals, and other operators have had narrow escapes very similar to the one just detailed. It seems only wise to publish such an experience as this one so that others may profit by it. The anæsthetic should have been withdrawn when the clonic spasms had lessened, which would have been before the onset of the tonic spasms.

1616 SPRUCE STREET.

MERCURIC VALUES IN THE TREATMENT OF SYPHILIS.

By WILLIAM F. BERNART, M. D.,
Chicago.

Since the more universal adoption of the injection method in treating syphilis, more accurate and scientific observations have been made along this line than ever before. By this method of treatment alone can the exact amount of medicine actually introduced into the system be estimated; it is, therefore, from this method that our future knowledge of mercuric values in syphilis must be obtained. Mercury has ever stood preeminent among all other drugs in the treatment of active syphilis; in fact, it may be considered the specific for this disease. As a rule, mercury is not used in its metallic form, but is given in some of its various combinations, therefore statistics, to be accurate, must be based upon the exact mercurial values of the preparations given and upon the amounts of mercury which have been utilized.

In a recent article,¹ I published the results of an experiment pertaining to the speed efficacy of the various methods of administering mercury in active syphilis. For this experiment I selected eighty-four ulcerative cases and divided them into four classes of twenty-one patients each, arranging them so that the average of the severity of the disease was about the same in each class. It is from this experiment that the following estimates of the mercurial value of the various treatments will be made. In this series, the division into classes and the treatment assigned to them was as follows:

1. Intravenous class. The average daily injection was 0.016 gramme ($\frac{1}{4}$ grain) of corrosive mercuric chloride.

2. Intramuscular class. Of these, sixteen patients were given an average daily injection of 0.013 gramme (1.5 grain) of the corrosive mercuric chloride, and five patients of 0.009 gramme ($\frac{1}{4}$ grain) of the same medicine.

3. Inunction class. The average daily inunction was 150 grammes (68 grains) of mercurial ointment.

4. Internal class. For this, twenty-one patients, seven were given an average dose three times daily, of 0.032 gramme (1 grain) of the yellow mercurous iodide, seven were given 0.009 gramme ($\frac{1}{4}$ grain) of the red mercurous iodide, and seven, 0.005 gramme ($\frac{1}{4}$ grain) of the corrosive mercuric chloride.

The time required for obtaining parallel results was:

1. Intravenous class.....18 days.
2. Intramuscular class.....26 days.
3. Inunction class.....38 days.
4. Internal class.....61 days.

The actual values of the various mercurial compounds used in these experiments are represented in the following table:

0.065 gramme (1 grain) of corrosive mercuric chloride represents a mercurial value of 0.0479882 gramme.

0.065 gramme of mercury succinimide, 0.0328192 gramme.

0.065 gramme of yellow mercurous iodide, 0.0397735 gramme.

0.065 gramme of red mercurous iodide, 0.0286533 gramme.

0.065 gramme of the mercurial ointment, 0.0325 gramme.

From the foregoing statistics, it is a simple matter to compute that the amount of metallic mercury which each class had the opportunity of utilizing before parallel results were obtained, was as follows:

1. Intravenous class, 21 patients in 18 days, 4.4649+ grammes (68.68+ grains).

2. Intramuscular class, 21 patients in 26 days, 5.7122+ grammes (87.78+ grains).

3. Inunction class, 21 patients in 38 days, 1793.50 grammes (27.704 grains).

4. Internal class, 21 patients in 61 days, 39.3798+ grammes (606.29+ grains).

Statistics such as these lead inevitably to certain deductions and comparisons which can be most advantageously made by taking the intravenous method as a standard, for the reason that it produced results in the shortest time and with the smallest quantity of mercury, and that there is no reason to doubt that all the mercury given this class was utilized. Furthermore, this class was kept at a point of intensive treatment, that is, the amount of mercury given was the largest which could be tolerated without the production of toxic symptoms.

From the figures on the intramuscular class, it can be seen that the ratio between the time and the amount of medicine used when compared with the intravenous class, was about the same, the time having been less than one third greater, while the amount of medicine used was a trifle over one fourth greater. With this method, as with the intravenous, there seems to be no demonstrable reason for assuming that all the medicine administered was not ultimately utilized; the complete utilization, however, evidently consumed about one third more time in this class than in the intravenous. This hypothesis, if correct, would readily account for the difference in the amount of medicine given, for in all probability, at the end of the twenty-six days, over one fourth of the mercury still remained in the muscles and had not yet been taken up. If this hypothesis be incorrect, there remains only the deduction that the intravenous method is one third faster than the intramuscular and that it requires one fourth less medicine.

In considering the inunction class, it can of course be said positively, that only a small portion of the

¹ The Commercial Speed Efficacy of the Intravenous Method of Administering Mercury in Syphilis. *Chicago Medical Record*, 1906, 10, 1100.

administered mercury was utilized; had this not been true, there is no reason to doubt that the speedy death of all the cases would have ended this portion of the experiment. Since, as stated before, the intravenous class was kept at a point of intense mercurialization, and since there is no reason to suppose that more mercury could have been utilized and tolerated if given by a different method, it becomes apparent that there was administered to the inunction class something like 1,785 grammes (27,542 grains) of mercury which it could not use. Granting even that this deduction is incorrect, the fact remains that the inunctions were a trifle over twice as slow as the intravenous injections. Any calculation as to the relative amounts of mercury utilized in these two methods would be mere guess work.

What is true of the inunction class is also to a certain extent true of the internal class, since, if the administered mercury had been completely utilized and had not caused the death of the entire group before the expiration of the sixty-one days, it certainly would have produced decided symptoms of mercurial intoxication. After allowing for the difference in the time, plus the extra elimination, between the internal and intravenous classes, about 20.0 grammes (308.6 grains) of mercury remains unaccounted for. Assuming even that this is not so, it must be admitted, in the light of this experiment, that the method of treating by mouth is over four times more slow than by intravenous medication. Since it is impossible to ascertain the quantity of mercury utilized when given by mouth, a discussion on this point is out of the question.

The foregoing statistics and deductions, although undoubtedly susceptible to slight modifications such as would be brought out by other clinical averages, are submitted for their scientific value to syphilographers and as an early step towards the final ascertainment of an accurate knowledge of the amount of mercury required for the absolute cure of lues.

42 MADISON STREET.

Correspondence.

LETTER FROM TORONTO.

Psychiatry in Ontario.—The Ontario Medical Council.—University Changes.

TORONTO, July 23, 1907.

The departure of Dr. C. K. Clarke, superintendent of the Toronto Provincial Hospital for the Insane, at the instance of the Ontario government, accompanied by Dr. Edward Ryan, superintendent of a similar institution at Kingston, and followed by that of the Honorable Dr. Willoughby, minister without portfolio in the Ontario Cabinet, to join them at the German psychiatric clinics, where the three are to investigate and observe the latest methods adopted in those clinics of treating the insane, indicates the progressive policy on the part of the government of placing psychiatrics in the front rank in this Province. Just why the Honorable Dr. Willoughby has been selected to take part in this manœuvre is not quite clear to the psychiatrists in Ontario, as he was never before announced to be a specialist in this department of medicine, having so far been but a general practitioner in a small lake

port town and a politician. However, the government is to be congratulated that it did not send three politicians. It begins to look as though the government of this Province was getting its eyes opened in the direction of psychiatrics, although its latest appointment to a superintendency of one of the Provincial hospitals for the insane shows clearly that it will come hard for it to divorce politics and psychiatry. Probably in no country, certainly not in Canada in recent years, has there been such a ridiculous practice carried out as the appointment of superintendents of these institutions over the heads of trained assistants, superintendents whose chief qualifications were that they had been busy in the party caucus, on the hustings, on the back township side lines, or in the close and stuffy atmosphere of the ward committee room. But the present administration is only carrying out the policy pursued by the late Liberal government in this respect, which saddled the ridiculous and silly system upon the Province, caring nothing for the welfare of its unfortunate wards, caring less for the alienists who as assistants had made the study of psychiatry their life work. As a superintendent was lately removed because he had been too keen a partisan of the late government, so now the present superintendents may well be set quaking when one of the ministers, and he without portfolio, is entering the arena of psychiatry and will return to Ontario knowing all about it as it is in Germany, and also the political side of it as it is known in Ontario. Even in the matter of the selection and appointment of assistants and their transfer, it is the politician who exercises the magic wand and says who is and who is not fitted to be an alienist. Through men being passed over year after year in this self same way, Ontario lost one of the ablest alienists in America; and if the government intends to be sincere in entering upon a progressive policy with regard to psychiatry in this Province, it must, to convince the medical profession, and the alienists in particular, cut loose entirely from these political appointments of medical superintendents as rewards for party service. The Ontario medical profession is not yet convinced that the government intends to take proceedings in this direction; for almost in the same breath that the Minister was ordering the commission to Germany he was making a politician the superintendent of the largest hospital for the insane in the Province.

Toward the better study of psychiatry in Ontario there is now issued a journal by order of the Legislative Assembly. This is the *Bulletin of the Toronto Hospital for the Insane*; and from the second number, that of June, one learns what a large field there is to work in this Province. The Toronto Hospital for the Insane accommodates 850 patients; Hamilton, 1,100; London, 1,050; Mimico, 650; Kingston, 625; Brockville, 675; Coburg, 150; Penetanguishene, 250; Orillia (imbeciles), 800; Woodstock (epileptics), 180. Distributed among these are ten superintendents and seventeen assistants. Surely among seventeen assistants the government could find one now and again worthy of promotion to the office of chief of one of the institutions.

The annual meeting of the Ontario Medical Council took place this year at Kingston early in July.

It was noteworthy for three things: The place of meeting, as it has been many years since the annual meeting was held away from Toronto; the selection of a site for a new building in Toronto; and the retirement of the Honorable Dr. R. A. Pyne from the position of registrar after a service of over twenty-five years. Dr. W. Spankie, of Wolfe Island, was elected president; Dr. Peter Stuart, of Milton, vice-president; Dr. John L. Bray, of Chatham, registrar; and Dr. Wilberforce Aikins, of Toronto, treasurer.

Dr. Alexander Primrose, after many years' service, has resigned from the professorship of anatomy in the Medical Department of the University of Toronto, and will hereafter devote himself exclusively to the practice of surgery. Dr. J. Playfair McMurrich, of the University of Michigan, has been appointed to succeed him.

Therapeutical Notes.

Lotion for Mosquito Bites.—According to Royet (*Lyon médical*, June 2, 1907), a solution of calcium hypochlorite, of the strength of one per cent., is an excellent topical application for the relief of bites of mosquitoes and, in general, of all insect bites.

Ointment for Acute Rheumatic Arthritis.—Bourget (*Journal de médecine de Paris*, June 16, 1907) employs as a local application in acute rheumatism:

B	Salicylic acid,	10.0 grammes;
	Woolfat,	10.0 grammes;
	Oil of turpentine,	10.0 grammes;
	Lard,	80.0 grammes.

M.

Administration of Thymol as an Anthelmintic.—Guiart (*Journal de médecine de Paris*, May 5, 1907) recommends thymol against the ankylostoma (uncinaria), the trichocephalus, ascariis, and oxyuris. His method is to give, on three consecutive days, in the morning before eating, at one hour's interval, two or three cachets, containing each one gramme (gr. xv) of pulverized thymol. A little water may be drunk after each powder. If the bowels do not move within five hours after the last dose, a light saline purgative can be given.

Ointment for Tinea Capitis.

R	For ointment,)	
	Complémented oil,)	100.0 grammes;
	Crystallized potassium permanganate,)	3.00
	Sulphur,)	10.0 grammes.

M. The spots are to be washed once a day with soap and water and carefully dried, after which this ointment is to be applied on a brush and the locality rubbed briskly.

Peretti

La Quinzième thérapeutique, June 25, 1907.

Anal Fissure Treated by Potassium Permanganate.—Some years ago an American physician, Dr. Lewis, recommended the application of a saturated solution of potassium permanganate to anal fissures, previously cocainized. A Russian physician, Dr. Schulz (*Praktichesky Vrach*, 1907, No. 101), reports that he has found this treatment advantageous in all the cases in which he has employed it. After a preliminary purge he places his patient on a diet that will produce soft stools. He

places the patient in knee chest position for the application, but does not use cocaine. Applications are made daily until the cure is complete, which may take from eleven to twenty-eight days.

Volvulus of the Small Intestine.—Professor Lennander remarks, in the *Edinburgh Medical Journal*, January, 1907, that if the stomach or the bowel has been distended to a certain degree, i. e., if the muscular coat has been stretched beyond a certain limit, these organs are unable to contract until they have been partially emptied. At the operation the highly distended but not paralyzed bowel looks as if it were paralyzed, but if emptied of a part of its contents by means of enterotomy, it soon begins to contract, and is afterwards able to empty the rest of its contents through a fistula. Paralyzed bowel does not again contract, even after having been emptied of its contents, but if one wishes to bring about the recovery of a paralyzed portion of intestine by means of enterostomy, the fistula must be placed above the paralyzed part of the intestine. As in many cases the paralysis also includes the uppermost portion of the jejunum, and probably also the duodenum below the papilla of Vater, there is in these cases no other way than to make a fistula (gastrostomy) in the pyloric portion of the stomach. If at an operation the contents of the small intestine have been emptied, and in spite of this the jejunum shows no signs of contraction, gastrostomy should be performed at once. If, in a case where no indication for primary gastrostomy is found, the size of the abdomen increases, the frequency of the pulse rises or remains high, and two or three irrigations of the stomach show retention of foul smelling or stagnant fluid, then there should be no delay in performing gastrostomy.

Thyroid Extract for Hay Fever.—The case of Dr. Tobias, who was formerly a hay fever subject, but who was entirely free from this trouble after a thyroidectomy, led Heyman (*Archives internationales de laryngologie*, May 18, 1907, through *Revue de thérapeutique*, June 15, 1907) to make clinical experiments with thyroid extract. He treated nineteen cases in all, with the tablets of thyroid extract, and obtained very positive results. The treatment was carried on for a long time before the time for the expected attack in three patients, and in all of these the disease was entirely averted. In addition to the thyroid extract, the patients were instructed to avoid sleeping in a draught, or with windows open; not to go abroad exposed to the full rays of the sun; and not to travel by railroad. In the remaining sixteen patients, the attack of hay fever was much milder than in preceding years; twelve of them attributed the change to the treatment, the remaining four attributed the improvement to the fact that last year was unusually cool and humid. The attenuation of the disease was observed to be in proportion to the length of time the thyroid extract had been employed. The dose given in each of the cases was from one to three tablets daily (each tablet representing 0.30 gramme, or gr. v. of thyroid substance). There were no signs of toxic action observed in any of the cases, although one patient was obliged to stop taking the tablets at the end of a week, on account of intolerance of the stomach.

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PSYCHIATRY IN ONTARIO.

In this issue we publish a letter from our Toronto correspondent which deals largely with the management of lunatic asylums in the Province of Ontario. What he has to say will be read with interest in this country as well as in Canada, for we have not yet wholly emancipated ourselves from acquiescence in the politician's fine work in procuring appointments of asylum medical officers, though much has been accomplished in that direction of late years.

But it is not always politics properly so called that governs the selection of asylum superintendents, setting men of no special pretensions as alienists over the heads of others more experienced in psychiatry. A public institution for the care of the insane is still in most instances something more than a "clinic," some of its most important affairs may not best be conducted by a man notably skilled in psychiatry. It is to provide for sagacious management of these affairs, we may suppose, that other qualities than proficiency in psychiatry govern the selection of a superintendent.

The affairs which we have in mind are mostly of a "business" nature—the care of the property, the projection of additions and improvements, the judicious purchase of supplies, and the like. These matters are undoubtedly of great importance, but it may not be the height of wisdom to demand that the medical superintendent shall be charged with them, save in an advisory capacity. A capable steward might perhaps manage most of them so far as the ordinary routine goes. The medical

superintendent, it seems to us, need not be a man trained exclusively or almost exclusively in psychiatry; he should rather be a physician of general experience and of known wisdom and tact in dealing with professional subordinates. He should certainly be the highest officer of the staff, but he should not be bound down either by economic responsibilities on the one hand or by the intimate care of individual inmates on the other. Such conditions are virtually realized in some of our best regulated institutions for the care of the insane.

Our Ontario neighbors are too progressive and astute to go far astray in the matter of asylum management, at least for any great length of time, and we believe that the Ontario government's appointment of a medical commission to study German methods of psychiatry argues a settled purpose on its part to attempt all possible advances in the care of the insane.

TYPHOID FEVER IN THE DISTRICT OF COLUMBIA.

In addition to Potomac River water the residents of the District of Columbia obtain drinking water from eighty-seven public wells, twenty-four of which are deep and sixty-three shallow. The water of the deep wells is of good quality as indicated by chemical and bacteriological examinations. The shallow wells, on the other hand, show that the water is polluted with sewage in thirty-one, is suspicious in twenty-nine, and is positively free from pollution in only three. There is a great variation in the chemical composition of the water of these wells from time to time, as well as a variation in its bacterial contents. There is an intimate relation between proximity to privies, broken pumps, and leaky platforms on the one hand and bacterial pollution on the other. Although no local epidemic of typhoid fever has been traced to any particular well, the Board for the Study of Typhoid Fever recommends the permanent closure of all shallow wells in the District (*Bulletin No. 35, Hygienic Laboratory, United States Public Health and Marine Hospital Service*).

The report of the board contains some interesting details of the bacteriological and chemical analysis of the Potomac River water. While it is always difficult to find the *Bacillus typhosus* in a given specimen of river water, the uniform distribution of the disease throughout the city, the fact that 96.5 per cent. of the patients gave a history of having drunk unboiled tap water within thirty days of the onset of their illness, the presence of *Bacillus coli communis* in the water, and the fact that the river receives the sewage of a number of thousands of persons point to the Potomac River as the

chief agency in prolonging the great prevalence of the disease in the District. The board recommends the enforcement of the streams pollution act looking to the removal of overhanging privies and other sources of contamination on the Potomac and its tributaries, especially from Harper's Ferry to the intake of the Washington supply. While the sand filters do not remove all bacilli and while they allow *Bacillus coli communis* to pass through, the board finds that the plant represents a high degree of engineering skill and intelligent management, and that the water is greatly improved, both bacteriologically and chemically, after passing through the filters and sedimenting reservoirs.

While the milk supply of Washington cannot be held to have caused the majority of the cases of typhoid fever—in fact, only ten per cent. of the cases could be traced to milk—yet bacteriological examination shows that the great bulk of the milk sold in the District during the summer months would have been considered adulterated and would have been condemned in New York, and would have been prohibited from sale in Boston, on account of the temperature of the product on delivery and of the number of bacteria to the cubic centimetre.

The destruction of the typhoid infection as it leaves the body is the most important prophylactic measure. The board finds that this measure is not carried out so effectively as it should be in the District of Columbia, and recommends its enforcement by legislative enactment if it cannot be corrected in any other way.

DELEGATED ATHLETICS.

This matter was happily handled by Dr. Henry Davy, of Exeter, England, in his presidential address before the seventy-fifth annual meeting of the British Medical Association, for advance proof sheets of which we are indebted to the editor of the *British Medical Journal*. Dr. Davy admits that perhaps the British people have as great a love of games as ever, but he observes that much of the muscular work has been taken from them. "Your rich man," he says, "sits or stands while his grouse or his pheasants are driven toward him, instead of walking the moors or woods to find them; the poorer man pays his entrance money to see a few experts playing cricket or football instead of exercising his muscles by playing the game himself, while some of the most manly and best exercises, such as wrestling, boxing, and fencing, have almost become extinct throughout the country."

No doubt Dr. Davy correctly depicts the state of things in his own country, and doubtless, too, his portrayal would apply to the United States as well. The rich may indulge in yachting (with a hired

sailing master), automobiling, and the like, but when do we hear of their exposing themselves to any risk of personal injury? It is true that many of our youngsters who do not belong to the *jeunesse dorée* have mastered the cat boat and the canoe, that they shine in tennis, and that they humiliate their elders in the leisurely game of golf. It is also true that many a wealthy young man excels in polo. Can we, however, deny that most of our muscular young fellows prefer to pay "gate money" rather than take part in games of their own? The benefits of athletic exercises cannot be delegated, and we hope that the time is not far distant when the youth of our land will wake up to a realization of the fact.

AUTHORITY IN MEDICINE.

"Hippocrates dixit" has undoubtedly been made to cover much more than Hippocrates would have been willing to father, and many of our worthies of times gone by have been invoked in support of theses that they would in all probability repudiate. It is particularly exasperating to be told that such and such a thing cannot be true because a high authority in medicine failed to mention it. We are told that a newly observed symptom of typhoid fever cannot be important because Louis failed to record it, and that a demonstrated cutaneous abnormality is imaginary because Hebra never knew of it. All this shows that we have not yet wholly freed ourselves from the mediæval worship of authority. We are glad to be able to say, therefore, that Dr. W. Hale White, in the address in medicine delivered at the seventy-fifth annual meeting of the British Medical Association, for advance proofs of which we are indebted to the editor of the *British Medical Journal*, vigorously combats the tendency to appeal to authority in medical matters.

Dr. White touches upon many aspects of our slavish subjection to authority, real or supposed, but perhaps upon none more pungently than that of our blind acceptance of men's views on gout, especially as to the matter of diet. "The next assumption made," he says, "is that certain foods cause an excess of uric acid; some say carbohydrates, some say fats, some say proteids, and it would be quite easy for a patient to consult three doctors in turn, and if he followed all, his diet would be water and nothing else." He well asks why chicken is regarded as a more inoffensive article of diet than red meat. And he reminds us that the consumption of meat has increased enormously of late years without any corresponding increase in the prevalence of gout, also that women and children, who hardly take any alcohol at all, are frequent victims of morbid conditions conventionally ascribed to indulgence in alco-

holic drinks. It seems plain that we must revise our ideas with regard to the relation of our ingesta to gout and to various other disturbances of health. This feeling we have long entertained, and we have never hesitated to express it. We feel fortified powerfully by Dr. White's statements.

CONTACT CANCER.

In a learned address in surgery delivered before the seventy-fifth annual meeting of the British Medical Association, for advance proof sheets of which we are indebted to the editor of the *British Medical Journal*, Mr. Henry Trentham Butlin, F. R. C. S., D. C. L., indicates his belief that cancer is occasionally conveyed from one part of the body to another by contact, though he implies that it must be with exceeding rarity, if at all, that it is conveyed from one individual to another by contact. In order to prove that a case is one of such conveyance, he demands, and most justifiably, we think, that the malignant disease found in the part to which it is alleged to have been conveyed must be shown microscopically to be of precisely the same variety as that of the part from which it is represented to have been derived.

Mr. Butlin alludes to a number of instances of reputed but not real contact communication of cancer. One of the most striking of them was that of a primary epithelioma of the gum with an alleged small isolated epithelioma of the cheek exactly opposite to it, the specimen of which was preserved in a certain museum in London. He visited the museum to see it, but he says: "The curator of the museum met me with an expression of disappointment, and told me he was ashamed to confess that, although this specimen had been exhibited to various persons as an example of the contagion of cancer, it had never been examined microscopically." When sections were finally made, it was found that, "while the primary disease was typical epithelioma, the ulcer of the cheek only exhibited the ordinary characters of inflammatory ulceration."

In the vulva, if anywhere, contact cancer ought often to be observed, for the diseased labium, whether majus or minus, is in almost constant close contact with its fellow, and both are moist. These conditions, it must be supposed, are very favorable to contagion; nevertheless, it does not often occur. However, Mr. Butlin gives short histories of four cases in which such contagion is thought to have taken place, though one of them is said to be "not wholly complete."

As regards the transfer of cancer from one individual to another, one would suppose that it would be most likely to be from husband to wife or from wife to husband in copulation, but Mr. Butlin adduces facts to make us understand the rarity of this

sort of contagion. An open cancer of the penis, he says, deters a man from sexual intercourse, and an ulcerated cancer of the cervix uteri is almost inevitably accompanied by such a septic condition as has always been found to interfere materially with the experimental conveyance of cancer from one part or one individual to another.

Obituary.

WILLIAM TRAVIS HOWARD, M. D., LL. D.,
OF BALTIMORE.

The death of Dr. Howard, which took place at Narragansett Pier on July 31st, removes from us another of the most honored members of our profession. He was for many years a gynecologist of renown. He was one of the original members of the American Gynecological Society. His genial presence made itself felt at every annual meeting of the society, and he always contributed something of value to its discussions. He died at the advanced age of eighty-six. He was a graduate of the Jefferson Medical College, of the class of 1844. He first entered upon practice in North Carolina, and settled in Baltimore in 1866. In spite of his years, Dr. Howard kept in close touch with medical matters up to the time of his last illness, which is reported to have been of short duration.

WILLIAM THOMSON, M. D.,
OF PHILADELPHIA.

Dr. Thomson died at his home, 1426 Walnut Street, Philadelphia, on Saturday, August 3rd, of uræmia, aged seventy-four years. He was born in Chambersburg, Pa., on January 28, 1833. He received his preliminary education at the Chambersburg Academy and then matriculated in the Jefferson Medical College, of Philadelphia, from which institution he was graduated in the class of 1855. At the outbreak of the civil war he offered his services to the government and was appointed surgeon in the Army of the Potomac, with which body he did active field service until after the battle of Bull Run. Subsequently he was placed in charge of the general hospitals at Alexandria, Va., and Portsmouth, Va. Following this tour of duty he returned to service in the field, where he had charge of the medical service during the battle of Antietam. In 1863 he was made surgeon of the Charles Douglas Hospital in Washington, and in 1864 was assigned to duty as medical inspector of the department.

Upon returning to civil practice, at the close of the war, Dr. Thomson made a specialty of ophthalmology, in which branch of medicine he worked until the time of his death. He is credited with the introduction of one or two improvements in the method of treating the wounded in time of battle, one of which, the application of first treatment on or near the battlefield, in tents or houses, has been generally adopted, and of which the issue of first aid packages to the unit of fighting force is a development. He is also credited with the beginning of the department of photography which is attached

to the surgeon general's office. The system of examination of the color perception of the employees of the Pennsylvania Railroad Company is a development of the suggestions made to the company by Dr. Thomson after his retirement to civil life at the close of the war. Indeed, Dr. Thomson was a close student of this defect, contributing an article on color perception and one on color blindness to the *System of the Diseases of the Eye*, by Norris and Oliver.

Dr. Thomson was emeritus professor of ophthalmology in the Jefferson Medical College and emeritus surgeon to the Wills Eye Hospital at the time of his death. He was a fellow of the College of Physicians, a member of the Philadelphia County Medical Society, of the Medical Society of the State of Pennsylvania, and of the American Medical Association. He was also a member of a number of local social and scientific bodies, among which the Academy of the Natural Sciences and the American Philosophical Society may be especially mentioned.

News Items.

The Psychological Clinic established at the University of Pennsylvania in connection with the department of psychology is meeting with considerable success in the treatment of backward children.

The Department of Agriculture of the State of Pennsylvania has recently discovered that a certain brand of patent food is composed of ground corncobs. Nutritious article of diet, that!

A New Hospital to be Erected at Tuxedo Park.—A hospital, costing \$100,000, has been planned; a site will be selected at once, and building operations will begin in the coming autumn. Dr. Edward C. Rushmore, of Tuxedo Park, is to be the chief physician.

The American Public Health Association will hold its thirty-fifth annual meeting at Atlantic City, N. J., from Monday, September 30, to Friday, October 4, 1907, under the presidency of Dr. Domingo Orvananos, of Mexico City, Mexico.

Personal.—Dr. Melvin P. Burnham has resigned the position of superintendent of the New York State Hospital for Incipient Tuberculosis, at Ray Brook, and has entered practice, with offices at Ardsley Hall, 320 Central Park West, Manhattan.

Philadelphia Municipal Hospital Census:

	Remaining last report.	Received.	Dis. changed.	Dis. Died.	Re-maining
Diphtheria	65	77	68	12	62
Scarlet fever	167	53	92	2	92
Other diseases	24	10	7	2	19

The Paris Medical Faculty has recently announced that henceforth the incumbent of the special chair of anatomy, histology, physics, chemistry, and pharmacology will not be allowed to take positions as physicians or surgeons in the hospitals. Professors and their families must agree to devote themselves exclusively to their educational work.

The Mount Moriah Hospital.—Plans have been filed with the building superintendent for remodeling two old-fashioned dwellings on Second Street, Manhattan, for the recently organized Jewish Hospital, which is to be known as the Mount Moriah Hospital. The estimated cost of the new building is \$100,000. The building will be equipped for laboratory as well as for general work.

The Mortality of Baltimore for July, 1907.—On August 1 the health commission gave out a summary of the report of the department for July. There were 1,058 deaths reported during the month, as compared with 1,071 for 1906, 1,066 for 1905, and 1,299 for 1904. For the corresponding months, comprising 415 males, 368 white females, 173 colored males, and 137 colored females. There were 282 deaths of children under five years of age, being 46.9 per cent. of the whole number of deaths.

The New Jersey State Hospital for the Insane, located at Trenton, is in no end of trouble. The investigating commission appointed by the Governor of the State to investigate the epidemic of typhoid fever, recently referred to in these columns, has now discovered a story which indicates that one of the patients was beaten to death by two of the attendants, and that the superintendent failed to make a report of it. Allowance must be made in reading these reports for characteristic newspaper inaccuracy and the dog with the lead name.

The Health of Pittsburgh.—During the week ending July 27, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chickenpox, 5 cases, 0 deaths; typhoid fever, 64 cases, 3 deaths; scarlet fever, 12 cases, 0 deaths; diphtheria, 9 cases, 1 death; measles, 12 cases, 2 deaths; whooping cough, 49 cases, 3 deaths; pulmonary tuberculosis, 9 cases, 19 deaths. The total deaths for the week numbered 142, in a population, according to the United States Census of 1900, of 321,616, corresponding to an annual death rate of 22.94 in 1,000 population.

Philadelphia Bureau of Health Statistics.—During the month of June, in the division of medical inspection, 3,670 inspections were made, excluding schools; 598 fumigations were ordered; 45 cases were referred for special diagnosis; 5,301 visits were made to schools; and 336 children were excluded from schools. Three hundred and three cultures were taken; 113 injections of antitoxine were given; and 188 persons were vaccinated. In the division of vital statistics, 1,827 deaths were reported; 2,293 births were reported; and 214 marriages were recorded. In the division of milk inspection, 7,479 inspections were made of 157,583 quarts of milk, of which 369 quarts were condemned. Eighteen specimens were examined chemically and 855 microscopically. In the division of meat and cattle inspection, 2,462 sanitary inspections were made, of which 33 were found unsanitary; 2,462 inspections of dressed meats were made, of which 504 were condemned; 1,168 postmortem examinations were made, of which 197 were condemned. In the division of disinfection 185 fumigations were ordered for scarlet fever, 241 for diphtheria, 104 for typhoid fever, 174 for tuberculosis, and 309 for miscellaneous diseases. Fourteen schools were fumigated. In the bacteriological laboratory, 825 cultures were examined for the presence of the bacillus diphtheriae, 267 specimens of blood were examined for the serum diagnosis of typhoid fever; 853 specimens of milk and 115 specimens of sputum were examined; 7 disinfection tests were made; and 1,586,500 units of antitoxine were distributed. In the chemical laboratory, 113 analyses were made.

Life in the Philippines.—"One of the things that I have never understood, said an old army medical officer recently (*Army and Navy Journal*, August 3, 1907), "is how army men berate life in the Philippines. I have had two tours over there and have liked it both times. It was not because I had little to do, for I was there when there was something doing all right. In all nineteen thousand cases passed through my hospital, and I was busy. It seems to be a fashion in the army to speak of going to the Philippines as something to be dreaded and avoided, if it can be fairly and honorably. As a cold matter of fact—if anything in that climate can be mentioned as cold—the islands are a pleasant region to live in. In the first place, many diseases to which Americans and Europeans are subject do not occur there. You cannot catch cold, and the long train of troubles that follow colds is eliminated. Many children's diseases do not occur: no measles, no whooping cough, no scarlet fever, no croup, no mumps. That ought to make the Philippines a realm of life for the European mother. But, it is a place where you can get good servants, keep two or three or more, and the wages are low for us, although they seem high to them. Living is far lower than here at home. There is the greatest abundance of fruits of wholesome character and practically the lowest nominal cost of food. The only thing that costs any money there at home is the laundry expense, and that is not excessive. The climate requires much light, white clothing, and it must be frequently changed. Houses do not need to be as elaborately built as here, where the changes of temperature are so great. I have seen soldiers who were as well as at home in the Philippines. They had a good fire at home. Mess life, I will confess, is undesirable, and the only good way to live is to have a room and table the best at a mess-table. My family enjoyed Mead and I did."

to leave there when I was ordered back. All this talk about the Philippine climate is more army habit and fashion than anything else. Many of our officers and their wives want to be all the time where life is gay and social. Grand opera, big receptions, and dinners, and all that are regarded as more to be desired than the plain, simple life which would best comport with the quiet dignity of worthy men and women."

The Third International Sanitary Convention of American Republics will be held in the City of Mexico, December 2-7, 1907. Dr. Edouardo Liceaga, president of the Superior Board of Health of Mexico, will be the presiding officer. The convention is held under authority of resolutions of the second International Conference of the American States, held in the City of Mexico in 1901-1902, and of the Third International Conference of American States, held in the city of Rio de Janeiro in 1906.

The following official correspondence has been made public (*Public Health Reports*, July 26, 1907):

INTERNATIONAL SANITARY CONVENTION

WASHINGTON, June 18, 1907.

MR. JOHN BARBER,

Director Bureau of the American Republics,
Washington, D. C.

SIR:—In accordance with a resolution adopted at the Second International Sanitary Convention of American Republics, October, 1905, I enclose herewith a call for the Third International Sanitary Convention of the American Republics, to meet in the City of Mexico, December 2-7, 1907.

In accordance with paragraph 7 of the resolutions relating to international sanitary police, adopted at the Second International Conference of American States in Mexico, January 29, 1902, I have to request that you will take such measures as you deem advisable to make announcement of this call. It is also requested that the Bureau of the American Republics request the Department of State to invite the attention of envoys at this capital whose countries have not as yet ratified the sanitary convention *ad referendum* of Washington to the desirability of doing so, and urge them to secure representation at the coming convention in the City of Mexico. Respectfully,

WALTER WYMAN,

Chairman International Sanitary Bureau.

Further particulars of the forthcoming convention, which it is hoped will do much to advance modern sanitary methods on the Western continent, will be found in the number of the *Public Health Reports* above referred to.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending August 3, 1907:

	Aug. 3.		July 27.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	84	9	81	14
Smallpox.....	0	0	17	1
Scarlet fever.....	8	0	26	1
Measles.....	312	36	401	24
Whooping cough.....	157	18	189	11
Diphtheria.....	24	12	47	10
Tuberculosis pulmonaryis.....	229	26	275	29
Cerebrospinal meningitis.....	354	163	346	143
Tuberculosis of other organs.....	13	15	20	8
Totals.....	1,173	273	1,374	244

The Health of Philadelphia.—During the week ending July 27, 1907, the following cases of transmissible diseases were reported to the bureau of health:

	Cases.	Deaths.
Measles.....	2	0
Scarlet fever.....	52	9
Smallpox.....	18	0
Whooping cough.....	5	0
Diphtheria.....	2	0
Tuberculosis pulmonaryis.....	2	0
Cerebrospinal meningitis.....	26	1
Whooping cough.....	29	7
Tuberculosis of the lungs.....	92	67
Scarlet fever.....	17	29
Smallpox.....	2	0
Whooping cough.....	15	20
Measles.....	2	0
Scarlet fever.....	2	0
Tuberculosis.....	1	1

The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 12; anthrax, 2; diarrhoea and enteritis, under two years of age, 134; puerperal fever, 2. The total deaths numbered 629, in an estimated population of 1,500,595, corresponding to an annual death rate of 21.71 in a thousand population. The total infant mortality was 240; under one year of age, 210; between one and two years of age, 30.

There were 40 still births, 25 males and 15 females. The temperatures continued high. Maximum temperatures were recorded of 83 degrees on the 21st; 83 degrees on the 22nd; 90 degrees on the 23rd; 86 degrees on the 24th; 93 degrees on the 25th; 83 degrees on the 26th; and 84 degrees on the 27th. The relative humidity was low, the highest recorded being 71, on the 26th. The influence of the continued hot weather is readily seen by referring to the infant mortality, which reached 240 cases during the week. There was no precipitation. Eighteen deaths from heat and sunstroke are recorded.

The Mortality of New Jersey.—The midyear population of New Jersey for 1907 is estimated to be 2,222,285. According to the official report of the State Bureau of Vital Statistics, the total number of certificates of death received during the month ending July 15 was 2,609, showing a decrease from the previous month of 96, and showing also a decrease from the average of the preceding twelve months (2,910) of 301. The deaths under one year of age numbered 439; over one year and under five years of age, 207; sixty years of age and over, 743. Infantile diarrhoea caused 65 deaths, an increase of 24 from the previous month, but 88 less than the number which occurred from this cause in the corresponding period in the previous year, and 110 less than the monthly average for the past twelve months. A decrease in deaths also occurred from typhoid fever (22), diphtheria (42), consumption (260), and pneumonia (190), and a slight increase occurred from scarlet fever (27), measles (21), and cerebrospinal meningitis (36). The following table shows the number of certificates of death received in the State Bureau of Vital Statistics during the month ending July 15, 1907, and also the number of deaths reported from certain selected diseases, compared with the average for the previous twelve months:

	July, 1907.	Death certificates received. Average for twelve pre- vious months.
Cases of death.....	2,609	2,910
Typhoid fever.....	22	35
Measles.....	21	11
Scarlet fever.....	27	15
Whooping cough.....	28	28
Diphtheria, and comp.....	42	56
Malarial fever.....	3	3
Tuberculosis of lungs.....	260	307
Tuberculosis of other organs.....	17	49
Cancer.....	110	115
Cerebrospinal meningitis.....	36	26
Diseases of nervous system.....	362	383
Diseases of circulatory system.....	322	296
Diseases of respiratory system (pneumonia and tuberculosis excepted).....	119	176
Pneumonia.....	190	256
Infantile diarrhoea.....	65	184
Diseases of the digestive system (infantile diarrhoea excepted).....	170	188
Bright's disease.....	208	186
Suicide.....	34	28
All other causes.....	543	653
Totals.....	2,609	2,910

Statement of Mortality of Chicago for the Week Ending July 27, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of midyear populations—2,107,620 for 1907, 2,049,185 for 1906:

	July 27, 1907.	July 20, 1907.	July 28, 1906.
Total deaths, all causes.....	548	500	517
Annual death rate in 1,000.....	13.55	12.87	13.15
Males.....	298	273	291
Females.....	250	227	226
By Age.....			
Under 1 year of age.....	132	111	148
Between 1 and 5 years of age.....	65	50	47
Between 5 and 20 years of age.....	41	39	39
Between 20 and 60 years of age.....	220	209	192
Over 60 years of age.....	87	91	91
Important causes of death.....			
Apoplexy.....	9	8	5
Bright's disease.....	28	36	36
Proctitis.....	6	7	8
Consumption.....	65	60	56
Cancer.....	24	28	23
Coronary.....	6	6	6
Diphtheria.....	2	6	14
Heart diseases.....	41	25	33
Intestinal diseases, acute.....	90	51	98
Measles.....	4	10	3
Nervous diseases.....	27	18	18
Pneumonia.....	42	35	31
Scarlet fever.....	11	7	11
Suicide.....	6	10	10
Typhoid fever.....	2	1	1
Typhoid fever.....	7	6	4
Violence (other than suicide).....	49	40	41
Whooping cough.....	4	3	5
All other causes.....	123	138	116

Path of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

1. The Past, Present, and Future of Tuberculosis.
By FREDERICK C. SHATTUCK.
2. The Daily Care of Consumptives at a General Hospital as an Aid to Solving Local Tuberculosis Problems.
By ARTHUR K. STONE and CLEVELAND FLOYD.
3. On Neurological and Psychiatric Diagnosis.
By LEONARD I. CABOT.
4. The Historical Development and Relative Value of Laboratory and Clinical Methods of Diagnosis.
By LEONARD I. CABOT.

1. **The Past, Present, and Future of Tuberculosis.**—Shattuck observes that in the State of Massachusetts the work in the treatment of tuberculosis for the near future would seem to lie in: 1. The passage of a general law making the reporting of consumption compulsory. But no such law can be thoroughly efficient unless the medical profession as a whole is competent to make an early diagnosis, and is in such sympathy with the law that the physician puts obedience to it and its underlying principle above the selfish preference of this or that patient and above any fear that he may lose practice by reporting him. It is not likely that such opposition will be very serious or long lived. 2. Laws providing for the disinfection of dwellings occupied by the consumptive after moving or death. 3. An extension of the antispitting law so as to include at least factories, mills, schools, and the halls of tenement houses. 4. Legislative provision for State medical inspectors, responsible to the State Board of Health, each in charge of a district within which he supervises organized work. 5. Each community in the organization should have such force of nurses, visitors, or both, as each may need; that the poor may be followed up in their homes, taught what to do, helped to do it, if necessary, and encouraged to persevere in doing it. Much of this can be done without, or with trifling, expense. There is much intelligent energy running to waste which can be turned in this direction.

3. **On Neurological and Psychiatric Diagnosis.**—Barker thinks that a very great impetus would be given to neurological and psychiatric diagnosis in America if psychiatric clinics were to be established in connection with every great hospital or medical school. It is humiliating to think that this country, so far in advance in many other respects, is fifty years behind Germany, Italy, and France in the recognition and satisfaction of this particular need. Since one in every three hundred inhabitants of this country is either insane or feeble minded, and the estimated cost to this country of psychiatric disease is, according to Dana, \$85,000,000 annually, a cost which is increasing at the rate of 4 per cent., the desirability of education in these matters is obvious enough.

4. **The Historical Development and Relative Value of Laboratory and Clinical Methods of Diagnosis.**—Cabot says that the attempted distinction between laboratory methods and clinical methods of diagnosis is a false and misleading one. The attempt should be abandoned once for all. But the distinction between experimental research (in the laboratory or at the bedside) and applied diagnosis is important. The degree of exactness desirable in any technical procedure is relative to the end to be secured. We may easily have too much as well as too little exactness. But of clearness in the expression of our results we cannot have too much. Modern physical diagnosis shows, among other, two dangerous tendencies: (a) To seek and prize the most direct methods of examination, (b) to be anxious on the present functional efficiency of an organ rather than on the presence or appearance

of anatomical lesions. The old methods—inspection and palpation—are still the best. Among recent additions to our technical resources three may be mentioned as likely to stand the test of time. These are: (a) X ray examination; (b) blood pressure measurements; (c) palpation of the abdomen beneath the surface of a warm bath.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

1. The Status of the Child. Chairman's Address Before the Section on Diseases of Children at the Fifty-eighth Annual Session of the American Medical Association, 1907.
By J. ROSS SNYDER.
2. Ten Years' Experience in the Treatment of Syphilis by the Intramuscular Injection of Insoluble Mercurials.
By WILLIAM S. GOTTHEIL.
3. Liquid Air in Dermatology: Its Indications and Limitations.
By HENRY H. WHITEHOUSE.
4. The Value of Tuberculin TR as a Diagnostic and Therapeutic Agent in the Recognition and Treatment of Tuberculosis of the Eye: With Report of Cases.
By CHARLES STEDMAN BULL.
5. A Parabolic Reflector for the Illumination of Test Types.
By MORTIMER FRANK.
6. A Case of Fatal Hemolysis Following Direct Transfusion of Blood by Arteriovenous Anastomosis.
By WILLIAM PEPPER and VERNER NISBET.
7. Hemiplegia as a Complication in Typhoid Fever, with Report of a Case.
By FRANK SMITHIES.
8. The Treatment of Pseudarthrosis and Retarded Callus Formation by Injection of Blood.
By VICTOR SCHMIEDEN.
9. The Treatment of Hypertrophic and Intumescent Rhinitis with the Galvanocautery.
By E. FLETCHER INGALLS and STANTON A. FRIEDBERG.
10. Chemistry of Saliva in Relation to Hay Fever.
By D. BRADEN KYLE.
11. Slow Fever.
By H. F. HARRIS.
12. Gonococcus Infection as a Cause of Blindness, Vulvovaginitis, and Arthritis.
By J. CLIFTON EDGAR.
13. A New Indicator for Free Mineral Acids.
By HERMAN M. ARON.

2. **Ten Years' Experience in the Treatment of Syphilis by the Intramuscular Injection of Insoluble Mercurials.**—Gottheil has used intramuscular injection of insoluble mercurials for over ten years. He thinks that it is safe to say that almost all those who have had opportunity to witness its administration and effects have become its enthusiastic advocates, and its reception by the profession at large during the last two years has been not less cordial. The advantages of this method of administering mercury are a greater rapidity of action, especially in acute cases, more security against relapses, and lessened danger of hereditary transmission of the disease. The patients themselves soon come to prefer the treatment; it is much less trouble to receive an injection at the doctor's office once in ten or fourteen days than to be taking pills or medicine several times a day. It is a lesser tax on their memory and time. Besides this the treatment subserves the important consideration of secrecy. Properly administered, the injections are almost painless. If the right site in the depths of the gluteal muscles is selected, the skin made thoroughly cold with ether, the puncture and the needle withdrawal made with rapidity, though the actual injection of the suspension be done slowly, the pain is an entirely negligible factor. Indurations after the injections do not occur as a rule and abscesses are due to faulty technique.

8. **The Treatment of Pseudarthrosis and Retarded Callus Formation by Injection of Blood.**—Schmieden, of Bonn, recently describes the technique as used in Bier's clinic as follows: The site of the "false joint," as well as the area from which the blood is to be taken, are rendered aseptic. By light application of a constraining band the veins of the skin are made prominent; then one of the largest vessels is punctured and 20 cc. of blood are slowly drawn into the syringe.

If any difficulties are encountered in puncturing the vein, the operation may be facilitated by a small skin incision. The syringe must be large and its needle sufficiently strong in order that the blood may be readily forced through it. Above all, the syringe must be very strong, since much force is necessary to inject the blood into the hard scar tissue. It is desirable to inject the blood into the space between the fractured ends of the bone, and one may be assisted very much by a skiagram. Not only must one inject the blood between the fractured ends, but also around them into the places where, from periosteal and paraosteal connective tissue, callus formation shall take place. It is important that one should immediately inject the blood after its removal, using the same syringe into which it is drawn, in order that it does not coagulate in the syringe. The venous blood does not coagulate as rapidly as arterial blood. Before using the syringe it should be proved to be in perfect order, normal salt solution being used for that purpose, as it tends to prevent coagulation in the syringe. By immediately injecting the blood, which retains its fibrin, better results are obtained than by injecting blood which is defibrinated.

9. **The Treatment of Hypertrophic and Intumescent Rhinitis with Galvanocautery.**—Ingals and Friedberg are of the opinion that in the hypertrophic and intumescent rhinitis uncomplicated with deviations or exostosis of the septum, the galvanocautery properly applied is the method *par excellence* of treatment. In cases complicated with deviations or exostoses of a slight or moderate degree the cauterizations of the turbinal bodies will be sufficient to bring about complete relief without the necessity of performing operations on the septum. The advantages to the patient in the avoidance of expensive, prolonged, and tedious operations, pain, and subsequent discomfort, can readily be seen. The dangers of middle ear infection have been greatly exaggerated, only one case among several thousand cauterizations having come under the writers' observation. The liability to adhesion formation is not great, provided sufficient care is taken not to injure the opposite septal mucous membrane, and provided that when the subsequent swelling is marked a probe be passed between the opposing surfaces the fourth or fifth day. A 4 per cent. solution of cocaine is sufficient in the vast majority of cases to induce a complete local anaesthesia. As a result of experience, especially where there is marked intumescence, the authors believe that a spray of adrenalin chloride or suprarenalin, grain 0.1 to the ounce, materially assists in producing anaesthesia. The objection that the galvanocautery destroys too much mucous membrane is not valid if the cauterization is linear and is done properly. Scab and crust formation does not occur any oftener following cauterization than after other nasal operations. No packing is needed to prevent hæmorrhage. There is very little, if any, pain after galvanocauterizations of the turbinate bodies.

10. **Chemistry of Saliva in Relation to Hay Fever.**—Kyle states that hay fever varies in different individuals. The cause is not the same. The author has been able to demonstrate in at least 60 per cent. of his patients that the local irritation is primarily due to an altered chemistry and an altered resistance, and these 60 per cent. of cases he divides as follows: 1. The class in which the secretions when coming to the surface are nonirritating, but undergo chemical change and produce irritation. This may be either acid, alkaline, or neutral. 2. Cases in which the secretion, when it comes to the surface, is irritating without any chemical change. 3. When the secretion comes to the surface it comes in contact with certain extraneous material and certain secretions coming in contact with certain materials produce by chemical change an irritant;

hence the term ragweed fever, rose cold, etc. Any individual having nasal obstruction in the form of deflected septum, narrow nostrils, polypoid growths, etc., or the neurotic type with lowered vitality, may suffer a more aggravated form than those not having such nasal obstruction or underlying systemic condition. Excessive alkalinity will produce really more irritation than excessive acidity. It is a well known fact that strong alkalis are as caustic and escharotic as strong acids. In his treatment he therefore pays special attention to the secretions, that is, to the elimination, active intestinal tract, stimulants to the liver, free action of the skin. In other words, he increases elimination. The treatment will depend on whether the condition is alkaline, acid, or neutral, whether it is due to the presence of ammonium salts, the sodium salt, potassium salts, or whether there are present sulphocyanids, lactic acid, or oxalic acid. To meet these conditions sodium citrate or lactate or benzoate, which renders inert active compounds, boric acid, dilute hydrochloric acid, dilute nitric acid, various forms of salicylates, sodium chloride—all may be used to counteract a certain chemical ingredient present in the saliva, so that the drug must be selected purely on this basis. The patient should always be instructed to drink plenty of water. Following this basis, the author, without any application whatever to the nasal mucous membrane, succeeded in about 60 per cent. of his patients. The other 40 per cent. he has been unable to relieve by either local or systemic remedies, and was also unable to analyze and separate the irritant and the secretion.

11. **Slow Fever.**—Harris defines as slow fever a continued fever occurring almost exclusively during the warm months and lasting from one to ten weeks. As synonyms he gives typhomalarial fever; simple continued fever; remittent malaria fever; Willacoochee fever; continued fever; bilious fever; typhoid fever. The prognosis in slow fever is generally conceded to be better than in typhoid. The fact, in a large measure, furnishes the basis for the commonly expressed opinion among Southern physicians that slow fever is a distinct and separate disease. As to diagnosis, the author says that "the first thought that always arises in the Southern physician's mind when he is called to see a case of fever is: Can it be malaria? He does not depend on the microscope for an answer to this question, but promptly administers large doses of quinine. If the patient responds to this treatment he justly regards the affection as being of malarial origin, but if, on the other hand, no effect is produced he will call it typhomalarial, slow, or typhoid fever, depending on his preconceived ideas as to the real character of the disease we are studying. Practically, then, it may be said that we may include in the category of slow fever all of those instances of hyperpyrexia not responding to quinine, for which no anatomic basis can be discovered and which continue from one to ten weeks. Of course an examination of the blood for the malarial parasite is of much value, but it should not be forgotten that in those regions where this fever is most common the usual type of malaria is the estivoautumnal, in which it is oftentimes a matter of great difficulty to discover the parasite. Unfortunately the Widal test, even when carried out with the paratyphoid organism, is extremely untrustworthy in this type of fever. The treatment should be the same as in typhoid fever.

MEDICAL RECORD.

August 3, 1907.

1. The Evolution of Gastroenterology,
By HENRY WARD BITTMANN.
: The Separation of the Urine of the Two Kidneys.
By GEORGE LUYB.

3. Primary Dysmenorrhœa, By MAUDE GLASGOW.
4. The Eye Symptoms of Sporadic Trichinosis, with Report of Cases, By FRANK JUDSON PARKER.
5. Venereal Prophylaxis—A Problem in Social Hygiene, By ROSWELL S. WILCOX.
6. The Need of Earlier Diagnosis, By J. N. HALL.
7. Two Unusual Causes of Rectal Hæmorrhage, By CHARLES E. KELSEY.

2. The Separation of the Urine of the Two Kidneys.

—George Luys, of Paris, is in favor of endovesical separation of the urine. It has the following advantages over ureteral catheterization: It is more simple; it may be applied in more cases than ureteral catheterization; it is devoid of danger; the information given by the separator, when properly applied, if possibly not better is at least as exact as that furnished by ureteral catheterization. The principal objections to the method of ureteral catheterization are: Infection, untrustworthiness, and the difficulties. It is not just, says the author, to regard the two methods as rivals in the separation of the urine. Each of them has its indications and its well determined rôle. The separator, more simple in employment and exempt from danger, may be employed in many more cases than ureteral catheterism. Well applied it gives results that are exact and certain, but in certain cases other diagnostic methods are needed either to collect urine directly from the kidney without contamination in the bladder, or when it is desired to explore the pelvis of the kidney. In this case ureteral catheterism will find its application. When this exploration is judged necessary it will be of great advantage to practise it with a direct vision cystoscope, for in this case the chance of renal infection will be reduced to a minimum.

3. Primary Dysmenorrhœa.—Maude Glasgow, of New York, advises a young woman during the period of primary dysmenorrhœa not to make any unusual physical or mental effort beyond her accustomed activity. The patient is in most cases quite equal to the performance of her daily tasks. The constant calling attention to the activities of the organs of generation does not seem wise, although the young woman's guardians should see that she is properly instructed on all physiological matters relating to her future welfare. When the pain or discomfort is excessive it is wise for the patient to remain in bed while it continues severe, adopting preventive measures during the intermenstrual period. Anemic girls who are leading lives of close confinement will be greatly benefited by spending an hour or two every day in outdoor exercise, and this they can themselves arrange by a little self-denial, perhaps, especially during the summer months. After forming the habit of daily outdoor exercise, and observing care as to diet, patients are often amazed at the improvement in their symptoms. It is a wise precaution to empty the bowels thoroughly before the expected period, as it often materially decreases the pain. During the period hot drinks and the application of external heat are of benefit; a hot sitz bath will add greatly to the patient's comfort, and a few small and repeated doses of phenacetin. During the intermenstrual period the patient should take hot douches twice a day, avoiding colds, and keeping the feet warm and dry. Daily exercise, nutritious food, faradism when indicated, and tonics to build up the constitution are necessary. Some cases are benefited by dilatation and irrigation, but not all by any means, and it is best to employ medical means with the hope of benefiting the patient before resorting to harsher measures. Hydrastis combined with nuxvomica has rendered good service in very many cases, the only drawback being the fact that it must be continued for a lengthened period, usually two or three months, and that it has a disagreeable taste. There are now other remedies on the market contain-

ing hydrastis and also viburnum, which are not unattractive to the eye and not disagreeable to the taste. Some patients object to taking such drugs indefinitely, and for such apioi, 5 minims, in capsule, three times a day during the week preceding menstruation, will be acceptable; or tincture of pulsatilla in 5 drop doses, three times a day during the week before the expected period, will be found useful. In all cases the patient should keep the skin and other eliminative organs active, should avoid colds, have daily outdoor exercise, and endeavor to keep the nervous and other systems in healthy condition by wholesome, nutritious food and tonics when necessary.

4. The Eye Symptoms of Sporadic Trichinosis, with Report of Cases.—Parker reports six such cases. He thinks that failure to find the trichinæ in the muscle sections should not mean a negative diagnosis; a case may present the characteristic clinical picture before the trichinæ have developed in sufficient number to be easily discovered. The important points on which the diagnosis depends are: 1. Muscular pain and tenderness, due to general myositis. 2. Fever resembling that of typhoid. 3. Leucocytosis ranging from ten to twenty thousand. 4. Eosinophilia from 10 to 70 per cent. 5. Edema of the eyelids, with tenderness of the globe and painful rotation. 6. Finding of the trichinæ, or the inflammatory areas between the muscle fibres.

BRITISH MEDICAL JOURNAL.

July 20, 1907.

1. The Vibrating Sensation in Diseases of the Nervous System, By R. T. WILLIAMSON.
2. The Spa Treatment of Neurasthenia, By E. J. CAVE.
3. Laryngismus Stridulus in New Born Infants, By E. SMITH.
4. Remarks on the Value of Rhythmical Exercises in the Treatment of Spasmodic Neuroses, By T. S. WILSON.
5. The Educational Aspect of the Cancer Question, By C. P. CHILDE.
6. A Case that Seems to Suggest a Clue to the Possible Solution of the Cancer Problem, By C. G. MACKAY.
7. Inflammatory Changes in Posterior Spinal Root Ganglia in Cases of Cutaneous Cancer, By G. L. CHEATLE.
8. A Case of Streptococcic Conjunctivitis, By H. H. B. CUNNINGHAM.
9. Preliminary Note on Some Bodies Found in Ticks—*Ornithodoros monbata* (Murray)—Fed on Blood Containing Embryos of *Salmonella paratyphi* (Mansueti), By F. C. WELLMAN.

1. The Vibrating Sensation in Nervous Diseases.—Williamson states that when the foot of a vibrating tuning fork is placed over subcutaneous bony prominences in many parts of the body, a peculiar "vibrating sensation" is felt, to which the names "bone sensation" and "pallesthesia" have also been given. The writer has tested this vibrating sensation in a large number of nervous diseases, and sums up his observations as follows: 1. The vibrating sensation is a delicate test for detecting slight impairment of sensation. It may be lost when other forms of sensation (to tactile impressions, pain, and temperature) are felt quite well or are only slightly impaired. This is sometimes the case in early cases, in slight peripheral neuritis, and often in diabetes mellitus. 2. In diabetes mellitus the vibrating sensation may be lost on the feet, or feet and legs, when there are no other nervous symptoms; but when the latter are present. In many cases of diabetes the nervous symptoms are chiefly (a) severe pains, tenderness, and hyperæsthesia in the legs; (b) loss of the tendon reflexes; (c) loss of the vibrating sensation. 3. In diabetes strictly limited to the motor structures, the vibrating sensation is not lost, even at an advanced period of the disease. An example has been given of this. In any case it

which the disease appears to be one causing lesion only of the motor parts of the nervous system, if it should be found that the vibrating sensation is lost, this fact indicates that the disease is affecting also sensory structures; and thus it may be of diagnostic value. 4. In cases of paraplegia from spinal caries and occasionally in spinal syphilis, the loss of the vibrating feeling may be the only objective symptom of affection of sensation at an early stage of the disease. 5. In hemianæsthesia, if the vibrating feeling is lost when the foot of the tuning fork is placed on the edge of the sternum on the side of the tactile anæsthesia, but felt on the other side, the case is one of hysterical or functional anæsthesia, or of malingering; whilst in hemianæsthesia due to organic disease the vibrating sensation is felt when the foot of the vibrating tuning fork is placed on the edge of the sternum on the side of the tactile anæsthesia.

3. **Laryngismus Stridulus.**—Smith holds that laryngismus stridulus, contrary to the general belief, may not only arise quite independently of rickets, but may affect healthy looking infants a few weeks' old. Even when associated with rickets the connection is probably a purely accidental one. He believes the spasmodic seizure to be an essentially reflex act which occurs only as the result of a definite local stimulus situated usually in the nasopharynx. It is allied with rickets in so many cases merely because the nervous system in that disorder is in a state of heightened nervous susceptibility, so that it responds with exceptional activity to every peripheral irritation. In many cases the spasmodic movement is not confined to the larynx but involves the gullet as well. The treatment consists in removing the cause. In mild cases, where the nasal catarrh is slight, a few drops of a weak resorcin solution instilled into the nostrils will soon put a stop to the disease. In severe cases, however, the nasopharynx must be scraped before local remedies will give relief. Where there is spasm of the gullet, the child may have to be fed through a tube for days. During a seizure the tongue should be hooked forward by a finger passed into the throat, or by tongue forceps. Artificial respiration may be necessary, and should be persevered with a long time.

5. **Cancer.**—Childe sums up our present knowledge of cancer as follows: 1. For all practical purposes it is a disease confined to the last half of life. 2. While not denying that there may be unknown hereditary or acquired constitutional conditions favorable to its existence and growth, the development of the disease is primarily local. 3. Its further development consists in an insidious centrifugal spread from its original local site, both by lymphatic permeation and by embolism along the channels of lymph and blood vessels. 4. Usually this centrifugal extension takes place early in the disease, but this factor is inconstant for different varieties of cancer as well as for individual cases of the same variety. 5. Early cancer has no symptoms. 6. Early cancer has no clinical signs or naked eye appearances by which it can certainly be distinguished. 7. The symptoms and clinical signs usually recognized as characteristic of cancer, such, for instance, as pain, wasting, fixity, lymphatic enlargement, etc., are those of advanced cancer only, and are worthless from the point of the essential condition of its successful finding and early diagnosis. 8. The microscopic finding is the only reliable means of diagnosis. 9. In a certain proportion of cases the disease does not recur after removal by modern methods, and in those in which it does recur there is generally a longer period of immunity than formerly. 10. Such freedom from recurrence is presumably due to the local operation having been successful in removing every cancer cell, or, in default of this, that the natural powers of the patient are capable of destroying any which have escaped re-

moval. 11. Recurrences are due to failure in eradicating every cancer cell, and the natural powers of the patient are insufficient to deal with those which have been left behind; in other words, every recurrence is owing to omission on the part of the surgeon to overtake the centrifugally spreading disease.

LANCET

July 20, 1907

1. General Surgery. *Anæsthesia* (Lecture I). By F. W. HEWITT.
2. *Plague* (Lecture I, II). By W. J. R. SIMPSON.
3. A Common Sporadic Seven Day Fever of Indian Ports Simulating Dengue. By L. ROGERS.
4. Experiments on Prolonged Protein Feeding, with Special Reference to the Thyroid Gland and the Osseous System. By D. FORSYTH.
5. Male Triplets with Eclampsia in a Patient aged Sixteen Years. By R. OLLERENSHAW.
6. On the Effect of Tuberculin on the General Tuberculo-opsonic Index in Tuberculous Patients. By H. H. CLARKE and H. G. SUTHERLAND.
7. Multiple Hereditary Developmental Angiomas (Telangiectases) of the Skin and Mucous Membranes Associated with Recurring Hæmorrhages. By F. P. WEBER.

1. **General Anæsthesia.**—Hewitt specifies the three main principles under which anæsthetics should be administered as follows: 1. The selection of appropriate anæsthetics. 2. The maintenance of unembarrassed, and particularly of unobstructed, respiration during and after the administration. 3. The proper adjustment of the percentage or strength of the anæsthetic gas or vapor. A common error is the employment of an asphyxiating agent as an anæsthetic in cases of potential or actual respiratory difficulty. The same holds good of asphyxiating methods, such as those by which ether and ethyl chloride are respectively administered. Nitrous oxide should never be given where the air way is encroached upon, as in angina Ludovici, in thyroid enlargements, or in sublingual abscess. The safest anæsthetic in such cases is a chloroform ether mixture, in the proportion of two to three. Should the patient be dyspnoic, rebreathing is to be avoided, and chloroform should be used. Ether should not be given to emphysematous, bronchitic, or phthisical subjects. Patients with cardiac disease usually stand anæsthesia well, providing asphyxiating methods be avoided. Chloroform or a chloroform mixture should not be used for the operation of circumcision; during this and similar operations there is a great tendency, unless the patient be deeply anæsthetized, for reflex respiratory, as opposed to reflex circulatory, disturbance to arise, and this respiratory disturbance is far more likely to prove dangerous under chloroform than under ether. Overdosage of the anæsthetic is not the most common cause of respiratory difficulty. Four distinct modes of respiratory arrest occur during surgical anæsthesia. Breathing may cease (a) from the presence of muscular spasm or some other condition within the air passages, causing occlusion of those passages; (b) from some external agency preventing lung expansion; (c) from a diminution or arrest of the blood supply to the respiratory centres; and (d) from the toxic effect of the anæsthetic upon those centres. A frequent cause of difficulty in inducing and maintaining anæsthesia is the presence of partial or complete nasal obstruction. Whenever practicable oral breathing should be secured and maintained in preference to nasal breathing, for the latter is often inadequate, retarding the onset of anæsthesia and leading to hyperpnea, venous engorgement, and abdominal rigidity. The anæsthetist should be absolutely certain that respiration is being freely performed—he should either hear or feel every respiration. By the most careful attention to symptoms the anæsthetist may, in the great majority of cases, and

particularly toward the close of operations, permit the patient to display a slight trace of corneal reflex. In adjusting vapor percentages careful attention should be paid to the particular type of subject, children and aged and anæmic persons naturally requiring weaker percentages than others. Tall, plethoric, muscular, and alcoholic subjects usually require very energetic treatment.

4. **Prolonged Protein Feeding.**—Forsyth, as a result of keeping fowls on a prolonged protein diet, has reached the following conclusions: 1. Fowls kept for long periods upon a protein diet, but otherwise under healthy conditions, show no hypertrophy or microscopical changes in their thyroid glands. 2. Their bony tissues are not affected, provided the deficiency of calcium and other bases in the meat diet is made up by a supply of lime. 3. In none of the birds was any change indicative of gout observed. 4. Each of the four fowls maintained under those conditions showed an unusual amount of colloid in their pituitary glands. 5. The thyroid glands of carnivorous birds of prey are not obviously larger, proportionately, than those of other classes of birds, nor are there any peculiarities of microscopical structure in the glands of carnivorous or graminivorous birds referable to differences in their natural foods.

7. **Multiple Angiomata.**—Weber reports a series of cases in one family showing multiple hereditary developmental angiomata (telangiectases) of the skin and mucous membranes associated with recurring hemorrhages. After citing other instances from the literature, he draws the following conclusions: 1. The disease of morbid syndrome affects and is transmitted by both sexes. 2. The hæmorrhage in most cases is only from the nasal mucous membranes. 3. In most cases the morbid syndrome is not connected with any hæmophilic tendency or any diminution of blood coagulability. 4. The cutaneous angiomata are generally not congenital, but are "late developmental" and usually first attract attention toward middle life. Some of the minute red spots of the capillary angiomata class tend to develop into raised bluish nodules approaching the cavernous angioma in character. 5. In most cases a tendency to nose bleeding has been present from early life, or at all events for many years before any cutaneous angiomata have been observed. 6. With advancing years both the attacks of hemorrhage and the anæmia usually become more severe. 7. Probably a kind of "vicious circle" is established, the repeated attacks of bleeding giving rise to grave anæmia, which in its turn increases the tendency to hemorrhage. This furnishes a reason for using iron and arsenic as part of the treatment. 8. The hereditary nature of bleeding telangiectases of the nasal mucous membrane may be compared to the occasional family tendency to suffer from hæmorrhoids or hæmiplegia.

LA JOLLA, CALIF.

July 10, 1907.

1. **Urinary Sulphoethers in Intoxication of Gastro-intestinal Origin.**—Hoffmann and Scheraga, with as the results of a series of experiments that in the normal state there is no excretion of sulphoethers in the urine, while in the case of patients with gastro-intestinal diseases, the excretion of these compounds is increased and may be demonstrated by the following methods:

1. **Urinary Sulphoethers in Intoxication of Gastro-intestinal Origin.**—Hoffmann and Scheraga, with as the results of a series of experiments that in the normal state there is no excretion of sulphoethers in the urine, while in the case of patients with gastro-intestinal diseases, the excretion of these compounds is increased and may be demonstrated by the following methods:

2. **Hypnotics from Alcoholic Radicals.**—Martinet asserts that in a great number of substances the hypnotic property depends on the number and nature of the alcoholic radicals contained in the molecule. Among the remedies mentioned in this very technical paper are sulphonal, tetronal, trional, and veronal.

July 13, 1907.

1. **A Rapid Form of Epileptic Dementia of Adolescence.** Its Relation to Dementia Præcox.
By JULES VOISIN and ROGER VOISIN.
2. **The Mucous Membrane and Its Parasitic Infection of Wounds.**
By L. NAUJAN-LABRIER.
3. **Practical Utilization of the Ophthalmoreaction in the Diagnosis of Tuberculosis in Man.**
By A. CALMETTE, M. BRETON, PAINBLAN, and G. PETIT.
4. **Diagnostic Value of the Supplementary Circulation of the Wall of the Thorax and Abdomen.**
By R. ROMME.

3. **Practical Utilization of the Ophthalmoreaction in the Diagnosis of Tuberculosis.**—Calmette, Breton, Painblan, and Petit quote a large number of cases to support the assertion made a short time ago by Calmette that a simple, quick, and easy method of diagnosis of tuberculosis in its early stage was by the instillation of a solution of tuberculin into the conjunctival cul-de-sac. A reaction is produced only when the patient is tuberculous.

July 17, 1907.

1. **Pathogeny of Phlegmasia Alba Dolens Puerperalis.**
By G. KEIM.
2. **Necessity and Possibility of an Early Diagnosis in the Case of Cancer of the Neck of the Uterus.**
By KENT DE LANGENHAGEN.
3. **Why and How a Defective Mastication Should be Corrected.**
By ALFRED A. KROHN.

1. **Pathogeny of Phlegmasia Alba Dolens.**—Keim considers the formation of thromboses through coagulation at two distinct periods: (1) After delivery, under the influence of chemical elements contained in the uterus itself; (2) during the final weeks of pregnancy, under the influence of the chemical elements which come from the neighboring intestine. Preventive treatment during pregnancy consists of keeping the bowels open with laxatives or intestinal lavage, and the administration of tincture of hamamelis virginica and of strychnine to secure a tonic action on the muscular fibres of the vessels, intestine, and uterus. This preventive treatment is particularly important when there is a tendency to phlebitis in the family, and when the patient has varicose veins or old hæmorrhoids. After delivery the uterus is seen to be emptied of all its contents and its involution hastened. When phlegmasia has taken place the classical treatment is immobilization of the affected limb.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

1. **Urinary Sulphoethers in Intoxication of Gastro-intestinal Origin.**—Hoffmann and Scheraga, with as the results of a series of experiments that in the normal state there is no excretion of sulphoethers in the urine, while in the case of patients with gastro-intestinal diseases, the excretion of these compounds is increased and may be demonstrated by the following methods:

By Wichmann.

By Schüger.

10. Concerning the Influence of Cholin and of the Röntgen Rays on the Course of Pregnancy.
By HUPPEL and PAGENSTECHER.
 11. The Relations of the Medulla Oblongata to the Pupil.
By TRENDLENBURG and BUMKE.
 12. Statistics of the Conditions of Health in the German Colonies.
By RÖSLE.
 1. **Tumors of the Spinal Meninges.**—Schultze reports two cases in which tumors of the spinal meninges were diagnosed from the symptoms presented. In one case the tumor was successfully removed, in the other laminectomy was performed, but no tumor was found and the cause of the compression of the cord was not revealed. Autopsy revealed a large abscess in the posterior mediastinum with necrosis of the fourth and fifth dorsal vertebrae. Schultze has tabulated eighteen reported cases, all he seems to say, but as they were all operated on by German surgeons it is possible that the list might be increased from the English and French literature.
 2. **The Spirochæta Pertennis and the Clinical Picture of Frambæsia Tropica.**—Schüffner describes frambæsia tropica as an infectious disease which enters the system through the skin wherever it may be broken, forms a primary affection at the place of entrance, and follows a course which greatly resembles syphilis. The active agent in its production he finds to be the *Spirochæta pertennis*, a variety of spirochæta hitherto not distinguished from the pallida. He believes syphilis to be only one of a group of independent diseases.
 3. **Hebosteotomy.**—Henkel prefers hebosteotomy, subcutaneous section of the pubic bone, to symphysiotomy in cases in which one of these operations is indicated.
 4. **Concurrence of the Antibodies.**—Brezina says that the animals experimented on with different kinds of erythrocytes as a rule develop antibodies against all of these in equal or somewhat greater quantities than the control animals which are treated with only one kind of blood. A reciprocal hindrance of the action of antigen was not found.
 7. **Thiosinamine Treatment of Dupuytren's Contracture.**—Langemak reports a case of Dupuytren's contracture in which he obtained good results from the injection of a 10 per cent. watery solution of thiosinamine together with the application of hot air for an hour each day and massage.
 9. **Bier's Stasis and Sea Sickness.**—Schläger reports a couple of instances which came under his own observation in which Bier's stasis seemed to be beneficial in sea sickness and urges that this form of treatment should not be classed among absurdities, but that practical measures should be taken to ascertain its value.
 12. The Distinctive Diagnosis of Streptococci Pathogenous to Man,
By BEITZKE and ROSENTHAL.
 1. **Congenital Lack of Vitality.**—Pfaundler divides congenital lack of vitality into six types: (1) Debility due to premature birth from an injured mother; (2) debility of a child at full term from an injured mother; (3) debility due to premature birth from a healthy mother; (4) debility due to other causes, the mother being healthy; (5) premature birth without debility; (6) birth from an injured mother without debility.
 2. **The Constipating Action of Morphine.**—Magnus finds by experiments on cats that the stomach was influenced to the greatest degree and the intestine to the least by the doses of morphine used. The principal effect was a persistent contraction of the wall of the stomach in the region of the pylorus in consequence of which the chyme passed slowly and gradually into the duodenum whence it passed thoroughly digested as under normal conditions into the small intestine. The movements of the antrum pylori, small intestine, and colon were not arrested by the morphine. The author emphasizes that these conclusions apply only to morphine and not to the tincture of opium, and only to the kind of animals on which he has experimented.
 4. **Studies on Swimmers.**—Kienboeck, Selig, and Beck present in a tabulated form the results of their observations made on sixteen swimmers. The chief interest in their observations centres in the question whether excessive exertion in swimming tends to acute dilatation of the heart, and the observations give the surprising result that immediately after the excessive exertion not only was there no enlargement, but there was a diminution of the orthodiagraphic figure of the heart. In ten out of eleven cases this reached a marked degree.
 7. **Comparative Therapeutical Experiments in Rhachitis.**—Sittler finds that he obtains the best results in rickets by a combination of nucleic acid and of its salts, especially the sodium salt, with the glycerophosphates, preferably of calcium.
 9. **Treatment of Sepsis.**—Maier depends largely on the administration of the salicylic acid compounds, and considers the following points important: The treatment should be begun in each case with small doses, their administration should be continued during the night, they should be carefully increased in case of need, and they should be continued until the patient is perfectly free from fever. He considers the frequent administration of small doses more efficient than larger doses at longer intervals.
- LA RIFORMA MEDICA.
June 29, 1907.
1. The Physical Methods of Treatment in Arteriosclerosis on the Basis of the Modern Conception of Its Origin,
By CARLO COLOMBO.
 2. Glycogen in the Sputum, Its Diagnostic and Prognostic Value,
By GIUSEPPE MOSCATI.
 3. Experimental Data Upon the Organic Condition of Patients with Dementia Præcox,
By GIUSEPPE MUGIA.
 4. Clinical Contribution to the Study of Polyclonius,
By ALBERTO ZIVERI.
1. **Treatment of Arteriosclerosis.**—Colombo reviews the modern status of our knowledge of arteriosclerosis, pointing out that the later studies seem to show that the elevated blood pressure is rather a consequence or a concomitant phenomenon than a cause of arteriosclerosis. There are cases of this disease in which there is actually a lowered arterial pressure. The origin of the changes in the arteries, while not accurately known as yet, seems to be closely connected with gout and the uric acid diathesis. The latter is due to some form of intoxication of the blood, which is quite analogous to the poisoning with such metals as lead. In these poisonings the arteries assume the same changes which characterize them in cases of arterio-

July 10, 1907.

1. Concerning the Treatment of Congenital Lack of Vitality,
By PFAUNDLER.
2. The Constipating Action of Morphine,
By MAGNUS.
3. Concerning the Diagnosis of Gastrointestinal Diseases by Means of the Röntgen Rays at the Present Time,
By JOLLASSE.
4. Studies on Swimmers,
By KIENBOECK, SELIG, and BECK.
5. Concerning the Action of Sodium Tartrate and of Oxgal on the Pneumococcus, Streptococcus, Mucosa, and the Other Streptococci,
By MANDELBAUM.
6. The Results of Treatment with Pessaries in Gynecological Practice,
By SCHWAB.
7. Comparative Therapeutical Experiments in Rhachitis,
By SITTLER.
8. Tabes and Combined Pseudosclerosis of the Spinal Cord,
By KÄMMERER.
9. The Treatment of Sepsis,
By MAIER.
10. A Modification of Killian's Canula for Washing Out the Antrum of Highmore Through the Middle Nasal Passage,
By GROSSKOPF.
11. In Regard to the Debated Question Whether the Varying Conditions of the Duodenum (Cloetta) May be Due to the Amorphous Condition,
By HILDEBRANDT.

sclerosis. Arteriosclerosis, therefore, is now regarded as a toxic condition, and in order to prevent it we must follow the advice of Metschnikoff, who tells us that we can avoid it by preventing the development of an excess of toxins in the alimentary tract. To prevent and to treat arteriosclerosis we must not only use such drugs as the iodides and the nitrites, but also must combat the intoxication in the blood and seek to eliminate the toxic products in every way possible. The skin, the kidneys, the lungs, and the intestines offer such ways. The perspiration is one of the most important portals for the elimination of the toxins in cases in which the kidneys are insufficient. The old idea that heat should not be used in arteriosclerosis has no practical foundation. Heat produces the dilatation of the vessels and secures the elimination of the toxins. The electric light bath for this reason is excellent in arteriosclerosis, the patient breathing fresh air while his skin perspires freely. The intestinal route can be utilized by the administration of such remedies as the saline mineral waters, every morning. A lacto-vegetarian diet with diminished chlorides is indicated in all cases of arteriosclerosis, and the patients must be cautioned to abstain from alcohol in any form. Tobacco is injurious and should be used sparingly. Moderate and systematic exercise without fatigue should be enforced. High frequency currents have been recommended, but in the author's experience they are not really beneficial. Cold foot baths, used several times a day, are recommended to those who suffer from cerebral congestions, vertigo, and headache. The water should be about 38°C ., and the bath should last from ten to fifteen minutes.

2. Glycogen in the Sputum.—Moscati examined the sputum of a series of patients with various pulmonary diseases, including tuberculosis, bronchitis, bronchopneumonia, pulmonary tumors, lobar pneumonia, etc., and found that glycogen exists not only in normal pulmonary tissue, but is markedly increased in quantity in all pulmonary diseases in which there is a destruction of a portion of the lung. This especially applies to tuberculosis, in which an enormous amount of glycogen appears in the sputum. An interesting point is that the severity of the disease can often be predicted from the increase of glycogen in the expectorations as the malady enters the destructive stage. In cases of abscess and nontuberculous cavities in the lungs glycogen is also found in the sputum, but not so constantly nor so markedly increased as in tuberculosis. On the other hand, in catarrhal conditions of the bronchi, glycogen is absent. The amount of glycogen obtained in the author's cases was far larger than would be accounted for by the amount of pus present in the sputum.

July 6, 1907.

1. The Distinction Between Pernicious Anæmia and Latent Cancer of the Stomach. By ANASTO CERONI.
2. Neurasthenic Symptoms Resulting from the Insufficiency of the Salivary Glands. By EUGENE BACCHARANI.
3. Two Cases of a Tumor of the Lung Due to Chloroma. By ALDO REGGIANINI.

1. Diagnosis Between Pernicious Anæmia and Cancer of the Stomach.—Taking a case of pernicious anæmia as a text, Ceroni points out the value of laboratory methods. If the symptoms of these cases from cancer of the stomach. The patient was a man, fifty years of age, who had been regarded as a case of gastric cancer by other physicians until his blood had been carefully examined. In such cases where regular lists are found in the blood we have a positive diagnosis of pernicious anæmia, while if there is cancer of the stomach the principal feature of the blood is a marked leucocytosis.

2. Neurasthenia Due to Absence of Salivary Secretion.—Baccarani studied the toxic properties of the saliva in animals and showed that this secretion contains a poisonous principle which is fatal in rabbits. This shows that the saliva eliminates some poisonous products which when retained in the system must needs have injurious effects upon the organism. The salivary glands give forth an internal secretion which is indispensable to the economy. Clinically this is proved by the fact that in cases in which the salivary glands do not properly functionate a series of neurasthenic symptoms develop accompanied by changes in the organic condition of the body, chiefly manifested by emaciation and debility. Two cases are cited to illustrate these contentions. The first patient was a young woman, aged twenty, with hysterical symptoms, whose chief complaint was an inability to secrete saliva so that her mouth was constantly very dry. An infusion of jaborandi was prescribed, the salivary secretion returned, and after fifteen days the nervous symptoms disappeared. The second patient was a law student, who was troubled with a series of vague nervous symptoms, attacks of dizziness, headaches, inability to concentrate his mind on his studies, etc., and an extreme dryness of the mouth. On palpation the region of the parotids and of the submaxillary glands was somewhat painful. The nervous symptoms rapidly disappeared under appropriate treatment.

ROUSSKY VRATCH

June 2, 1907.

1. Lead in Junket Made with Lactobacillin. By G. V. KHILOPINE.
2. Albuminuria Due to Faradization, a Preliminary Communication. By E. A. ZHEBROFSKI and Z. M. GILEVITCH.
3. The Respiratory Mobility of the Lungs and the Theory of Physiological Compensation in Pulmonary Tuberculosis. By A. N. REBEL.
5. Constriction of and Inflammation of the Appendix in Inguinal Hernias. By L. P. MARJANCHIK.

1. Lead in Lactobacillin Junket.—Khipoline reported a case of lead poisoning in a woman who had been using milk fermented with lactobacillin sold by a French firm. This case had been widely discussed in the press. It was proved that the pot in which the fermented milk had come from Paris had been glazed with a lead glaze of inferior quality and considerable amounts of lead were easily isolated from the cover of the pot. The urine and the perspiration of the patient were also examined and lead was isolated from both. In another pot purchased from the same firm, the junket was prepared in the laboratory with the use of lactobacillin. After the junket had been kept in this pot for five days traces of lead were isolated from the junket. The entire quantity of 300 grammes of junket, which is the amount recommended for twenty-four hours, contained nearly eight milligrammes of lead. It appears that the vessels in which the preparation was sold in St. Petersburg were not manufactured in Paris, but were made in the suburbs of the Russian capital, and that an inferior glaze containing lead was used in their manufacture.

2. Albuminuria Due to Faradization.—In a previous article Zhebrowski described a method of inducing the compression of palpable movable kidney. In the present article Zhebrowski and Gilevitch describe a method of inducing albuminuria in any kidney, whether palpable or not. The method is based upon the fact that the faradic current applied to the region of the kidney in some cases produced an albuminuria or increased the amount of albumin in the urine. One electrode, which was a pair of electrodes, was placed upon the lumbar region, obliquely in such a manner that its upper border touched the tenth rib and its inner was touching the tenth space from the spine, and

three below. The second electrode was circular and was placed upon the outer edge of the rectus muscle and was pressed as deeply as possible towards the kidney. The patient sat with the body leaning slightly forward. The strength of the current was regulated according to the patient's sensation. Usually a current strong enough to be felt, but not painful, was used, avoiding if possible contraction of the abdominal muscles. The faradization of each kidney lasted about fifteen minutes. The urine was collected immediately before faradization, and subsequent specimens were collected at intervals of twenty minutes. In thirty-three kidneys examined some were pathological, others were suspicious, while in the third group there was apparently no renal disease. Of thirteen pathological cases seven showed a marked albuminuria, four a slight albuminuria, and two no albuminuria. Of fifteen apparently healthy kidneys, one showed a marked albuminuria, nine a slight, and five no albuminuria. In five suspicious cases sporadic albuminuria was seen in every instance. In some of the cases faradization gave rise to changes in the urinary sediment. The changes due to faradization always disappeared within an hour or an hour and a half after the experiment. The authors do not present any positive conclusions, in view of the fact that they did not observe any cases verified by operation or autopsy.

June 13, 1907

1. The Hardness of Water and Its Influence Upon the Development of Microbes, By I. I. KIANITSIN.
2. The Influence of Fever Upon the Course of Contagious Diseases, By B. P. BARANKYEVA.
3. Operating Table with Heating Attachment, By S. G. SHALITA.
4. A Case of Teratoma, By N. G. FEDSYEFF.
5. The System of Ventilation Devised by M. Timokovitch, By I. B. PISAREVA.
6. Studies from the Laboratory of the Mineral Springs of Staraya-Roussa for 1906, By N. A. ORLOFF.

1. **Effect of Hardness Upon the Development of Microbes in Water.**—Kianitsin investigated the influence of calcium salts upon the growth of bacteria in water for the purpose of determining whether germs grew as readily in hard as they do in soft water. From a study of a number of germs in waters of various degrees of hardness, he concluded that the presence of calcium salts in the amounts in which they occur in potable waters was practically of no account, so far as its influence upon bacterial growth was concerned. This was true not only of the saprophytic germs, but also the pathogenic microbes. Comparatively small amounts of calcium salts, however, 0.12 to 0.26 per cent. when added to water, impeded the development of both saprophytes and of such pathogenic germs as the cholera bacillus. The author therefore recommends the addition of calcium chloride and nitrate in small quantities to suspicious water for the purposes of purification. These salts are harmless and have no disagreeable taste.

3. **Operating Table with Heating Attachment.**—Shalita devised an operating table provided with an electric thermophore, which keeps the plate of the table heated to about body heat or higher, during the entire operation. A set of four electric lamps with reflectors are also provided over the table, which keep the air over the patient warm. Surgeons who operate with this table must take care to stand straight and not to bend over the field of operation, otherwise they will feel the heat of the electric rays which are reflected from the lamps. Bending over the table while operating is a very bad habit, according to the author.

ARCHIVES OF PEDIATRICS

3. Pneumococcus Arthritis in Infants and Children, By A. F. FARR.
4. Eclampsia of Mother as a Cause of Early Nephritis in Child, By C. G. GRULEE.
5. A Study of Hospital and Dispensary Milk in Warm Weather, with Especial Reference to Pasteurization, By J. H. M. KNOX and E. H. SCHÖNER.

1. **Osteomyelitis in Young Children.**—Rotch and George remark that great advances have been made in our knowledge of the living pathology of this disease since infections of the bones have been studied by the aid of the Röntgen ray. This disease is in some respects the most important of the bone diseases of early life. Its onset is rapid and it rapidly destroys the bone, resulting in death or in great deformity. Hence the importance of early diagnosis and operative treatment and the great value of the Röntgen ray. The streptococcus, staphylococcus, pneumococcus, and typhoid bacillus may all be causative factors. The relation of the capsule to the cortex and cartilage is very important in determining whether the joint is infected and whether the danger is or is not great. The Röntgen ray should be used with the earliest symptoms, and rheumatism, scurvy, and tuberculosis must be eliminated. Infectious osteomyelitis may be single or multiple in its first appearance, and subacute or chronic. The knee is the most common seat of infection. In general it is the extremities of the long bones which are attacked. In any case in which the diagnosis is not clear the examination with the Röntgen ray is indicated. This should enable one to know at a very early period whether an operation is or is not indicated.

2. **Enlargement of the Thymus.**—Friedlander observes that the significance of the enlarged thymus has been under discussion for three quarters of a century. Kopp, Friedleben, Cohnheim, Virchow, and others have contributed to the anatomy and pathology of the subject. Paltauf concluded, in 1899, that in addition to enlargement of the thymus as a cause of sudden death there was hyperplasia of the entire lymphoid apparatus and hypoplasia of the entire arterial system. There was also, in some instances, acute dilatation of the heart or degeneration of the heart muscle. In the older children Paltauf was able to show the blood picture of chlorosis, and hence adopted the term lymphatic chlorotic constitution. This has since been modified to status lymphaticus. The symptoms which are now recognized are enlargement of lymph node groups, hypertrophy of the tonsils, the follicles at the base of the tongue and of the intestine, enlargement of the spleen and its follicles, enlarged thymus, and narrow and thin arteries. Sudden death is not uncommon with this disease and anesthetics are badly tolerated. Treatment has been rather unsatisfactory; thymus gland may be administered, also sea baths and iodine internally and externally. Surgical treatment has been successful in some cases, especially when the gland has been removed wholly or in part.

3. **Pneumococcus Arthritis in Infants and Children.**—Furrer analyzed twenty-eight cases and found about half of them secondary to pneumonia. The diagnosis of this condition can only be made from the bacteriological findings. The larger joints are usually involved—the knee, shoulder, hip, elbow, wrist, and ankle, in the order mentioned. Complications include pericarditis, endocarditis, empyema, meningitis, etc. The mortality is about 50 per cent. Treatment should consist in (1) rest in bed with fixation of joints; (2) general supporting treatment; (3) removal of fluid when present. If this is not effective, general infection has probably occurred, and always results fatally. It is hoped that

transfusion of blood may help such cases, in the future. If transfusion is impossible, a reliable antipneumococcus serum should be tested. Finally the combination of venesection and normal saline infusion should be tried in cases in which direct blood transfusion is impossible.

4. **Eclampsia of the Mother as a Cause of Early Nephritis in the Child.**—Grulee reports two cases of infants born of eclamptic mothers, and concludes that a certain percentage of children of eclamptic mothers have diseased kidneys at birth. Most of them are still-born, and few survive birth very long. It would seem probable, at least, that the poison in an eclamptic mother should pass through the placenta and involve the fetal organism. Eclampsia in the mother may therefore be regarded as one of the causes of nephritis in infants.

AMERICAN JOURNAL OF OBSTETRIC CS.

July, 1907

1. An Appreciation of the Work of Dr. Henry J. Garrigue in Introducing Asepsis Into Obstetric Practice. By B. H. WELLS.
2. Ectopic Gestation, with Special Reference to the Treatment of Tubal Rupture. By H. ROBB.
3. Dystocia Following Ventrofixation of the Uterus. By E. HURDON.
4. Abdominal Signs of Pulmonary Disease in Children. By J. D. THOMAS.
5. Surgical Conditions of the Kidney. By C. H. CHETWOOD.
6. Traumatic Displacements of the Nongravid Uterus. By C. CHASE.
7. Volvulus of the Intestine. By G. J. VAUGHAN.

2. **Ectopic Gestation, with Special Reference to the Treatment of Tubal Rupture.**—Robb narrates the history of a series of cases in which operation was performed, and also the account of a series of experiments upon dogs. He concludes from his experiments that we are justified in believing that the intraabdominal hemorrhage met with in women in collapse from a ruptured ectopic gestation sac is not sufficient in itself to cause a fatal termination. He believes that cases in which the loss of blood *per se* would be sufficient to cause a fatal termination are seldom seen in time to save the patient, and that very rarely is such a patient saved by operation. In many of the successful cases operated on for tubal rupture the pathological conditions reported are too meagre to form an opinion as to the exact condition that existed. As to the experiments, taking into account the greater resisting power of the dog in case of hemorrhage, the dogs tested were subjected by cutting the uterine and ovarian arteries to at least as great risk as the average woman with ruptured tubal gestation sac. Other factors in addition to hemorrhage should be considered as causing a fatal result in women, such as shock, the moving of the patient to a hospital, pain, fear, and the effect of the operation itself. The author believes, therefore, that the mortality rate would be lower if instead of operating at once we waited a minute before acting.

3. **Dystocia Following Ventrofixation of the Uterus.**—The author calls attention to the disturbances of pregnancy and parturition, which have followed operative procedures for the relief of uterine retroflexion. Ventrofixation was resorted to as a relief operation for a long time. Numerous reports have been published in which it has resulted in disaster to mother and child. These have been cases, as a rule, in which broad ligaments were torn between the sacrum and the abdominal wall. The complications which are mentioned are pain, hyperemesis, abortion, dysuria, post partum hemorrhage, rupture of the uterus, inertia from thinning of the posterior uterine wall. High position of the uterus is a common cause of dystocia after ventrofixation. In other cases the anterior wall forms an obstructing mass at the cervix.

In a number of cases transverse position of the fetus has necessitated Cesarean section. In two cases of dystocia reported by the author an abdominal section was made at the beginning of labor, the fixation bands divided, and this was followed by normal labor with good subsequent recovery. The alternatives suggested for the complication under discussion are: (1) Liberation of the adhesions during early pregnancy, (2) induction of premature labor, (3) Cesarean section, (4) liberation of the adhesions at term.

6. **Traumatic Displacements of the Nongravid Uterus.**—Chase observes that the infrequent reports of this accident may be due to the fact that the position of the uterus prior to the accident is rarely known. Retroversion, prolapse, and procidentia may be the result of violence, the first being the most common. The accident may occur at any age and with a predisposing or actual cause. The symptoms are pain, pressure, hæmorrhage, nausea, painful and frequent micturition, painful defecation, and more or less shock. The early physical signs are the same as when displacement is due to disease, but the uterus is apt to be incarcerated in the hollow of the sacrum if the displacement results from violence. The diagnosis is not difficult with a full history and careful examination; an anæsthetic is necessary if the patient is a virgin or very nervous. The prognosis is usually good if the reduction is accomplished while the ligaments retain their usual tone. The treatment consists in replacement, the uterus being held in position by a pessary or tampon until the tone of the ligaments is restored, also rest in bed for a few days. The accident has an important medicolegal aspect.

Proceedings of Societies.

AMERICAN SURGICAL ASSOCIATION.

Twenty-eighth Annual Meeting, held in Washington, D. C., May 7, 8, and 9, 1907.

The President, Dr. DUDLEY P. ALLAN, of Cleveland, Ohio, in the Chair.

The President's Address.—The President reviewed the crudeness of the early operators and described the advent of the carbolic spray. Billroth's clinic was an event always to be remembered as being a revelation to him. But the surgeons of the past had been our instructors. The advance we have made in the last fifty years could not be repeated. Men traveled great distances for their clinical lectures, but it was not what we had inherited, but the old absorbing question of how and what must be taught the student of the future. The character of the instructor must vary in different places, depending somewhat on the facilities at hand. It was desirable that every section should have good physicians, but sparsely settled portions of the country could not get the best men. Every man must have some knowledge of medicine and surgery. No single department could be neglected, for a good diagnosis above all things was the most essential. The surgeon must be intelligent in every department of medicine, and be able to recognize diseases in every portion of the body. He must not only decide when an operation must be done, but also decide when an operation must not be done.

The final success of antiseptic work had been in the hands of nurses by now, and the danger was not yet entirely eliminated. The hospital had been the haven for the sick, and the public now realized this. The public in the future would decrease the distance between the home and the hospital. The question of medical education and surgery varied. Some admitted dropping all didactic lectures and substituting bedside teaching. The vast amount of medical knowledge could not be conveyed

to create a specialist in four years. It bred narrow men, and a hospital course after graduation was very essential to a man contemplating a specialty. The lack of special and general training had been evident to all of us, and it seemed that four years was certainly not enough to make a competent specialist. How might this teaching be increased and improved? By improving the instruction in surgical pathology, a neglected subject. Diagnosis needed more attention. The student must be taught to write accurate histories. Exhaustive instruction in certain lines would be followed by neglect in others. With a small amount of material much could be accomplished by textbooks, quizzes, bedside work, and section work.

The student should be constantly required to demonstrate his knowledge of recitations. The tendency of American methods was toward too many lectures and not enough quizzing and individual work. The instruction should be comprehensive. Closer contact of the clinician with the laboratory man was needed. We were living in an age of laboratories. We rejoiced in its development, but many times the laboratory results were disappointing. Only a man great as Cohnheim could recognize the limitations of the laboratory. The published conclusions of the laboratory man could not always be accepted, but probably would be if the clinician was better acquainted with his brother worker.

Lumbar Anæsthesia.—In this paper Dr. E. KUSTER, of Marburg, Germany, said that the method was spreading in Germany, but America deserved the credit for the discovery, in 1885, by Corning. It was not until 1901 and 1904 that the subject was taken up again and the work advanced. Cocaine was first used, but it had been discarded because it could not be sterilized and it was dangerous. He preferred nova cocaine with suprarenalin. It was best to seat the patient on the table, bent forward so that the spinous processes were slightly separated. The skin was cleaned and a puncture was made with a needle in a syringe about 8 centimetres long. The needle should be kept in the median line. The fluid was at first bloody, and it must be allowed to flow until it became clear. The fluid might come in a stream or only drop by drop, depending on the pressure. The needle might be reinserted if the first effort failed. He usually let the stream flow until two cubic centimetres had been obtained, when he injected an equal quantity of the nova cocaine. This was usually sufficient. Immediately after the injection the patient should lie down, the head of the table being lowered. The anæsthesia must be tested from time to time, and as soon as sensibility disappeared the operation might be begun.

As a rule from five to ten minutes was sufficient for inducing anæsthesia. The patient's attention should be distracted and his face covered, so that he was unable to witness the operation. Occasionally he vomited. In rare cases the drug seemed to fail. Then a few drops of ether were employed, and in nearly every case this was successful. In an hour the sensation would begin to return, with a feeling of weakness in the limbs. For the severe headache an aspiration of the cord was done, which almost always gave relief. The fluid drawn out might be cloudy and contain diplococci. Paralysis of the rectum and bladder had occurred once, lasting six days. Mania had occurred once. Slight pneumonia was present in one case, probably on account of an embolus. Pneumonia was less frequent after lumbar anæsthesia than after the use of ether. The pneumonia after the use of ether or chloroform was due to aspiration of saliva. This was one of the strongest arguments for spinal anæsthesia. Spinal anæsthesia might be repeated in the same individual, and he had employed it five times in a man of sixty years. The extreme limits were a child of four years and a man of sixty-seven years. The advantages were

that it was less dangerous than general narcosis, and there are no bad after effects. Pneumonia was entirely avoided. It was without danger to those with disease of the heart, kidneys, and other organs. He believed the field of its usefulness would be enlarged.

Dr. THOMAS HUNTINGTON, of San Francisco, said that he began this work with misgivings, but finally entered upon it with enthusiasm and system. His observations had been in accord with Dr. Kuster's. His experience had been that headaches were rare. He believed that the solution of the drug in the spinal fluid was most important. One thing that had impressed him was the postoperative comfort of the patients. None had had vomiting, but instead they took their meals cheerfully and presented an entirely different picture from that usually seen. Personally, he had made up his mind that it would be his method in the future.

Dr. A. T. BRISTOW, of Brooklyn, N. Y., said that cocaine anæsthesia had been his anæsthesia, but it had been unsuccessful in one third of his cases. He had had six cases in which there developed a subsequent maniacal condition with ideas of persecution, which lasted for from one to three weeks. There had been no paralyzes or infection in his cases.

Dr. WILLY MEYER, of New York, said that little progress had been made on this side of the Atlantic. There must have been some bad effects to cause this. He believed that spinal anæsthesia had a distinct field. He had also used magnesium sulphate, but was afraid of paralysis of the bladder and rectum. He had stopped using lumbar anæsthesia on account of two deaths due to oversterilizing tropococaine and breaking it up into its component parts. In selected cases spinal anæsthesia was no doubt as useful as general narcosis.

Dr. GEORGE E. BREWER, of New York, wished to know the statistics of Kuster and his colleagues. He had heard that the mortality was 1 to 500, and he would not employ it unless he was satisfied that the danger of a general anæsthetic is more than 1 to 500.

Dr. WILLIS G. MACDONALD, of Albany, N. Y., said that between the Paris congress and this congress he had administered anæsthetics a thousand times. He had used lumbar anæsthesia sixty or seventy times. The year after the Paris congress he had four bad results. From his last year's experience he believed nova cocaine was as bad as the rest, and had seen a death from it. The patient went into a condition of collapse and died.

Dr. KUSTER could not give the exact statistics since the Paris congress, but the mortality had been diminished. As the technique was improved the mortality was lowered.

Continuous Passive Congestion in the Treatment of Delayed Union of Fractures.—In this paper Dr. JOHN B. ROBERTS, of Philadelphia, said that several years ago he had presented the suggestion of passive hyperæmia. The cases of ununited fractures are few. He had learned that the method had already been proposed in Germany. The interest had been stimulated by Bier's practice. Dr. Roberts's method had been to place a bandage above the fracture. Some men had employed wedges of wood with intermittent hyperæmia. It was difficult to practise this method with mathematical certainty, but a number of cases had been treated with the elastic bandage. Dr. Roberts had used it in recent fractures, but the efficacy had not been determined in his own mind. There was much in Bier's writings to make us believe that congestion produced an early deposit of bone. It was not applicable when there was an entanglement of soft parts between the ends of the bone. In addition to this treatment he administered calcium lactophosphate, iron, and strychnine. A true pseudoarthrosis demanded plates, staples, etc.; and then the elastic bandage could be used. When inflammatory

symptoms were present it was doubtful if continuous hyperæmia should be used. Care must be exercised to avoid excessive tightness. A slight venous congestion was all that was desirable, without swelling.

Mr. JONES, of Liverpool, said that Mr. H. O. Thomas, seven years ago, had advocated the damming of the site of the fracture. He had been a pupil of Thomas's and seen forty or more cases. The treatment of ununited fractures of the femur consisted in using ambulatory splints with rubber above and below the fracture.

Resection of a Sound Femur for Gigantism and Asymmetry.—In this paper Dr. ROBERT W. JOHNSON, of Baltimore, said that a woman over six feet tall was most unfortunate. Should we advise the patient to accept the operation of shortening the femur by resection? He believed the square ends are better than the oblique. The union should occur in eight weeks. He did not believe in a double operation at one time. In cases in which one thigh was much longer, with hobbling, was it not safe also to recommend such an operation?

A New Method of Rhinoplasty by Means of One of the Fingers.—Dr. J. M. T. FINNEY, of Baltimore, said in this paper that only the manner was new. The bony septum was entirely destroyed and there was a depression when a mass should have been. The flap method would not do and the various frameworks were liable to necrosis, and the use of paraffin was the only available method. The ring finger of the left hand would be least missed. The nail and matrix were completely removed, the skin of the dorsum was stripped off, and the end of the distal phalanx was exposed and denuded on the dorsum. The skin of the nose was scratched and the integument was denuded on the inner side of the nose. The tip of the finger was made to rest on the nasal process of the frontal bone. The finger was kept in position by plaster bandages for two weeks, and the finger was amputated a week later. The first phalanx was flexed and sewed into position, the second and third phalanges forming the nose. In looking over the literature he had found the first case reported by James Hardy in 1875, but the result was not entirely satisfactory. Sabin, in 1879, did the same operation. An attempt to graft a recently amputated finger was a failure.

Tunis also repeated this operation in 1897, which was a success. The fixation of the finger was done by adhesive plaster and the mouth is not obscured.

Dr. HAAS, of Denver, knew of such a case with a satisfactory result.

Treatment of the Posterior Capsule of the Thyroid in Thyroidectomy.—In illustration of this paper Dr. CHARLES H. MAYO, of Rochester, Minn., showed stereoscopic photographs of cases. His conclusions were based on over 375 operations. The laryngoscope must be used before the operation, to learn of any paralysis. There were two superior parathyroids and two inferior parathyroids, and they might be enclosed with the capsule and be accidentally removed. They were small, flat, yellowish bodies, and tetany followed their removal. He grasped all vessels in their long axis, thus minimizing the danger of clamping the nerves. All small bodies seen in connection with the gland were left. He drained for three days. The œsophagus had been opened, but if it was closed at once the danger was not great. Should a vein be injured there was danger of air being aspirated. There was danger of a ligature slipping. There had been but one case of tetany. Preservation of the posterior capsule protected against many dangers of the thyroidectomy.

Dr. W. S. HALESTED, of Baltimore, fully indorsed all that Dr. Mayo had said. He did not know how often tetany had followed after both lobes were removed. It was a question if we could so strip the vessels from

the gland as to preserve the circulation of the parathyroids.

Aneurysmal Varix, Etc.—Dr. GEORGE TULLY VAUGHAN, of Washington, reported the case of a woman, fifty-three years old, who was suddenly taken ill with vomiting, felt something burst in her head, and was conscious of a great noise. A few days later her eyes began to bulge. He found her lying in bed moaning and groaning. Her pulse was 75. A great thrill was felt over the vessels of the right side of the neck and a bruit could be heard. He decided to ligate the internal carotid. The patient was put to bed in good condition. She slept heavily and died in about twenty-four hours after the operation. Cerebral anæmia was the probable cause of death. Dr. Vaughan also reported other analogous cases.

Graduated Vertical Traction in Its Application to Congenital Dislocation of the Hip.—In this paper Dr. OSCAR H. ALLIS, of Philadelphia, said that Bertius's theory of reduction was by means of vertical pressure, not longitudinal pressure. Lorenz made everything yield that constricted the joint and then used longitudinal traction. The objection to traction was that it pulled against the iliofemoral ligament. He showed an apparatus by which the child was fixed in bed and by means of which he could flex, extend, circumduct, abduct, or adduct the limb in the apparatus. The limb was removed from the apparatus and lifted into the acetabulum.

(To be continued.)

Book Notices.

Die Zuckerkrankheit und ihre Behandlung. Von Professor Dr. CARL VON NOORDEN, Vorstand der I. medizinischen Universitätsklinik in Wien. Vierte vermehrte und veränderte Auflage. Berlin: August Hirschwald, 1907. Pp. xv-367.

In 1896 von Noorden, then of Frankfort on the Main, now of Vienna, published the first edition of his book on diabetes, which now appears for the fourth time with many additions and alterations, especially about the acetone bodies (pp. 107 to 119) and the theory of diabetes (chapter IV). The author has used the histories of 1,960 diabetics out of a collection of 2,500. He admits that we do not know much of the nature of diabetes mellitus, and he defines the disease as a condition of the body in which the ability of the organism to burn up glucose is morbidly decreased. He gives as the cause of such a condition the theory which has been accepted for a long time, viz., deficiency of the glycogen formation in the liver and of the carbohydrate absorbing organs, which circumstance is influenced by abnormal fermentation produced by the pancreatic parenchyma.

After having treated in chapter I the physiology and general pathology of the body's use of sugar, he speaks in chapter II of the ætiology of diabetes mellitus, and mentions the hereditary character of the malady, giving an ancestral tree of a diabetic family, but says that at present the theory of contagion is to be denied. The pathological chemistry and metabolism in diabetes are to be found in chapter III, followed by the theory of diabetes in chapter IV. Chapters V and VI give descriptions of the disease proper, while the treatment is outlined in chapter VII. The author lays great emphasis on the dietetic treatment. He states that under all circumstances, as has been said by others, the nutrition of the patient must be such that his strength will be preserved and if possible increased, that he must therefore receive of useful food as much as he is capable of digesting, and that he must lose of his weight. His opinion about alcohol is that the

moderate use of it does not increase glycosuria, and it may be beneficial, but under certain circumstances detrimental to the diabetic; it must be noted that alcohol decreases the dangerous formation of the acetone bodies; the alcohol certainly should be free from sugar.

Very clear and precise are the food tables, divided into four groups: Absolutely permitted foods (free from carbohydrates); foods to be taken only by special permission and in limited quantity; restricted foods; and, finally, special valuable foods.

It can be seen that von Noorden does not bring out anything new or startling, and he does not profess to do so; but the book is written in a very concise manner and gives valuable information to the practising physician. The bibliography is very rich.

Medical Abstracts. Anatomy, by STEWART L. McCURDY, A. M., M. D. Physiology and Embryology, by FREDERICK A. RHODES, M. D. Histology and Bacteriology, by A. B. WALGREN, B. S., M. D. Materia Medica and Therapeutics, by CHARLES A. ORR, A. M., M. D. Chemistry, by JOHN INGLIS, A. B., A. M., M. D. Surgical and Medical Emergencies, by STEWART L. McCURDY, M. D. Pittsburgh: Medical Abstract Publishing Company, 1906. (Price, \$1 a volume, except *Emergencies*, which is 50 cents.)

The publishing company began its series of abstracts in 1904 with the publication of *Anatomy in Abstract*, edited by Dr. Stewart L. McCurdy, of Pittsburgh. Finding that the little book was well received, it has brought forward the others that are mentioned above. The editors have selected good textbooks on their subjects as a guide, and have from them compiled the abstracts. As the editors are all professors, these books have had the advantage of their teaching experience, and they know what is needed by a medical student as a short abstract and help for memorizing certain subjects, bringing out and emphasizing the essential points.

The books are arranged in accordance with a certain system. Each paragraph begins with a keyword in bold type, followed by a very brief description. This system has been carefully adhered to and well carried out.

The success which the publishers have had with these abstracts shows that the books are appreciated by the students. But in this appreciation there lies a great danger, and that is that the students may cram from them for examination, without digesting the matter properly. If the student attends his lectures, demonstrations, and clinics, and has a good textbook for reading and studying at home, then such an abstract is a valuable help. But if only the abstract is studied by the student to pass a necessary examination, it leaves his mind barren of all real knowledge.

Le Cerveau et la moelle épinière. Avec applications physiologiques et médico-chirurgicales. Par CH. DEBIERRE, professeur d'anatomie à l'Université de Lille, membre correspondant de l'Académie de médecine et de la Société de biologie. Avec 373 figures en noir et en couleurs dans le texte et quatorze planches hors texte. Paris: Félix Alcan, 1907. Pp.

The mass of information that has been acquired concerning the anatomy, physiology, chemistry, and pathology of the nervous system is now enormous. By reason of this almost bewildering amount of detail that has accumulated, the student of nervous problems must be a hardy one in taking his first plunge. For in the waters of neurological science there is much that is turbid as well as much that is clear, and it needs

a discriminating intelligence to work to the best advantage.

It has been the author's aim in the preparation of this volume to distinguish what is definitely known from that which is purely conjectural; to pass by in silence details of minor importance and to concentrate attention on those larger facts of neurological science which are of relatively the greatest importance from the standpoint of the practical problems, particularly of surgery.

It is therefore largely a manual of diagnostics, and as such will be appreciated by the surgeon as well as the physician. The work is richly illustrated and is a very commendable and useful volume.

Atlas and Epitome of Diseases of Children. By Dr. R. HECKER and Dr. J. TRUMPP, of the University of Munich. Authorized Translation from the German. Edited by ISAAC A. ABT, M. D., Assistant Professor of the Diseases of Children in Rush Medical College, Chicago. With 48 Colored Plates and 147 Black and White Illustrations. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 453. (Price, \$5.)

This is a very useful work for the study of pædiatrics. It is primarily an atlas and covers with a beautiful series of pictures the entire range of infantile and juvenile anatomy and pathology. In fact, one might almost complain of an embarrassment of this kind of wealth, especially in those chapters which deal with the various deformities.

The quality of the illustrations, however, whether in black and white, or in colors, is uniformly good, and this is especially true of the numerous plates illustrative of the diseases of the skin. The text is, as the title indicates, terse and pointed, but seems to be sufficiently explicit to give a good idea of the diseases described, with their treatment.

It is by no means a disadvantage for a busy man, whether student or practitioner, to get at the pith of a subject in the fewest possible words, which is an end seldom attained in the average textbook, American or foreign.

A volume of larger size and somewhat larger type would make a more pretentious appearance, and in our opinion would be a distinct improvement.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Sitzungsberichte der Gesellschaft für Morphologie und Physiologie in München. München: J. F. Lehmann, 1907.

Sixth Annual Report of the Metropolitan Water and Sewerage Board. Boston: Wright & Potter Printing Company, 1907.

Report of the Commissioner of Education for the Year Ending June 30, 1905. Volume II. Washington: Government Printing Office, 1907.

Hay Fever. Hay Asthma. Its Causes, Diagnosis, and Treatment. By William Lloyd, Surgeon in Chief of the Nose, Ear, and Throat Department, Kensington General Hospital, etc. London: Henry J. Glaisner; Chicago: W.

Gynecology and Abdominal Surgery. Edited by Howard A. Kelly, M. D., F. R. C. S. (Hon. Edin.), Professor of Gynecological Surgery at the Johns Hopkins University, etc., and Charles P. Noble, M. D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia, etc. Illustrated by Hermann Becker, Max Brödel and others. Volume I. Philadelphia and London: W. B. Saunders Company, 1907.

Modern Medicine. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by William Osler, M. D., Regius Professor of Medicine in Oxford University, England, assisted by Thomas McCrae, M. D., Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore. Volume II. Infectious Diseases. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1907.

Miscellany,

Study of the Deaf Child.—Dr. J. K. Love, of Glasgow, puts forward the following suggestions in his article on a Plea for the Study of the Deaf Child in *The Glasgow Medical Journal* of February, 1907: All children on admission, or shortly thereafter, to a deaf school, should have their ears examined and their hearing tested by an aural surgeon. Voice tests are the most important, but fork tests, limited to the speech area of the scale, should also be used. The fork tests used in this inquiry are of great scientific interest, but are much too elaborate for routine work. The eyes of all children should be similarly examined by an eye surgeon, and, where refraction errors are discovered, these should be corrected by the fitting of suitable spectacles. The nasopharynx of deaf children should be examined, and, in oral pupils at least, enlarged tonsils and postnasal adenoid growths should be removed where those are well marked. As a result of such examinations, and of the teachers' experience for a year or so, deaf children should be classified into those who should be taught orally and those who should not, and these two classes should be taught in separate schools quite unconnected with one another.

Excavations for Pithecanthropus.—Quoting from the *Beilage zur Allgemeinen Zeitung* for January 30th, *Nature* states that an expedition is in course of being organized, under the auspices of the Royal Academy of Sciences of Berlin and the government of the Dutch East Indies, for the purpose of exploring Java in search of further remains of Pithecanthropus. The originator of the idea appears to be Frau Professor Slenka, widow of the late Professor Slenka, of Munich, who has already traveled extensively in Borneo for the purpose of collecting embryos of the orangutan. Dr. Elbert is attached to the expedition as geologist, whilst Dr. Maszkowski, of Berlin, goes out as zoologist. A Dutch engineer, Mr. Oppenorth, will have charge of the surveying and excavating operations. The Pleistocene volcanic breccia from which the original remains of Pithecanthropus were obtained by Professor Dubois at Trinil is believed to have a wide extent in the mountains of Java, reaching in some places to a height of 100 metres or more above sea level, and it is proposed to examine this stratum thoroughly in a number of the more promising localities. *Science*, March 8, 1907.

The Late Professor Schüller.—The *Deutsche medizinische Presse* for July 7th published a letter, written by Dr. Karl Gumpertz, of which the following is the substance: In Max Schüller we lose a faithful contributor and the medical world an investigator and pioneer who unfortunately has not been appreciated so much as he should have been. Schüller, while he was Hüter's assistant, had discovered, independently of Koch, the tubercle bacillus. During his best years he published his extensive works on diseases of the joints, and with the beginning of the new century he devoted himself to the study of the etiology of cancer. For the readers of the *Deutsche medizinische Presse*, he has repeatedly demonstrated his ideas concerning the prophylaxis of cancer. Schüller has been severely criticized because he first published creative ideas soon before the public, with his discussions, but he was probably induced by the warning attention of the medical profession. After Völker, the assistant of Czerny, certainly too hastily had declared that Schüller's cancer cells were in reality cork cells, many physicians believed that Schüller was suffering from irritation of the mind. The influence of our department on everybody who produces anything which deviates from the official pattern has and should have to remain independent of state control.

Official News.

Public Health and Marine Hospital Service
Health Reports:

United States Public Health and Marine Hospital Service,
Washington, D. C.

Places.	Date.	Cases.	Deaths.
California—San Francisco.....	13 20.	1	0
Illinois—Peoria.....	June 15-July 20.....	10	2
Indiana—Vincennes.....	Aug. 8.....	1	0
Massachusetts—Boston.....	May 13-20.....	1	0
Ohio—Heron.....	Mar. 31-June 7.....	21	2
Ohio—Toledo.....	June 13-20.....	1	0
Ohio—Toledo.....	July 14-21.....	1	0
Pennsylvania—Homestead.....	July 14-21.....	1	0
Texas—Houston.....	Apr. 28-July 27.....	50	1
Virginia—Richmond.....	June 13-20.....	1	0
Wisconsin—Milwaukee.....	July 13-20.....	1	0

$$N_{\text{eq}}(1\text{ pm}) = 1.85 \times 10^6.$$

Philippine Islands—Manila.... June 8-15..... 2

Scallopia limosa

Austria - Vienna	June 130			
Australia - Newcastle	May 131	1		
Austria - Trieste	June 85			
Brazil - Para	July 626	11		
Canada - Halifax	July 20			
China - Beijing	June 30	1		
China - Aomori	June 22			Present
China - Fochow	June 2330	1		Present
China - Hankow	June 2927	1		
China - Hongkong	June 15	6		
China - Shanghai	June 2330			40

China—Tientsin	June 30	Present	Among natives
Formosa	June 15-22	1	
Germany—Königsberg	June 30 July 6	1	
India—Bombay	June 18-25		
India—Calcutta	June 8-15		20
India—Rangoon	June 8-15		1
Italy—General	July 4-11	24	
Italy—Turin	June 30-July 7	1	
Italy—Venezia	June 29-July 6		
Japan—Yokohama	June 17-24		
Korea—Seoul	June 30		
Madagascar—Fianarantsoa	July 7-14	15	Present
Manchuria—Dalny	June 15-20	4	
Mexico—Aguas Calientes	July 13-20		
Mexico—City of Mexico	June 22-July 4		18
Mexico—Monterrey	July 7-14		
Portugal—Lisbon	June 29-July 13	13	
Russia—Moscow	June 15-20	13	
Russia—Odessa	June 29-July 6	2	
Russia—Riga	June 29-July 6	2	
Russia—St. Petersburg	June 29-29	2	
Spain—Almería	June 1-30		
Spain—Barcelona	July 1-10		
Spain—Cadix	June 1-30		
Spain—Seville	June 1-30		
Spain—Valencia	June 30-July 7	16	
Spain—Barcelona	July 1-10		Present

1900. *Journal of the American Medical Association*, 1900, 1: 1000.

Brazil	Para	July 6-20	8
<i>Cladonia</i> <i>Isocarp</i>			
India	Bombay	June 18-25	
India	Calcutta	June 8-15	
India	Rangoon	June 8-15	

Africa	King William's Town	June 8-15	1
China	Yenchowang	June 30	1
China	Hankow	June 15	2
China	Amoy	June 27-July 1	1
China	Assam, P. vince.	June 27-July 1	1
China	Beihai Prefecture	June 27-July 1	1
China	Kiang-Soo, P. Province	June 27-July 1	1
China	Minch. Province	June 27-July 1	1
China	Shanghai	June 18	1
China	Calcutta	June 8-15	4
China	Rangoon	June 8-15	1
China	Yokohama	July 8	1

Public Health and Marine Hospital Service:

BRINCKERHOFF, W. R., Director of Leprosy Investigation Station, Hawaii. Detailed to represent the Service at the Sixth International Dermatological Congress, in New York, N. Y., September 9 to 14, 1907.

FRICK, L. D., Passed Assistant Surgeon. Granted leave of absence for seven days, from July 22, 1907, under paragraph 191, Service Regulations.

GOLDBERGER, JOSEPH, Passed Assistant Surgeon. Directed to proceed to Brownsville, Texas, and other places in that portion of the State, for special temporary duty, upon completion of which to rejoin his station in Washington, D. C.

MACDOWELL, W. F., Pharmacist. Granted leave of absence for fifteen days, from August 1, 1907.

McCoy, G. W., Passed Assistant Surgeon. Directed to proceed to Brownsville, Texas, and other places in that portion of the State, for special temporary duty, upon completion of which to rejoin his station in Washington, D. C.

OLSEN, E. T., Assistant Surgeon. Granted leave of absence for seven days, from July 26, 1907, under paragraph 191, Service Regulations; granted an extension of leave of absence, for seven days, from August 2, 1907.

SMITH, A. C., Surgeon. Directed to proceed to Wheeling, W. Va., for special temporary duty, upon completion of which to rejoin his station at Pittsburgh, Pa.

SPOHN, A. E., Acting Assistant Surgeon. Granted leave of absence for thirty days, from July 1, 1907, and excused for a further period of two months, from the expiration thereof, without pay.

STILES, CHARLES W., Chief of Division of Zoology, Hygienic Laboratory. Detailed to represent the Service at the Seventh International Zoological Congress, to be held in Boston, Mass., August 19 to 23, 1907.

TOWNSEND, F., Acting Assistant Surgeon. Granted seven days' leave of absence, from July 29, 1907.

TOWNSEND, W., Acting Assistant Surgeon. Granted extension of leave of absence for seven days.

TRASK, J. W., Assistant Surgeon. Detailed as recorder of the board for completion of examination of applicants for entrance to the Service, vice Joseph Goldberger, relieved.

WARREN, B. S., Passed Assistant Surgeon. Relieved from duty at Boston, Mass., and directed to proceed to Chicago, Ill., reporting to the Medical Officer in Command, for duty and assignment to quarters.

Board Convened.

A board of medical officers was convened to meet at Chicago, Ill., for the purpose of making a physical examination of an Inspector of Immigrants. Detail for the board: Surgeon G. B. Young, Chairman; Acting Assistant Surgeon William Kimmatt; Acting Assistant Surgeon J. J. Gerkin, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers in the Medical Department of the United States Army, for the week ending August 3, 1907.

BANTA, W. P., First Lieutenant and Assistant Surgeon. Ordered to proceed from San Francisco, Cal., to Fort D. A. Russell, Wyo., for station and duty.

DAVIDSON, W. T., Captain and Assistant Surgeon. Assigned to duty as surgeon of the transport *Logan*, during voyage to Manila, sailing from San Francisco, Cal., August 5, 1907. Upon arrival at Manila will report in person to the commanding general, Philippines Division, for assignment to duty.

EASTMAN, WILLIAM E., First Lieutenant and Assistant Surgeon. Granted thirty days' leave of absence, with permission to apply for thirty days' extension.

FIELD, PETER C., First Lieutenant and Assistant Surgeon. Will, upon arrival at San Francisco, Cal., proceed to Fort Wayne, Mich., for duty at that station.

FLAGG, C. E. B., First Lieutenant and Assistant Surgeon. Leave of absence extended thirty days.

HALLORAN, P. S., Captain and Assistant Surgeon. Ordered to accompany Battery C, 5th Field Artillery, to Fort

Des Moines, Iowa, for duty during the Iowa militia maneuvers, near Des Moines, Iowa, from August 5 to 12, 1907.

MORRIS, E. R., Captain and Surgeon. Relieved from duty at Fort Logan, Colo., and on expiration of present sick leave, ordered to Fort Thomas, Ky., for duty.

SNODDY, C. A., First Lieutenant and Assistant Surgeon. Leave of absence on account of sickness extended thirty days.

WALES, P. G., Major and Surgeon. Relieved from duty at Fort Wayne, Mich., and ordered to Fort Apache, Ariz., for duty.

WINTER, F. A., Major and Surgeon. Left post, Fort Myer, Va., August 1, 1907, on ten days' leave of absence.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending August 3, 1907.

ALDERMAN, C. G., Assistant Surgeon. Ordered to the Naval Hospital, Puget Sound, Wash.

BISHOP, L. W., Passed Assistant Surgeon. Unexpired portion of leave revoked; ordered to the *Missouri*.

BUNKER, C. W. C., Acting Assistant Surgeon. Ordered to the *Lancaster*.

CHAPPELEAR, F. D., Acting Assistant Surgeon. Resignation accepted, to take effect July 31, 1907.

MURPHY, J. A., Surgeon. Detached from the *Des Moines* and ordered to the *Dolphin*.

TOLFREE, H. M., Passed Assistant Surgeon. Detached from the *Dolphin* and ordered to the *Des Moines*.

Births, Marriages, and Deaths.

Married.

BARRY—WALSH.—In Orange, New Jersey, on Monday, July 29th, Dr. Walter F. Barry and Miss Anna E. Walsh.

WOODS—CURRIER.—In Somerville, Massachusetts, on Saturday, July 27th, Mr. George Henry Woods and Dr. Mary Barnard Currier.

Died.

ARNER.—In Jefferson, Ohio, on Friday, July 26th, Orissa Arloe Udell, wife of Dr. Alfred L. Arner, aged fifty-eight years.

BIRCKHEAD.—In Rivanna, Virginia, on Sunday, July 28th, Dr. Edward Francis Birckhead, aged eighty-seven years.

CANAVAN.—In Traverse City, Michigan, on Friday, July 26th, Dr. James F. Canavan, aged thirty-one years.

CAPEHART.—In Avoca, North Carolina, on Tuesday, July 30th, Dr. William R. Capehart.

ELTINGE.—In Kingston, N. Y., on Sunday, July 28th, Dr. Edgar Eltinge, aged seventy-nine years.

FORSYTHE.—In Washington, D. C., on Tuesday, July 30th, Dr. A. Dunbar Forsythe, formerly of Harrodsburg, Ky.

HALL-BROWN.—In Los Angeles, California, on Thursday, August 1st, Dr. Lucy Hall-Brown, formerly of Brooklyn.

HANDLEY.—In Chicago, on Saturday, July 24th, Dr. Mortimer W. Handley, aged thirty-five years.

HOWARD.—In Narragansett Pier, Rhode Island, on Wednesday, July 31st, Dr. William T. Howard, of Baltimore, aged eighty-four years.

KIRKSEY.—In Hearne, Texas, on Friday, July 26th, Dr. W. H. Kirksey, in the sixty-third year of his age.

McELROY.—In Elizabeth, New Jersey, on Friday, July 26th, Dr. Lee McElroy, aged thirty years.

MEEK.—In Bay St. Louis, Mississippi, on Friday, July 26th, Dr. W. H. Meek.

LEVIN.—In New York, on Friday, July 19th, Dr. Samuel Levin, aged thirty-four years.

PORTER.—In Albay, Philippine Islands, on Monday, July 22nd, Lydia Kilgour Porter, wife of Dr. Ralph S. Porter, United States Army.

RUFFNER.—In Columbus Barracks, Ohio, on Monday, July 29th, Jennie Hubbard Clark, wife of Dr. Ernest L. Ruffner, United States Army.

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NEW YORK, AUGUST 17, 1907.

WHOLE No. 1498.

Original Communications.

HYPERNEPHROMA.

A Histological Study of Three Cases of Hypernephroma of the Kidney and One of Papilliferous Adenoma.

By I. W. BLACKBURN, M. D.,
Washington, D. C.,

Pathologist to the Government Hospital for the Insane; Professor of Morbid Anatomy and Special Pathology, Medical Department Georgetown University.

The term hypernephroma is now by common consent applied to certain tumors which may arise from adrenal gland tissue, whether originating in the gland itself, or from aberrant hypernephric tissue situated in the kidney or other abdominal organs and tissues. Prior to 1883, when Grawitz in his studies of these tumors recognized their true origin and gave them the name "strumæ lipomatodes aberrati renis," these growths occurring notably in the kidney, were, owing to their gross appearance and obscure histological structure, known as lipoma, sarcoma, carcinoma, adenoma, angioma, angiosarcoma, adenocarcinoma, myxoma, endothelioma, and perithelioma. These various names, indicating the honest opinion of competent histologists are warranted by the different details of structure occurring in tumors of the class, and indeed in various parts of individual growths; and by the extreme difficulty in interpreting the structure of most tumors of the kind. In fact, in many of these growths one may find portions of the tissue almost exactly resembling a number of the neoplasms with which such tumors have been confounded. It is yet a matter of no little difficulty to study such growths from a histological standpoint only; and in the diagnosis of these tumors we need, in addition, the aid of embryogenesis and histogenesis, for the knowledge of which we are indebted to Grawitz, Kelly, and others.

The key to the situation was discovered in the demonstration of the frequent presence of aberrant foci of adrenal tissue, especially in the kidney, and less commonly in other organs and structures of the genitourinary tract; and in the resemblance of these renal tumors to the "adrenal rests" both in histological features and in degenerative tendencies. Opinions differ greatly as to the frequency of these "adrenal rests," some asserting that they occur in a high percentage of cases, and other authorities that they are rare. Their presence in the genitourinary tract is explained by the close physical relationship of the adrenal gland to the mesonephros, or primitive kidney, and the sexual organs during the developmental period, and the inclusion of portions

of the adrenal gland in these organs. These aberrant gland foci have been found in the kidney, the perinephritic tissue, solar and renal plexuses, broad ligament, ovary, testicle, liver, and other organs and structures, but the most frequent seat is the kidney. The adrenal remnants are usually small; easily overlooked, and occur commonly on the surface of the organ covered by the capsule. These small tumors, essentially adrenal adenomata, are unquestionably the origin of the larger tumors then called hypernephromata; being an exemplification of the theory of Cohnheim, that of the origin of tumors in embryonic remains. These tumors are by some observers alleged to be the most common renal tumor, and this is highly probable, as the liability of confounding this growth with other tumors resembling it is very great and the histology of hypernephroma is as yet not clearly settled. It is with the hope of adding somewhat to this difficult subject that the histological study of three cases of hypernephroma of the kidney and one of papillary adenoma is here introduced. These tumors were all found unexpectedly at autopsy, and as showing the infrequency of primary tumors of the kidney, may be mentioned as the only primary renal growths discovered in our 2,200 post mortem examinations.

The hypernephromata may be both malignant and nonmalignant in the usual sense of the word; though they are probably all potentially malignant, or at least metastatic; the tumor elements being in some cases merely restrained by the unyielding capsule. Two of my cases had given metastasis; in one to the liver and the other to the adjoining adrenal gland. In acknowledging the malignancy of these tumors we must of course modify our views as to the restriction of the term to the two recognized great classes of malignant growths, the sarcomata and carcinomata, hypernephroma belonging to neither class. In fact, the common evidences of malignancy of tumors, viz., local invasion of tissue and metastasis seem to be merely a question of persistence of vitality of the cells, their accidental growth into the adjoining tissues and their conveyance to distant parts by the blood and lymph currents.

The macroscopic character of typical hypernephroma is fairly characteristic. They usually occur as tumors of various sizes, sometimes quite large, just beneath the capsule of the kidney; and the capsule over the tumor, though often much thickened, is continuous with that covering the organ. The surface of the tumor is commonly bossed or nodulated, the projecting nodes being of a yellowish

lowish white color, sometimes much mottled by hæmorrhages. Section shows the most characteristic feature to be the separation of the tumor from the kidney tissue by a capsule of connective tissue and the formation of numerous rounded or oval alveoli of soft tumor tissue by strands of fibrous tissue given off from the capsule. These masses of tumor tissue are commonly soft, yellowish in color, and more or less mottled with extravasations of blood. In some growths the tumor masses are red or purplish from the presence of numerous large blood channels, and in the more degenerated regions they may be brownish in color from altered blood pigment. The tumor nodes usually project from the cut surface, some may show small cysts of softening, others show necrotic areas, and sometimes large masses of soft reddish white sarcoma like tissue, so that such growths are not uncommonly mistaken for sarcoma or soft carcinoma.

One point of diagnosis of some surgical importance and also a clue for the pathologist is the rarity with which adjoining lymph nodes are affected by metastasis; and another is the frequent penetration of the tumor into the pelvis of the kidney and the renal vein. A bone tumor presenting the structure of a metastatic hypernephroma may be the first indication of a renal hypernephroma; as the latter may exist for a considerable time without symptoms; hence the necessity of histological recognition of this growth as the prognosis in such cases would be thereby greatly influenced. The most frequent seats of metastasis are the liver, lungs, and bones, and the conveyance is by means of the bloodvessels.

Microscopical Diagnosis.

The first characteristic of histological structure in these tumors is the resemblance which the cells bear in typical growths to those of the adrenal gland. This, however, in some tumors is not striking and in others the resemblance is quite remote. The presence of fat or vacuoles, its protoplasmic remnants, and of glycogen are corroborative of other details, but of themselves are not characteristic. Metastatic nodules are in some cases very unlike the primary tumor, and a diagnosis is often extremely difficult from these alone.

In general, the small hypernephromata much resemble the structure of the adrenal gland, but the larger tumors show an alveolar structure with the alveoli filled with cells, or sometimes showing an open lumen. The presence of blood within the central cavities I consider as accidental and not characteristic.

The fibrous reticulum forming the alveoli is usually scanty, and carries the bloodvessels, and it is a characteristic of this tumor that in the softer parts of the tissue this stroma is reduced to naked capillaries. The presence of these capillaries running in the midst of the cells, and commonly with more or less columnar cells arranged in rows or palisades along their walls is to my mind the most distinctive feature of the histology of these growths. These columnar cells are also characteristic. They are large, have usually sinuous outlines, clear cytoplasm, though in some is a faint protoplasmic reticulum, and they rest by a flattened end directly on the endothelium of the capillary wall, or on the con-

nective tissue of the stroma when this is present. The central cells of the large alveoli are polygonal, much smaller, stain well, and have apparently homogeneous cytoplasm. The chief resemblance to the adrenal elements in some cases is in the nuclei which are prominent, vesicular, and contain a clearly stained, intranuclear network, and often metachromatic nucleoli.

Some hypernephromata unquestionably consist of an open alveolar structure with the alveoli formed mainly of delicate connective tissue and capillaries, and the walls lined with low columnar cells presenting little resemblance to the normal adrenal epithelium. In some tumors of this kind both open and completely filled alveoli are found, and all grades of transition between the two may be seen. It may be that such tumors date back in embryogenesis to the primitive embryonic structure from which the adrenal itself is developed.

In general, the histological evidences of hypernephroma are as follows:

1. The resemblance of the tumor cells to those of the adrenal gland and the "adrenal rests" so frequently present in the kidney and other structures. This is seen in the shape of the cells, their nuclei, and in the degenerative changes in the tumor elements.
2. The absence of transition structure between the tumor and the renal tissue; present in renal adenomata.
3. The tendency of the metastasis to extend by way of the bloodvessels rather than the lymphatics.
4. The presence of a thinly walled capillary network among the tumor cells, in this respect resembling the adrenal gland.
5. The presence of large, clear, more or less columnar cells, ranged in irregular rows along the alveolar walls, and in case of the capillary network in direct contact with the endothelial wall.
6. In some forms of hypernephroma an alveolar structure with open gland like acini, sometimes containing free cells and blood, with a stroma consisting of delicate connective tissue and capillaries lined with low columnar cells.

CASE I.—(6315). Autopsy No. 1483. Chronic dementia. P. P.; male; white; aged sixty-three; soldier; nativity, Germany.

There were no clinical symptoms of the tumor, but an examination of the urine made about a month before death showed a specific gravity 1.014, color brownish red; slight odor; reduction in urea; a trace of albumin; and the microscopical examination showed numerous erythrocytes, some broad granular casts, and a few epithelial cells and leucocytes.

Synopsis of Autopsy.—Skull unusually thick and dense; sutures obliterated; dura thin and adherent to bone.

Brain. Weight, 950 grammes. Organ much atrophied; surface puckered over frontoparietal regions. Arteries slightly sclerotic.

Lungs. Some chronic tuberculous deposits; with cavities in the left.

Heart. Slight thickening of left valves.

Kidneys. In the left hypochondriac region there was found a large growth in connection with the kidney. By the tumor mass the spleen was displaced upward and flattened; the stomach was pushed upward and toward the right; and the pancreas, colon, omentum, duodenum, and other structures were bound to

the tumor by inflammatory adhesions. The kidney was found at the lower part of the tumor apparently incorporated with it; and the left adrenal gland was found at the upper part of the mass. The ureter and pelvis appeared to be unobstructed except by general pressure. The renal arteries and veins were stretched over the posterior wall of the tumor. The mass with the kidney weighed 1,700 grammes; in the longest diameter it measured $7\frac{1}{2}$ inches — 19 cm.; and transversely, 6 inches — 15.3 cm. An incision made through the mass showed the greater portion to be a large cyst like cavity filled with a thick, reddish, puslike fluid with large fungous growths projecting from the inner surface. The kidney was found to be stretched over the lower part of the tumor with gradually thinned out edges and a capsule continuous with that of the tumor, though over the latter the capsule was much thicker and denser. The tumor tissue was much degenerated, soft, grayish red, and mottled with small hemorrhages. The kidneys contained numerous small cysts; surfaces were granular; capsules adherent; cortex thin and pale; probably a chronic diffuse form of nephritis. There was no secondary tumor deposits in either kidney nor in the adrenals. Urinary bladder was normal.

Spleen flattened; capsule wrinkled; pulp pale.

Liver. Weight, 1,700 grammes. Capsule firmly adherent to diaphragm; the organ contained a large number of secondary tumor nodules. In the vicinity of these nodules the liver tissue was hemorrhagic, and some of the nodes showed cavities produced by softening.

The stomach showed some chronic catarrh. Other organs were normal, and there were no tumor deposits in the abdominal lymph nodes.

Microscopic Examination of the Tumors.—Sections made of the tumor, including portions of the kidney, showed that the two were separated by a broad band of fibrous tissue showing traces of the renal tubules and glomeruli distorted by pressure. In some places this tissue was without question infiltrated with tumor cells, though the elements were altered in shape and showed but little resemblance to the typical tumor cells. Some of the lymph spaces in this connective tissue and occasionally veins were found to be filled with tumor cells.

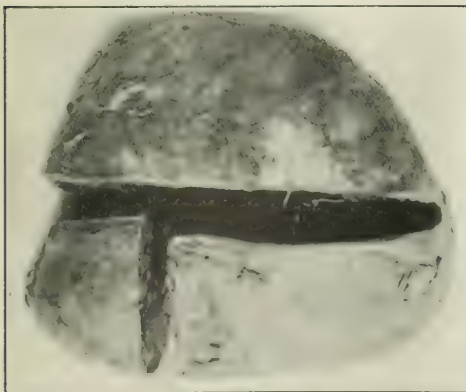


FIG. 1.—CASE I.—Tumor of left kidney sectioned to show the large cyst like cavity in the interior. Weight of the tumor with the kidney 1,700 grammes; length 19 cm.; breadth 15.3 cm. The remnant of the kidney is seen at the lower left corner, cut transversely.

The true tumor tissue was excessively hard to describe. There were delicate trabeculae which seemed to extend inward from the capsule and divided the cells

into alveoli. These were usually very large and filled with polymorphous cells, but a few were found with an open lumen. The cells varied greatly in size and shape,

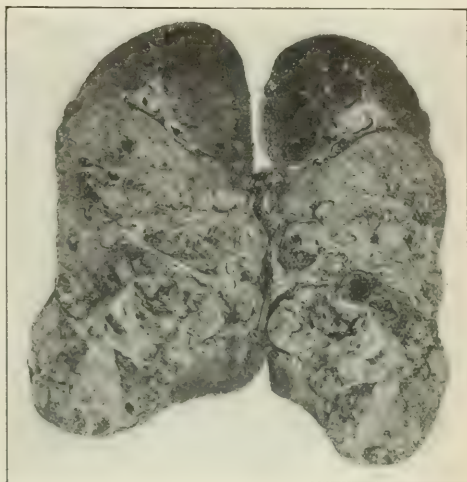


FIG. 2.—CASE III.—Hypernephroma of right kidney. The tumor and kidney are sectioned in the middle and opened outward. The remnant of the kidney is seen at the upper end, and a portion at the lower inner angle. The typical structure of hypernephroma is well shown.

but usually were sharply limited by a cell wall, and were influenced by mutual pressure. In some situations the cells were ranged along the walls of capillary bloodvessels in rows, and had a distinctly columnar shape; in some the cells had a definite relation to the capillary wall, but were not columnar in shape. The cells along the vessels were usually very large, sometimes clear, and commonly had sinuous outlines (see Fig. 6). In some an indistinct reticulum was apparent even with comparatively low powers, while the high amplifications showed this reticulum to be a kind of faint, foam like structure, stainable, but not of any definite form, and having but little resemblance to the vacuolated protoplasm left after extraction of fat. The faint reticulum rather more resembled that of a drop-sical cell, but its nature was hard to determine; it might possibly have been the protoplasmic remains left after extraction or alteration of the glycogen of these cells by the hardening agent (see Fig. 1). In the great majority of the cells in the central portions of the alveoli the cytoplasm was perfectly homogeneous. The central cells were almost every conceivable shape, and varied greatly in size, while the peripheral cells were usually two or three times as large, and many of them were more or less columnar in shape, with their ends resting on the endothelium of the capillary walls. Many of the delicate septa separating the cells consisted of a capillary vessel, with sometimes a few strands of connective tissue; there were also capillaries running through the cell masses with the endothelium in direct contact with the cells (see Figs. 1, 2, 3, and 4). In the largest septa a few large bloodvessels were seen, but usually these were venous channels, and capillaries. In transverse sections of these intraalveolar capillaries the same relation of cells to vessels was seen, but in no instance had the elements a radial arrangement; hence it was concluded that there were no papillary outgrowths from the alveolar walls.

In some of the most degenerate portions of the tumor the small vessels were greatly thickened and hyaline,

sometimes no lumen could be distinguished. The tumor cells in such fields were greatly degenerated, and hæmorrhage was common.

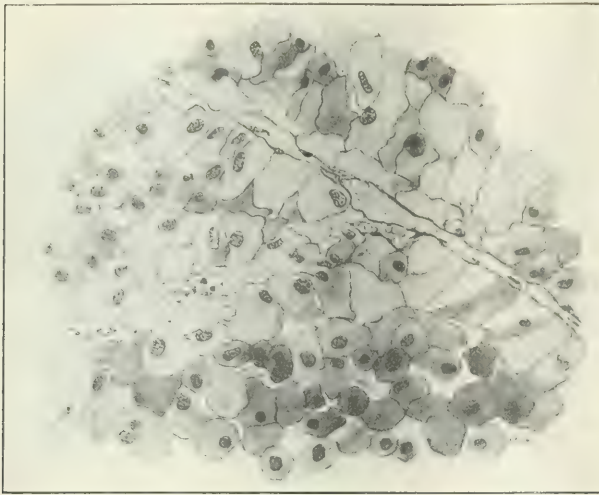


FIG. 3.—CASE I.—Field from primary hypernephroma of the kidney. The large, clear, columnar-shaped cells ranged along the walls of the reticulum. There was an indistinct reticulum which may possibly be the remains of a fatty infiltration, though the most careful examination failed to disclose droplets or distinct vacuoles. $\times 300$. Reduced.

The nuclei were not always present in the large cells, the sections having passed above or below them. When present they were large, clearly defined, and had a well marked intranuclear reticulum and usually a large prominent nucleolus. A very few cells contained double nuclei, and occasionally one was seen in the process of karyomitosis. Now and then a cell was seen with a nucleus three or four times as large as the average, and a few were found with nuclei apparently showing division.

The secondary tumor nodules in the liver showed some peculiarities not seen in the primary tumor. The cells were polymorphous, occasionally showed a columnar shape around the walls of the connective tissue spaces in which they were found (see Fig. 8). In some instances the arrangement of the cell groups showed that they had filled lymph spaces, or lymphatic vessels (see Fig. 9). The secondary tumor cells resembled the polymorphous elements in the primary growth, but there were no large, clear, columnar cells with definite relation to capillary vessels. In some of the large blood channels in the secondary nodes, cells exactly resembling the tumor elements were seen among the blood cells.

The invasion of the liver seemed to have been along the interlobular tissue. An interesting feature was seen in the penetration of the tumor cells within the sheaths of the nerves, and in some instances among the nerve

fibres themselves (see Fig. 9). The boundary between the tumor and the liver tissue was very indefinite, and some clumps of tumor cells were found penetrating among the liver cells. The cells of the liver were normal, except from pressure atrophy in the vicinity of the tumor nodules, and a few vacuoles from fatty infiltration around the periphery of the lobules. The presence of these fat vacuoles in sections treated precisely as were those of the primary tumor, showed that no such change could have been present in the cells of the new growth in which no such vacuoles were found.

The kidney structure showed a degree of chronic interstitial change. The tubules were lined with atrophied and degenerated epithelium, and many of them contained casts. The bloodvessels were often thickened and hyaline, the muscular coat being homogeneous and glassy.

The diagnosis was hypernephroma of the left kidney with metastasis to the liver, and chronic interstitial nephritis.

CASE II.—(11362). Autopsy No. 1508. Chronic dementia. J. K.; white; aged sixty-eight; male, sailor; nativity, Sweden.

The patient had no symptoms indicative of tumor of the kidneys. He had had repeated attacks of diarrhœa; contractions and paralysis

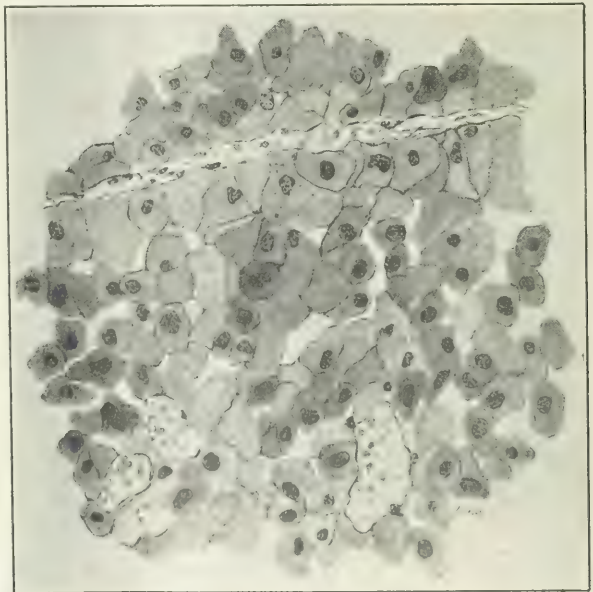


FIG. 4.—CASE I.—Field from primary hypernephroma of the kidney, showing the capillaries in both longitudinal and transverse sections. The relation between the capillaries and the cells is seen to be intimate, though the shape is not uniformly columnar. $\times 300$. Reduced.

of lower extremities; with progressive helplessness and exhaustion.

Synopsis of Autopsy.—Skull normal; dura showed a

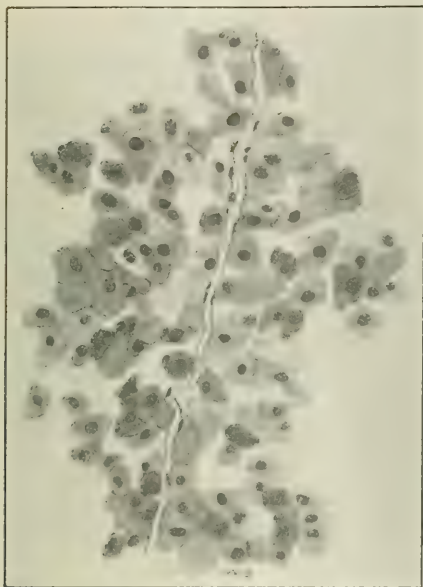


FIG. 5. CASE I.—Field showing a delicate capillary, with the tumor cells in immediate contact with the vessel wall. $\times 300$. Reduced.

thick, well organized neomembrane of internal pachymeningitis.

Brain. Weight, 1,280 grammes. Arteriosclerosis, atrophy, and oedema of the cerebrum, with small softening in basal ganglia and white matter. Cerebellum, pons, crura, and medulla were much atrophied.

Lungs. Much mucopurulent secretion in the bronchi. Left lung greatly compressed by the presence in the plural cavity of a diaphragmatic hernia. The hernia consisted of a part of the colon, viz., the transverse and upper descending portion, the ascending colon being drawn diagonally across the abdomen. The omentum was to a great extent included, but no part of the small intestine. The opening in the diaphragm was large and irregular, with some adhesions of the hernia around the neck of the sac; a portion of the descending colon was visible, but the bulk of the mass was not. There was no strangulation nor any acute inflammation, and the hernia had nothing to do with the cause of death.

Heart. Some thickening of the mitral valve, and atheroma of the aorta.

Kidneys. Weight of right, 200 grammes; left, 200 grammes. The right kidney contained a large tumor in the upper end which on section was hemorrhagic with small cysts, and not passing through it. The capsule

of the organ circumscribed the mass, and it was separated from the renal tissue by a connective tissue band. The capsules of the kidneys adhered to the cortex, and the surfaces were granular and dotted with small cysts. No secondary tumor deposits in either, nor elsewhere in the body. The other organs showed nothing of importance.

Microscopical Examination of the Tumor.—The growth was much degenerated and there were large areas consisting merely of blood. The tissue consisted mainly of an alveolar structure with a delicate stroma, the acini filled with the tumor cells. A few of the alveoli showed traces of a central lumen, while others were filled with cells of various shapes, usually of somewhat irregular or crinkled outline. It was supposed that prolonged immersion in alcohol was responsible for this, some of the cell contents being extracted. Large capillaries filled with blood ran in the midst of the cells; these vessels were commonly accompanied by a little connective tissue. In the midst of the large areas of hæmorrhage some strands of tumor tissue were seen, showing that the blood had merely infiltrated the tumor tissue and separated the tumor elements.

By careful search with high powers some large glassy columnar cells were found with their ends resting on the supporting stroma of delicate connective tissue and the capillary walls. In these large cells was a scanty stainable reticulum of uncertain nature, possibly the protoplasmic remnants left after removal of some extractive by the alcohol in which the specimen was preserved (see Figs. 10 and 11). The nuclei when the section included them were large, somewhat irregular in shape, showed a prominent chromatic network, and had large, conspicuous nucleoli.

The kidneys showed chronic interstitial changes, and the tubular epithelium was granular and atrophied.

CASE III.—12825. Autopsy No. 2005. Senile dementia. T. S.; male; colored; aged seventy-seven; occupation unknown. Nativity, United States.

In this case there were no physical signs of the tumor. He grew progressively weaker, with increased mental enfeeblement, and finally became emaciated, developed bed sores, and contractions of the lower ex-

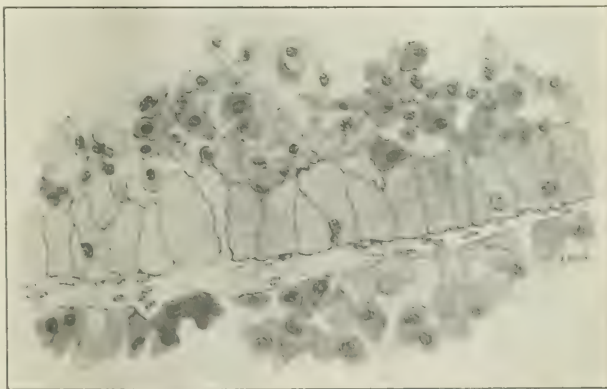


FIG. 6. CASE III.—Field of tumor cells, some columnar, with thin, delicate connective tissue between them, and the wall of a capillary. Some of the cells are in contact with the wall, these being the out of the plane of the section. $\times 300$. Reduced.

trémities. Death occurred purely from general exhaustion.

Synopsis of Autopsy.—Body emaciated, bed sores over sacrum, and trochanters.

Stomach. Brain weight 1,100 grammes. Skull

arteriosclerosis was present in the basal vessels. A cortical softening appeared on the outer surface of left

showed a faint concentric striation, a slightly yellowish tint, some evidences of hemorrhage, and were apparently in some instances degenerated. The nodules were separated by bands of connective tissue continuous with the capsule; they were soft, protruded slightly from the cut surface, and seemed almost fluctuant and cystic. At the lower end of the mass there was a quantity of cicatricial tissue and some of the inclosed tumor nodules were brownish and much degenerated. In some parts of the tumor were nodules of homogeneous tissue much resembling sarcoma. The tumor was everywhere separated distinctly from the kidney structure by a capsule of connective tissue and the growth had apparently not entered the pelvis, nor the renal vein. The remnant of kidney showed the same general condition as the left.

The right adrenal was slightly enlarged, and when incised showed three small round nodules exactly resembling the tumor nodes in the kidney. The left adrenal was atrophied so as to be scarcely recognizable; when incised it showed some homogeneous whitish deposits supposed to be of the same nature as those in the right, but subsequently proved to be tuberculous.

The ureters and urinary bladder were normal.

The diagnosis was, hypernephroma of the right kidney, with metastasis to the adrenal glands.

Microscopical Examination of the Tumors.—The portions of the primary tumor examined were



FIG. 7.—CASE I.—High power view of the cells of the tumor, in this case showing as nearly as possible the appearances of these elements and their relation to the capillaries. The position, shape, and protoplasmic structure were drawn with the camera lucida. $\times 800$. Reduced.

temporal lobe, and some general shrinkage of brain.

The lungs showed marked anthracosis, some em-

physema of the anterior portions, and posteriorly hypostatic engorgement. In the apices were some obsolete tuberculous deposits with small cavities in the left lung.

Heart. Slight chronic disease of left valves; aorta contained some early atheromatous deposits.

Liver showed chronic passive hyperemia.

Kidneys. Weight of left 160 grammes. Capsule adherent, surface covered with small and medium sized cysts. Cortex reduced in width; organ of a deep red color.

Right kidney weighed 320 grammes. The lower pole was occupied by a large tumor mass indistinctly separated from the remainder of the organ. The capsule over the tumor was markedly thickened and was continuous with that of the kidney. Perinephritic fat in the vicinity scanty. The surface of the tumor was somewhat bossed and irregular, and through the thickened capsule had a yellowish tint. Section through the tumor and kidney showed that the growth occupied at least two thirds of the mass while the remnant of the organ surmounted the tumor like a cap with a central depression. The tumor was composed of a large number of rounded, or oval nodules, which

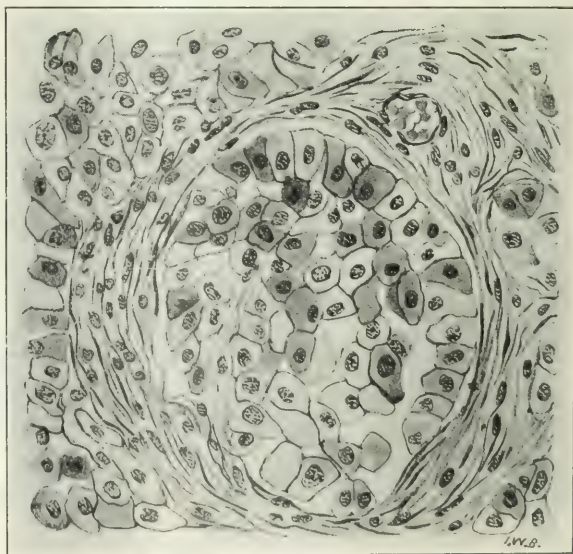


FIG. 8.—CASE I.—Field from a nodule of metastatic hypernephroma in the liver. An alveoli like structure is seen, probably caused by the tumor cells filling an enlarged lymph space. A slight tendency to a columnar shape and arrangement is seen at the upper right of the central cell group. $\times 300$. Reduced.

much degenerated, and there was a considerable quantity of altered blood in the tissue. In most parts of the sections a distinct alveolar structure was present with a delicate connective tissue stroma and alveoli

walls of which were clearly lined with low columnar cells, and the stroma consisted of delicate connective tissue and enlarged and partly filled capillaries. The cells in most cases seemed to rest directly on the endothelium of the capillary wall; they were clearly nucleated, their protoplasm was homogeneous and no enlarged glassy cells were found. The central lumina of the acini were sometimes empty, some contained a few free tumor cells, and others were completely filled with blood. This type of hypernephroma seemed to be the one represented by Schmaus and Ewing, Prudden, and Ellis in his monograph, Fig. 2, page 9. *American Medicine*, viii, 25, 1904.

In these secondary tumors there was unquestionably an open alveolar, or gland like structure, and the open lumina could hardly be the result of degeneration of the central cells of the alveoli. There were no evidences of any transition stages of this degenerative process, and the parietal cells were regularly low columnar in type and well preserved.

On most careful search I was unable to find any transverse sections of capillaries with radially disposed cells, therefore I concluded that there were no papillary ingrowths and that the tissue was made up of alveolar spaces with a delicate vascular stroma. How such tissue originated from the solid cell spaces of adrenal tissue was not clear; it was possibly a reversion to the type of the mesonephros which antedated the development of the adrenal.

The left adrenal contained no secondary tumor, the areas resembling them being found to be tuberculous

filled with polymorphous cells. In some of the alveoli a lumen was present giving an adenoid appearance to the tissue. All gradations between these and the open alveoli such as seen in the secondary tumor in the adrenal were found represented in the primary tumor (see Figs. 12 and 13). Occasionally large clear cells of columnar shape and with their ends resting on the walls of capillaries were found in this tumor but they were not a marked feature.

A few alveoli were found lined with long columnar cells and containing a perfect and empty lumen; others of the same kind were filled with blood and loose tumor cells. Large areas of the tumor tissue were made up of small alveoli or cell groups separated by delicate connective tissue stroma and delicate capillaries. In some parts of the tumor large cyst like cavities were found with the lining cells in many layers projecting into the cavity as cell processes.

This histological feature is admirably represented in the illustration to Kelly's article in the *Reference Handbook of the Medical Sciences*, iv.

With high powers the tumor cells showed a faint cytoplasmic reticulum of uncertain character and clear vesicular nuclei with a well stained intranuclear network and prominent nucleoli.

The secondary tumors in the right adrenal presented a somewhat different type of structure. The bulk of the tissue was composed of large cystlike alveoli, the

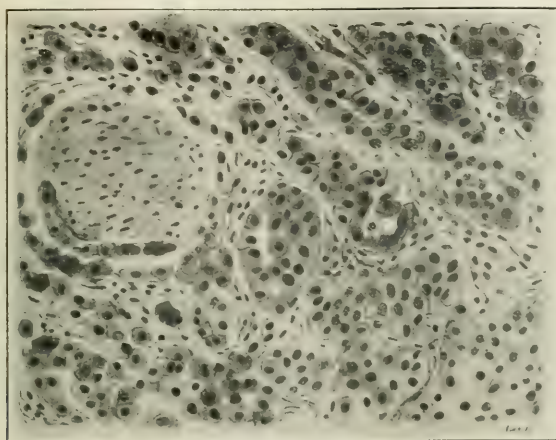


FIG. 9. CASE I. Field from a secondary nodule of hypernephroma invading the interlobular connective tissue of the liver. The tissue is very much like cancer, the cells evidently filling the lymph spaces. At the left of the picture is the transverse section of a nerve, with a few cells in the lymph space around it. Some of the nerves of the liver were themselves infiltrated with tumor cells. $\times 300$. Reduced.

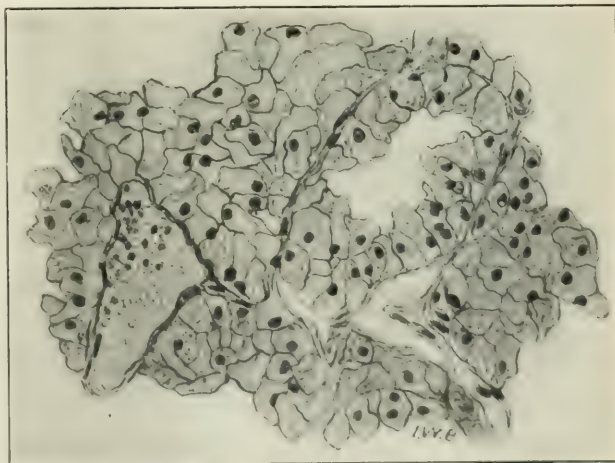


FIG. 10. CASE II. Small field from a primary hypernephroma of the kidney. One open acinus is seen and portions of several others completely filled with cells. A faint reticulum is apparent in the cells, but its nature could not be determined. Specimen preserved long in alcohol. $\times 300$.

nodules. The central portions of the tuberculous masses were caseous, while the peripheral portions showed recent tuberculous tissue and invasion of the glandular stroma with round cells. There were no tuberculous deposits in the right adrenal nor in either kidney. The

renal tissue showed some interstitial increase, and numerous small cysts.

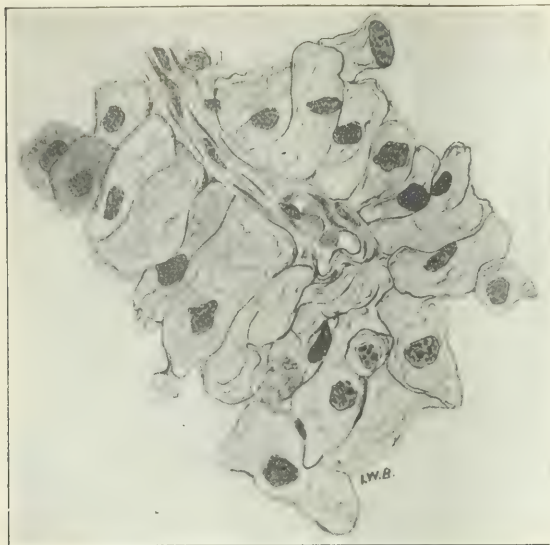


FIG. 11.—CASE II.—High power view of a portion of the renal hypernephroma, showing the shape of some of the cells, their relation to the connective tissue and the capillary, and as nearly as possible the reticulum in the cell protoplasm. $\times 800$. Reduced.

CASE IV.—(5968). Autopsy number 79. Chronic mania. F. T.; male; white; aged forty-eight; soldier; nativity, Germany.

In this case there were no symptoms of the tumor and the growth was found at autopsy.

Synopsis of Autopsy.—Cranium. Shape of skull normal; pachionian depressions large.

Brain. Weight, 1,204 grammes; pia edematous; brain much atrophied; ependyma granular. Slight adhesion of left caudate nucleus to roof of ventricle.

Lungs. Pleuritic adhesions on both sides. Extensive tuberculous deposits and large cavities in both lungs.

Heart. Slight thickening of mitral valve; aorta normal.

Spleen. Amyloid, and contained numerous tubercles.

Liver. Some adhesions of capsule to diaphragm.

Kidneys. Weight of each $4\frac{1}{2}$ ounces, 120.4 grammes. Within the right was a rounded mass of soft white tissue about one inch in general diameter. The growth was beneath the renal capsule, projected slightly from the general surface on section, and made a slight prominence on the surface of the organ. The tumor appeared to be separated somewhat distinctly from the kidney structure, but had no actual capsule. The kidneys were in other respects normal to the unaided eye.

Intestines showed tuberculous ulceration; mesenteric glands were enlarged and caseous.

Microscopical Examination of the Tumor.—The growth was seen to be made up of an adenoid structure consisting of a delicate connective tissue stroma forming large alveoli, into which papillary outgrowths had penetrated in great profusion.

At the periphery of the tumor were some large cyst like alveoli around the walls of which was a continuous layer of columnar cells and at certain places papillae were commencing to grow into the lumen. These papillae had then grown luxuriantly and filled the cyst cavity, becoming branched indefinitely. Section showed the papillae cut in every way, and especially were the transverse sections with their radiating arrangement of the cells a characteristic feature. In the central portions of the tumor the intracystic papillary processes were so crowded as to be mutually influenced by pressure, thus leaving small fissures, or tube like structures between them which at first were hard to interpret.

The connective tissue stroma was scanty, carried the bloodvessels, and in each papillary process one or more capillary vessels were formed. The cells were of the high columnar variety, and the nuclei were situated at or near the outer ends of the cells. Towards their attached ends the cells were lightly stained. The cells did not rest upon the capillary walls, some delicate connective tissue always intervening (see Fig. 14).

Though the tumor was in some places in close proximity to the renal tissue, in none of the sections could actual transition between the kidney structure and that of the tumor be detected. In

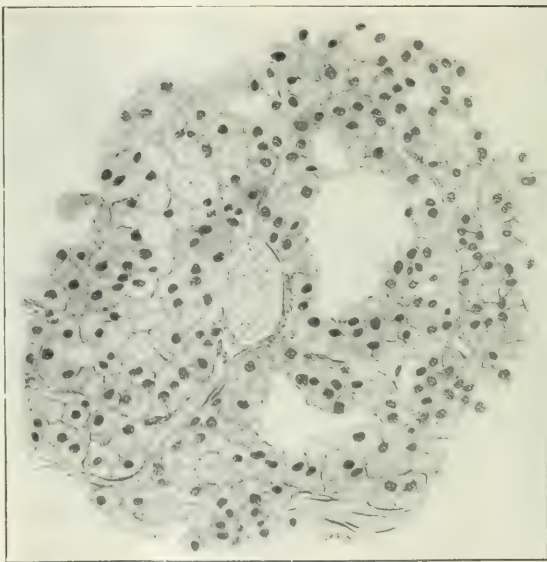


FIG. 12.—CASE III.—Field from primary hypernephroma of the kidney, showing several distinct alveoli, some of which are open and others filled with cells. The cells are seen to show a faint reticulum of uncertain nature; a few are indefinitely columnar in shape, but seem to be resting upon a connective tissue stroma, and are not in intimate relation to the capillaries in this field. $\times 200$. Reduced.



FIG. 13. CASE III. Field from one of the metastatic nodules of hypernephroma, in the right adrenal gland. The alveolar structure represented was very common in these nodules, but not universal, some filled alveoli being found in various parts. The alveoli are seen to be lined with low columnar cells, in some cases resting on the capillary walls, in other instances a few adventitial fibres intervene. Some of the alveoli contain a few erythrocytes and tumor cells. In some parts of the tumor they were filled with blood. $\times 300$. Reduced.

some small tumors of this class the transition is very apparent and there is no question that these growths originate in the renal tissue, probably the collecting tubules. On account of the luxuriant growth of these tumors they become surrounded by a kind of capsule consisting of renal tissue in which may be distinguished flattened out and distorted renal tubules and glomeruli.

The tumor was what Ziegler has described and illustrated under the name "*Adenoma renum tubulare papilliferum*."

The study of this tumor was introduced for the purpose of contrasting with hypernephromata one of the growths with which they might be confounded on superficial histological examination. In case of the other tumors there is less liability of mistaking typical growths of the several kinds for hypernephroma than of forming a diagnosis of one of the more familiar tumors from the examination of atypical portions of hypernephromata.

The writer, in conclusion, wishes to apologize for the inadequacy of the discussion of the histology of these interesting growths, but in fact it seems almost impossible to add to the masterly study by Kelly. And all subsequent descriptions

must necessarily follow and be based upon this author's excellent works.

It was only for the purpose of reporting these additional cases, and possibly to add somewhat to the pictorial representations of the structure that this study was undertaken. To Dr. Kelly, Dr. Ellis, Dr. Riesman, and others who have so ably contributed to our knowledge of these tumors, the writer gratefully acknowledges his obligations.

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Idem. Hypernephroma. *Reference Handbook of the Medical Sciences*, iv.

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Riesman. *American Textbook of Pathology*, 1902.

GOVERNMENT HOSPITAL FOR THE INSANE.

The Proper Treatment of the Wounded in Battle.—The *Army and Navy Journal* says that, as a result of experience in treating wounds inflicted with the small calibre Japanese rifle in the late war, the medical staff of the Russian army has tabulated the following advice to be followed in future wars: 1. No attempt at wound disinfection should be made where the process cannot be carried out *lege artis*. 2. First dressing should consist in an antiseptic or aseptic dressing, with

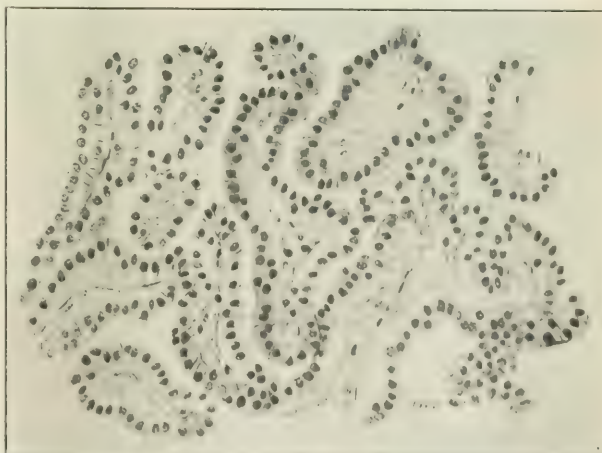


FIG. 14. CASE IV. Field from an adenoma renum tubulare papilliferum. The papillary are seen to fill the tubular spaces, being reflected to shape by normal pressure. Several tubules are shown, as seen with a radial disposition of the cells. The plasma is scanty, but the cells rest directly upon it and are not in intimate contact with the capillaries. $\times 300$. Reduced.

compression and the best possible fixation. 3. At the field hospital the only operation to be considered should be the urgently demanded amputations.

A VALUABLE SIGN IN EXOPHTHALMIC GOITRE.

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During the past six years I have been privileged to study in both private and hospital practice fifteen cases of exophthalmic goitre, and each of these pa-



FIG. 2.

tients showed the sign herein described whenever examined after exophthalmos became conspicuous. These fifteen patients were also examined for other recognized signs (Graefe's, Möbius's, and Stellwag's) of exophthalmic goitre. In two cases of unilateral exophthalmos not depending upon Graves's disease the special sign was absent.

The writer's sign consists in: (a) Arrest of descent; (b) spasm; and (c) further closure of the superior eyelid. This phenomena is seen by all three of these features following one after the other in rather rapid succession as the eye is rotated from above downward (Figs. 1 and 2).

The spasm takes place after the patient has first rotated the eyeball upward, and then attempts to follow the finger of the operator as it is carried below a level with the chin. The superior lid follows downward with the pupil for a short distance, where it rests for an instant, then displays a slight spasm, with apparent slipping back, after which it continues to follow the pupil for an indefinite distance.

Method of Obtaining Sign.

1. The patient should be directed to sit with the occiput braced firmly against the back of a chair or against the wall.
2. The patient is directed to follow the operator's hand with the eyes (Fig. 1).
3. Whenever it is found that the patient has rotated the eyes upward as far as it is possible, she is again directed to follow the hand of the operator while it is lowered in an arched manner, keeping the hand about three feet distant from the eyes, and bringing it to a point on a level with and in the median line of the patient's chin.

The degree at which the eyes are rotated downward at the time the spasm of the superior lid is seen will vary greatly in different patients; the greater the exophthalmos the earlier will the spasm appear.

CASE I.—Figure 2 represents the sign as displayed by a female, aged 33 years, a patient of the Philadelphia Hospital. In this figure No. 1, by a lateral view, shows the point at which spasm developed when the eyes were following the operator's hand from above downward; and it also illustrates the high grade of exophthalmos present. No. 2 describes the eyes when the patient was in the act of looking upward. No. 3, in addition to marking the point at which spasm of the superior lid developed, depicts a distinct convergence, which became more and more marked as the eyes were rotated downward. No. 4 was taken when the patient closed the eyes as tightly as was possible.

This patient and several others of the series were unable to use the muscles of the forehead to assist in closing the eyes, while certain others were able to force the eyelids together by the aid of these muscles. The sign illustrated is not to be confounded with that portion of Graefe's sign which points to immobility of the superior eyelid with traction of the lid, which is probably the result of spasm. In Graefe's sign the spasmodic condition of the superior lid is present when the eye is at rest, while in the sign herein described and illustrated the spasm only takes place as the eye is being rotated from above downward, and the lid continues to follow the pupil immediately after the spasm.

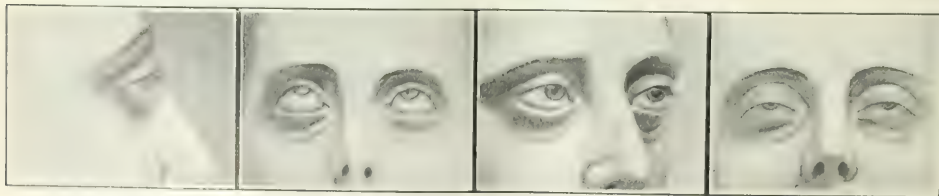


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

The special sign of spasm of the upper lid when the patient attempts to rotate the eye from above downward is offered not as a constant sign of Graves's disease with marked exophthalmos, but as one present in a series of fifteen cases, and as a sign found to be uninfluenced by the anatomical formation of the eyelids and of the bony structures.

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THE PHYSICAL RECONSTRUCTION OF SCHOOL CHILDREN BY MEANS OF FRESH AIR.*

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In considering the subject of physical reconstruction of school children by means of fresh air homes, one must consider not only the child, but the fresh air home; and in considering the child, he must be considered as one of a family. New York, with its huge population, has many hundreds of thousands who, from one year's end to the other, never escape the confines of the city. Various estimates have been given, but it is probably in the neighborhood of eight hundred thousand. On several occasions an attempt has been made to ascertain just how many of these eight hundred thousand that need it, do get away by means of charitable agencies. During the summer of 1903 figures were collected by William H. Allen, who found that 33,161 were sent away by fresh air agencies for seven days or more; about 4 per cent. 116,464 were also sent away on a one day's excursion.

The demand for fresh air homes is constant and ever pressing, but like the demand for many other things in charitable work, it is not widely known. Though occasionally printed in the newspapers, it is not sufficiently thought of by the rich, nor asked for by the poor, who, in their ignorance, do not realize the possibilities and the value of a summer's vacation.

It is commonly said by well to do parents to their family physician: "Why do you fuss so much over our child? The poor children get on without such care and attention!" This is the ignorance of the well to do, for among the poor, when a child grows up, it is the "survival of the fittest."

Spargo states in his book on the *Bitter Cry of the Children*, that "every child at birth, no matter what may be the condition of the mother, has an equal chance for health." In other words, he believes that "all men are born free and equal." The result of recent experiments in the care of pregnant women, in the maternity hospitals in Paris, show that the longer the mother has been in the hospital before confinement, the heavier and more healthy the child. Further, Spargo's statement disproves all theories of heredity in which most of us believe. Environment, no doubt, plays a most important part in the rearing of children; and with an environment such as exists in the tenement districts of New York, comparatively few children grow up full of health and vigor, and of normal size and stature for each year of their life.

Within the last few years the Department of

Health of New York appointed inspectors who were to visit the public schools for the purpose of detecting cases of contagious disease. The value of this inspection was at once proved. Last fall the inspectors were instructed, not only to inspect, but to examine the school children. These examinations yielded the most astonishing results. Since that time medical examination of school children has been more and more completely done, and now the Department of Health has records of examination of nearly two hundred thousand children from five to fifteen years of age, which show the following defects: 60 per cent. undernourished; 66 per cent. need medical and surgical care, or better nourishment; 40 per cent. need dental care; 38 per cent. enlarged cervical glands; 31 per cent. defective vision; 18 per cent. enlarged tonsils; 10 per cent. postnasal growths.

The examinations of school children in Germany and Glasgow have shown very similar results, and there be no doubt that the children of Boston have a similar proportion of defects. These facts in regard to school inspection are given to show the marked need of fresh air agencies, which exists in every large city.

The Fresh Air Home.—In determining the site for a fresh air home, the advantages and disadvantages of the country and seashore must first be considered. If children alone are to be considered, the seashore should be chosen by all means. It is surprising how slowly a New York child takes to grass and animals, and how quickly it takes to sand and the ocean. In inland cities the spot in the parks most sought for by the children is the sand pit, where they can scratch and dig and play to their hearts' content. The New York tenement child, unfortunately for him, lives on excitement, with less sleep than he needs, spending his time out of school in rioting on the streets. At a small fresh air home in the country he is oppressed with loneliness, homesickness, and desire for something to do, or, as two small boys at a fresh air home in Connecticut said to a man who was visiting there: "Say, Mister, take us 'home!'" "What do you want to go home for?" "Ar, ther' ain't nothin' to do!" This lack of something to do can be overcome by play, but with more difficulty in the country than at the seashore.

Transportation is an important problem, and if transportation can be done by water, it is easier and cheaper than by rail. To take a child away for a week a hundred miles or more from the city, and pay three or four dollars car fare, is an unnecessary extravagance.

The Character of the Home.—Upon this depends the entire value of the fresh air home, and I know no better way of explaining this than by giving, in some little detail, a little description of Sea Breeze, the fresh air home conducted by the New York Association for Improving the Condition of the Poor.

Sea Breeze is situated on the southern shore of Coney Island, facing the south. The buildings are grouped in the form of a quadrangle, with the largest building long and narrow, parallel to the ocean, with almost the only trees on Coney Island immediately in front of it, and beyond the trees, 250 feet of

* Read before the Monthly Evening Club, Boston, April 16, 1907.

sand sloping gradually down to the water's edge. At either end of this building, and at right angles to it, are two buildings of similar shape, and at the end of one is a pavilion two stories high, which will seat five hundred on the lower floor with perfect comfort. The situation of the buildings is admirably adapted to obtain the full benefit of the prevailing southwestern breezes, and the enclosed area of an acre and a half of sand serves remarkably well the double purpose of amusing the children on the sand and also of restraining the guests to the confines of our own land.

One building is divided into small rooms which can be occupied by one or two families, the mother and her small children; the larger children, boys from five to twelve and girls from five to fourteen, sleep in wards. There is also, in one of the buildings, a large room forty feet square, which is used for entertainment, lectures, etc. The buildings are of wood, not fireproof, well supplied with hot and cold water, and a suitable number of shower baths, tubs, and lavatories.

Method of Conducting Home.—For maintaining the home there are two separate departments.

First, a central office, conducted by the general agent, a fresh air supervisor, and a staff of visitors and assistants, who are divided into visitors for the stay parties and visitors for the day parties.

Second, the home is conducted by a superintendent, with: (1) A clerk; (2) a dispensary nurse; (3) children's nurse; (4) assistant nurse; (5) night nurse; (6) directress of play; (7) a "mixer"; and (8) suitable number of cooks, laundresses, cleaners, etc.

The duties of the central office forces are: First, to receive applications, to visit all those who apply, to maintain the number of guests at the full capacity of the home, to obtain the funds for carrying on the work, and to follow up cases who have left the home and who are in need of relief or further medical care.

Applications for Sea Breeze were made for 62,464 women and children, 22,768 of whom were sent to Sea Breeze during the summer of 1906. 1,546 families staying on an average of nine and a half days each, 3,628 families and 18,664 women and children for one day each. No applicant is received unless each case has been visited. The fresh air visitors made 23,527 visits, so that they directly reached each applicant. If, in the opinion of the visitor and the supervisor the family were deserving and in need of an outing, they were given an invitation to appear at the central office at such and such a time. This previous visiting is of great importance. It takes a great amount of work and costs a considerable sum of money, the work at the central office during the last season costing \$7,500. To send away families without previous investigation is unfortunate, uncharitable. For if this work is not done, the agency engaged in such work does not know whether they are reaching the most deserving people or not, does not know whether they are sending people who are well able and willing to pay for their summer outing, does not know whether their families have contagious diseases existing at home, does not know how many times the same family may be sent away, does not

know whether the families are in need of far more than a summer's outing, and many other reasons which must present themselves. During the last season one of our applicants was found to be a householder, with an income of over \$100 a month, and who was much insulted at the idea of being sent away as an object of charity.

The Application.—Applications come principally from churches, charitable agencies, and from the people themselves. By far the larger number of applications come direct from the people. Last year only 634 of our 62,000 cases were referred by dispensaries, hospitals, and physicians. This is a surprisingly low number out of the total number of applicants. In one of our large children's clinics in the summer of 1905 the physician in charge was urged to send applications to us for children who were in need of fresh air, but even after repeated reminders, he was unable to find a single case who needed to be sent away. Last summer we had better results, and from that particular clinic a suitable number of patients were referred to us.

Some applicants who were sent to Sea Breeze were well dressed and apparently well to do; so much so that one of the contributors remarked this fact, but a careful investigation of the best looking and best dressed family at Sea Breeze during the summer, showed that that particular family, father, mother, and seven children, were living on ten dollars a week; and that by care, intelligence, and hard work, they were always able to make a most presentable appearance.

The duties of the staff at the home explain themselves sufficiently by their title. A "mixer," however, is a novel feature, namely, a volunteer who discovers and introduces adults who are not apparently getting their full share of enjoyment. Upon the superintendent, however, hangs the whole success of the home. Personality, enthusiasm, and efficiency must be the qualifications. Strict discipline, with kindness, a good hostess and housekeeper, make all the guests enjoy their visit.

The Party.—A suitable number of guests are invited to appear at the central office at 8:30 a. m. for the purpose of assembling and making the start of their journey. As result of years' experience, it has been found necessary to invite a definite percentage over and above what we have accommodations for. Thirty per cent. more are regularly invited, for a large number of our tenement population find it very difficult to keep their appointments. To arrange for an older child who is at work and unable to take a vacation, to find someone to care for their home while they are away, to find some place for the husband to lodge and eat, to get the children washed and dressed and prepared for the journey, is a great effort for a tenement mother who is making her first outing. It is unfortunate that we have to do this, for it often happens that a small number who have drifted in late have to have their visit postponed, and it also often happens that a supplementary party is sent down a day or two later to fill the vacancies.

Full Capacity.—Every night a census is mailed to the central office, which shows definitely the number of adults, children, and babies then in the house, and also shows the number of vacancies, if

any exist, which vacancies are promptly filled the next day by some of the many applicants.

We have found that it costs no more money to have the house absolutely filled than it does to have it two thirds filled, and, as you can readily see, this very materially increases our usefulness, increases the number of people who visit us, and materially diminishes the per capita daily cost.

I have spoken to you at some length about Sea Breeze, and its method, because I think we are particularly fortunate in being able to maintain a fresh air home in an up to date, business like way, just as the modern hospital is. I think we are most fortunate that we are able to state definitely in our report the total number of days' stay and the cost for transportation, supplies, and so on.

Medical Work.—It has been the object of the examining physician to have two definite examinations; at first at the central office for the purpose of excluding cases of contagious disease and also to recommend the length of stay. After the summer of 1904, it was definitely decided that this examination to a certain degree was a failure, and, in another way, a great success. A failure, because the examination did not exclude cases of contagious disease which had not developed, and because it was impossible to determine the length of stay until after several days' observation at Sea Breeze. The examination was successful because the visitors were very forcibly instructed on more than one occasion that they must insist to the mothers that children who had nits in their hair would not be allowed to go; and early in the summer twenty to thirty per cent. of the number of guests who were invited were rejected on this account, and during that entire summer a good many thousand mothers spent all their time as practical hair dressers. The visitors were also warned against inviting people who lived in a house where there was contagious disease. This was of more help in preventing contagion than the examination itself.

It was a matter of common report among the nurses at Sea Breeze during previous summers that the children always lost weight, and two of the nurses rather strenuously objected to any attempt to definitely settle the question whether the children gained or not. We managed to get the weights on admission and discharge, of 377 boys and girls, 61 per cent. of whom gained an average of one and one quarter pounds, 12 per cent. neither gained nor lost, and 36 per cent. lost an average of one and one sixth pounds. Of 112 adults weighed, 77 per cent. gained.

It is a well known fact that growing children do not steadily gain in weight during the hot summer months. Holt states that "with most children it is slowest, or the weight is stationary in the summer, while the most rapid increase is usually seen in the autumn." It is interesting then to note, notwithstanding their hard play and their daily ocean bath, that most of these children in a week's time would gain at least a pound. Our experience during the next summer and the summer after confirmed these observations. In 1906, 664 children were weighed, 77 per cent. of whom gained an average of one and three quarter pounds in nine days. A considerable number of children during the summer of 1904

were given a physical examination, but only for some special indication. During the summers of 1905 and 1906, the same preliminary examination was held at the central office, and as soon thereafter as was feasible, the children were examined at Sea Breeze. At this second examination the children were stripped, their height and weight and chest circumference taken, and a complete physical examination made and a record of each child's examination was kept.

It was impossible to get the records of every child, but during 1905 1,011 were examined, and during 1906 examinations were made of 1,200 more. Our efforts were confined to the children of school age, girls, five to fifteen, and boys, five to eleven, our age limit for boys being twelve years. It was remarkable how few of the children objected to the examination. Whilst passing in review at the central office many children would pull down their lower lids with the forefinger and middle finger of one hand, and then promptly depress their tongue with the forefinger, so that the doctor might have a good view of the throat, having been taught this by the inspectors at the schools. At the physical examination some of the smaller children would cry, but not more than one or two out of a series of eighty to one hundred and twenty who were examined. If a child was nervous or fretful, the mother was brought up to assist at the examination, and the interest taken by the mothers in the examinations was most gratifying. It was possible, first, to inquire of each mother whether or not her child was receiving proper care, and if so, she was advised to have the treatment continued, and if not, she was told what treatment was needed and where she could obtain it. A postal card was then sent to the central office, stating that such and such a child needed treatment for the eyes, throat, heart, teeth, etc. On the return of the family from Sea Breeze, after a reasonable length of time, they were visited to see if the treatment had been obtained and advised again to have it done, if it had been neglected.

Results of the Examination.—It was found that the average height of both boys and girls was from one to three inches less than the standard given by Bowditch of school children of American parents in the city of Boston. Chest circumference of both boys and girls is again from one half to two inches less than the standard. The weight of both boys and girls was much less than that of Bowditch, and an average from one to five pounds less than the standard of Porter, whose observations on weights of St. Louis school children are the lowest I have seen. The children examined by Bowditch and Porter are children of American born parents. During the summer of 1905, parentage was obtained in 555 cases. Of these, 185, or 30 per cent., were American and 90, one parent American. In a few instances, where we had only a few of a certain age weighed, the children were above the standard. The physical examination revealed the same defects that had been found by the Department of Health, but in almost every instance a far greater proportion of defects were found, which is reported elsewhere.¹

The Sea Breeze children, however, are children selected because the family had been needy, and these families are less apt to be as sturdy as those who had not been sick or needy. They are cases also selected on account of recent illness, but even this selection and the fact that many of them are of European ancestry, does not excuse the fact that they are woefully deficient physically. A large number of crippled children are sent to us each summer, and a certain number of cases of active bone tuberculosis, owing to the fact that on the same grounds is situated the Sea Side Hospital for Surgical Tuberculosis in Children. Consequently we have a much larger percentage of deformities.

The Value of the Examinations.—The examination costs the price of an accurate scales and measuring rod, some stationery and printing for one hundred children a week, eight hours a week for a physician and an equal amount of time for a clerk, who may be a trained nurse or superintendent, or other intelligent person; and one or two competent maids to dress and undress the children and keep them in order. The cost of this time is comparatively slight, as it can be worked in with the other routine duties. If only one family can be put on the right road to health, the examination then will be of value. A good many hundred are benefited by such advice, which is practically compulsory free doctoring, and the compilation of such statistics are of some value, for they may in future help others. To my mind, such an examination, coupled with one or two weeks' vacation, does an incalculable amount of good. My chief regret is that it is not feasible for every fresh air home to do this for the residents of greater New York. But it is impossible for them to raise sufficient money to carry on their fresh air work in the most satisfactory way. The poor children of New York who live in the tenements have no place to play but in the streets; in the summer they must sleep two or three in a bed; many of them are not taught to undress when put to bed; and if they are of German or Yiddish descent, their parents insist that they continue to sleep under feather quilts, and in preference to such discomfort, it is not uncommon to find that the children get often only three or four hours sleep. For these children a respite of a week at the seashore is of untold benefit. A week's vacation without the physical examination is of less value, for often children have been rejected at the insufficient examination and only received after certain physical defects had been removed, and then they receive the full benefit of their vacation.

To obtain the best results for school children, a fresh air home should maintain these important principles. To preserve the family as a unit, in order to teach the mother; to visit the family in its home; to ascertain its special needs, and to exclude contagion. To examine each child in order to properly advise the best thing for its health, for treatment, before, during, and after its stay. To follow up, after their return to their own homes, those cases who may be sick or in need; and, finally, to maintain, even at increased cost and apparently diminished usefulness, the highest standard of efficiency.

839 MADISON AVENUE.

POLICE METHODS FOR THE SANITARY CONTROL OF PROSTITUTION

in Some of the Cities of Germany.

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In view of the increasing knowledge of the dangers to the community arising from the widespread evil of prostitution and the spread of venereal diseases, and in view of the rapidly increasing interest shown by both the medical profession and the laity in the attempts to meet this problem, I felt impelled, during my recent tour of Germany, to inform myself, so far as this was possible, concerning the methods employed in some of the larger cities of Germany to combat the spread of venereal diseases.

I am greatly indebted to a number of gentlemen, police officials as well as medical, of the various cities hereinafter mentioned, through whose kindness I was placed in a position to learn and was made acquainted with the regulations governing and controlling the prostitutes, and for the permission to visit their institutions and witness their methods of examination and treatment.

The cities of Germany may be divided into two general classes: Those in which the prostitutes practise their trade in houses known and *tolerated* by the police—the so called public houses of prostitution, and those cities in which no houses of prostitution are tolerated officially—cities in which all prostitution is “secretly” practised, and is of the so called “free” character. I say tolerated, because the laws of Germany expressly forbid any licensing of public houses of prostitution. To use the words of several of the police officials in the different cities: “In no instance is a house of prostitution licensed. We recognize the existence of the evil and tolerate it, because we know by experience that attempts to stamp it out lead only to worse evils. We do our best, however, to check, so far as possible, the spread of contagious diseases by these women, and to prevent the molestation of the public by the prostitutes.”

It was possible for me to study the methods in use in the cities of Hamburg, Berlin, Leipsic, Dresden, Nuremburg, and Munich, and I shall, in considering the subject, take up the methods in use in these cities in the order named.

HAMBURG.

This city, which is probably the most important of those in which houses of prostitution are tolerated, has also to meet a peculiarly difficult problem, it being the principal seaport of Germany. As a result, it has naturally a more mixed class of women to deal with than have the other cities of the Empire.

The policy of “segregation” is followed here. The prostitutes are permitted to live only in certain streets, specified by the police regulations, and in certain houses known to the police as regular houses of prostitution. These streets are, while in the centre of the city, somewhat removed from the main arteries of traffic, and are, in reality, rather alleys than streets. They are remote from the purely residential parts of the city, and there is nothing about

the appearance of the street, or of the houses, which might in any way disclose the character and nature of the traffic which goes on therein. The only differences in the character of the different streets in which this traffic is permitted are in the furnishings of the houses and the attractiveness of the inmates, according to the differences in social and financial status of the visitors to these houses.

Certainly in this city, as in all the other cities, only a small proportion of the women who follow this trade come under the control of the authorities, for here, as everywhere else, by far the larger proportion of the prostitutes belong to the so called "secret" class.

For purposes of control, the prostitutes who are known to the police authorities to follow this trade are classed under two headings, as coming under: Class I, strict control; examination twice a week. Class II, modified control; examinations take place every two weeks, or at even longer intervals, according to the discretion of the authorities.

Under the first heading come those who live in houses of prostitution, or who ply their traffic upon the streets. Under the second heading come those who have some regular employment, and who do not give themselves up to prostitution as their sole means of livelihood. As a third class might be mentioned the control examinations by the police medical officers, of men who are accused of having infected some woman with venereal disease, whether she comes under the heading of class I or II.

The city of Hamburg, so far as I know, is the only city in Germany in which the suspected male source of infection is amenable to an examination.

It is generally supposed by those unacquainted with the facts that the methods employed in bringing women suspected of following prostitution under the care of the police are such as to outrage the personal liberty of the woman in question, or to interfere with the rights of individuals; but conversation with the officials in charge of this department of police work, in the cities named, as well as a knowledge of life in Germany, have convinced me that, if errors are made, the error is upon the side of leniency. No woman who conducts herself in a proper manner upon the public streets is molested, or brought under suspicion, by the officers of the *Sittenpolizei*. Should any woman conduct herself upon the public streets in such a way as to arouse the suspicion that she is attempting to entice men to prostitution, the fact is one that is noticeable, not only to the police officials, but to everybody upon the streets. It is only when a woman is found repeatedly to be conducting herself in a suspicious manner upon the streets that she comes under the suspicion and observation of the secret police officials, deputized for this work of street patrol. Should it become apparent to the official in question from the woman's actions, or from the results of her actions, that she is upon the streets for the purpose of soliciting men, then it is the duty of the official in question to speak to her quietly in such a manner as not to arouse the attention of the public, and to warn her that her actions are a breach of the law. If she heeds this warning, no further notice is taken of the matter. Should she not heed it, but still persist in her actions, she is invited to appear at police headquarters

upon the following day, after she has given her name and residence to the official in question. Should she appear at police headquarters, she must present herself to the official in charge of this department of police work, where she is, in as kindly a manner as possible, made aware of her breach of the law, and of the consequences which are apt to follow a persistence in her course. Should she be under age, her parents or her guardians are invited to appear at headquarters also, and to them also the facts are stated, and they are warned to keep a better watch upon the child in question.

No examinations of any kind are made of females appearing before the police authorities under circumstances such as are mentioned; in other words, the entire proceeding is in the nature of a friendly warning, and the woman is not brought into contact with the inscribed prostitutes, or those arrested for prostitution. Should the woman in question not present herself as notified, then a warrant is issued, and served in person, by an official of the department. In case of arrest the woman is brought to police headquarters in such a way as to avoid, so far as possible, any public attention to the fact of her arrest. Should the woman, upon presenting herself at police headquarters, admit that she is leading a life of prostitution, then she is inscribed as a prostitute, and must subject herself to the officially prescribed examination. Should a woman desire to give up this mode of life, no obstacles are placed in her way; on the contrary, every inducement possible is offered her that may permit her to lead an honest life. The police records in this, as in all other cities, are absolutely secret and none of them ever becomes public property, nor is it obtainable by any person, other than by the police, in case of need.

Should a woman desire to leave the city definitely she must give notice of that intention to the police authorities, whereupon her name is stricken from the rolls of the city, to be entered thereon again should she return and again follow the same mode of life.

Upon being placed under control the name and life's history of the woman are entered upon the police records. She is examined by the police surgeon on duty, and if found free from infectious disease, receives a little book containing the police regulations and the results of her examination. According to whether she comes under class I or II as before noted, she is examined twice a week, or less often. Upon the date of examination the book must always be presented to the police surgeon on duty. According to whether the prostitutes live in houses of prostitution or not, they are examined, either in one of the houses in question or at police headquarters. When the examinations take place at police headquarters, where one of the police surgeons is on duty daily to make them, the women pass up a separate stairway, to a separate wing or division of the police building, and enter an office where they receive their book. They then pass into a waiting room, from which they pass, one at a time, into the examination room. The examinations are only made by the police surgeon on duty, in the presence of a female attendant, who is always a middle aged or elderly woman. The external genitals, the hands, throat, and mouth are examined for

evidences of syphilis. The urethral canal is then examined for evidences of urethral discharge. Should the woman be found sound, her book is countersigned by the examining surgeon, and she is permitted to go, after showing her book to the door-keeper, who takes it and returns the book to the office. Should she be found diseased, she is kept in an adjoining room, to be taken later on to that department of the city hospital in which those who are diseased are kept and treated. Similarly, should a woman, upon first presenting herself for inscription upon the list of prostitutes, be found diseased, she is transferred at once to the hospital for treatment.

The examinations which take place in the regular houses of prostitution are slightly different in their method of procedure. In each street which is set aside for the purpose of affording a dwelling to the prostitutes, a room in one of the houses is arranged for the purposes of the examinations. Upon the date set aside for the examinations in the specified street, the inmates of the houses in this street must present themselves at the specified hour at the house in which the examinations are to take place. A police officer, in civilian dress, is present to maintain order, and the examinations take place in a particular room, which must be large, airy, and light, and which must have an examining table, a step, and all the other paraphernalia required for examinations. The women must present themselves cleanly clad, in negligée, so that the examinations may be made without unnecessary loss of time. They are forbidden to apply rouge or powder to the face upon the day of examination, because these cosmetics are frequently used by the prostitutes to cover up the less visible traces of syphilitic disease. Similarly, they must avoid the use of anything calculated to hide the traces of any disease.

One girl from each house takes charge of the books of the inmates, and transfers them to the examining surgeon. The women from each house enter the examining room in a group, and pass, one by one, before the examining surgeon, who inspects them for evidences of disease in the manner before stated as occurring at police headquarters. Here, too, as in police headquarters, the cylindrical speculum is used to disclose any syphilitic lesions of the vagina or any pronounced discharge from the cervix. The examinations here also take place only in the presence of a female attendant, and the women are expected to behave in an orderly manner. Should any of the women be menstruating at the time of examination, this fact is reported to the surgeon before the examination of the individual in question, and she is thereupon only examined for traces of syphilis, and acute urethritis, and the fact of her menstruation is noted upon the examination book. The books are countersigned, and those who are found to be free of disease at once leave the house in which the examinations occur, and pass to their own home, without loitering upon the street. Should any one of the women examined be found to be suffering from an infectious disease, she must wait in the house until the examinations have been completed. She is thereupon at once transferred to the city hospital in a private carriage in charge of the police official who has been in charge of the house to maintain order.

In no instance during the examinations, either at police headquarters or in the house of the prostitutes themselves, was the least unkindness or incivility shown the women by any of the officials.

Should a female, whether she be under police control or not, accuse a man of having infected her with venereal disease, the man in question receives a communication from the police authorities, inviting him to appear upon a stated date at police headquarters for examination to determine whether or not he is infectious. This invitation is sent without regard to the individual, to his position, or to the class in society in which he may move. It is a secret communication, its contents known only to the police officials in question and to the man himself. The examination is conducted in secret, and should he be found free of contagion, he is at once discharged from surveillance. Should he, however, be found to be diseased, then he is given the alternative of reporting within three days and presenting a certificate from a reputable physician, stating that he is under treatment by this physician, and intends to remain under treatment and observation, or should he be unable to do so, he is held, and sent to the city hospital for compulsory treatment until such a time as the hospital authorities consider him no longer dangerous to the community. This last mentioned feature of the examinations was what impressed me most of all in the methods employed in the city of Hamburg.

The methods of examination of the females themselves and the treatment of the diseased struck me—if I may be pardoned for saying so—as being antiquated, so far as they concern the recognition and treatment of gonorrhœa. In regard to syphilis, they seem to me to be as adequate as the methods employed in any other city I visited.

The inscribed prostitutes in the city of Hamburg have a "sick benefit fund," to which each of the individuals must subscribe a certain sum, graduated according to the class of house in which she lives. This sick benefit organization then pays the expenses of the woman's treatment and care during her sojourn in the city hospital. Should the woman sent to the hospital, however, not be a member of this organization, then the costs of her care and treatment must be paid from the relief fund of this department of the police authorities, since the city hospital does not maintain and treat any one absolutely free of charge. Should neither the sick benefit association nor the relief fund of the police pay for an individual, then the costs fall upon the city itself and must be paid from the poor fund.

The police regulations may not be uninteresting. They are contained in the book which each of the prostitutes receives. The book contains, in addition, explicit directions concerning the recognition of communicable disease in the male, and advice concerning the method to be employed by the women to preserve cleanliness and to prevent infection. The regulations are as follows:

POLICE REGULATIONS FOR THOSE FEMALES WHO ARE UNDER STRICT POLICE CONTROL.

§1. ORDERS:

a. Those females who are under strict police control must, at once after having been placed under control, permit themselves to be examined by the chief surgeon,

gestures. In Altona these women stand before the doors of their houses, usually in negligée costume—sometimes pronouncedly so—and seek, by any possible means, to attract the attention of the male passer-by. In Hamburg, few prostitutes are seen upon the streets. Altona swarms with them, and when the ground of Hamburg becomes too hot for the prostitute, for her lover, or for others of the criminal classes, they cross the street into Altona and are upon Prussian territory, on which a warrant of the “free city of Hamburg” does not hold good.

The most interesting fact which struck me with regard to the comparison of the methods in vogue in these two cities, is that which was given me by one of the gentlemen, high in authority in the hospital in Hamburg, that 70 per cent., or more, of the patients treated for venereal diseases in the city hospital in Hamburg state that they acquired their disease in Altona.

BERLIN.

As Hamburg is the type of a great seaport city, so Berlin is the type of a great manufacturing and residential city, with a great university and its various subordinate schools, and the large number of students coming from all parts of the country; its large factories, commercial houses, etc. It is also the seat of an enormous military population, drawn from all parts of the kingdom, representing all classes of society, from the stupid peasant boy to the most highly educated professional man. Thus, being the capital city of the empire and residence of the rulers, possessing the largest military population and being a prominent centre of the arts and sciences, it is readily to be understood that in a city of this character crime and criminals should also play a prominent part.

Berlin is also a representative of so called “free prostitution”—in other words, houses of prostitution are not tolerated, and the prostitutes live in any part of the city—even in the most exclusive, although those parts of the city most frequented by them are the northern district, in the neighborhood of the Oranienburger Thor, and the side streets branching off from the Friedrichstrasse all along its extent. They usually dwell alone, or with one other female, and it is in this city that the institution of *Zuhälterthum* has, perhaps, reached its greatest dimensions. Houses of prostitution were abolished in the year 1844, and since that date have no longer existed. Up to within recent years it was possible for the police to exert a more rigid control over these women, but owing to the labors of the social democratic party, and the “Abolitionists,” this control has, from year to year, been weakened. Up to within a few years ago, also, a law which made the infection of a woman by a man a punishable offense was in force. This law has now been abolished, much to the regret of the public authorities, who now have no possibility of laying hands upon the male offenders.

The term *gewerbsmässige Prostituierte*, or public prostitute, is one which has been made so elastic that by far the largest number of the prostitutes have taken advantage of the loophole offered by the law defining this term to escape inscription upon the police register. A woman who can offer proof that she earns, by more or less honest labor, a

ridiculously low sum of money weekly (a few marks) cannot be held as being a public prostitute, and thus escapes inscription and police control. To what an extent this regulation nullifies the possibilities of control may be seen from the fact that, while there are 6,000 inscribed upon the rolls as public prostitutes, it has been stated to me, upon good authority, that more than 60,000 prostitutes ply their trade in the streets of Berlin, without being under police control. Among this number must be reckoned the waitresses, flower girls, chorus girls, shop girls, etc., etc. The 6,000 who are under control have regulations similar in character to those of the other cities, for instance Hamburg, which they must observe, and according to which of the three classes they are inscribed under, must present themselves for medical examination from twice a week to once every two weeks.

For the purpose of controlling this evil, the city is divided into twelve districts, each of which is in charge of a sergeant of police. The entire personnel of this special branch of the police service consists of one inspector, as the director or superintendent of this bureau, two commissaries of police, twelve sergeants, and one hundred and eighty-one special officers. The method of procedure is as follows:

If the woman comes to police headquarters, admits that she is a public prostitute, and states that she desires to be placed upon the records as such, she is registered, and is subjected to a physical examination, and so long as she does not break the laws, is permitted to ply her trade. She is classified under one of the three classes, to be described later, and must present herself regularly thereafter for physical examination at such intervals as are prescribed by the regulations. Should she not voluntarily present herself for inscription, then the procedure is as follows: The special police detailed for service in this division patrol the streets most frequented by the prostitutes, and as they are soon acquainted with the regulars, the new recruits to the ranks of the wanderers soon strike their eye. A female who is noticed to be conducting herself in a suspicious manner upon the streets is watched, but at first not interfered with. Should she, however, by her actions give unmistakable proof of her calling, or should she be seen repeatedly upon the streets conducting herself in a suspicious or unbecoming manner, it is the duty of the police official to speak to her, and to issue a warning. Should she admit that she is without a dwelling, and that she has given herself up to prostitution, then she is arrested by the police officer and taken in a cab to police headquarters, where she is received by the female attendant or matron in charge, is kept in a room separate from other females, and subjected to a physical examination to determine her condition of health. All the first examinations are, without exception, made by a female physician.

Should she have a permanent dwelling place, the address is noted by the police officer who warns her on the street, and she is allowed to go. Upon the following day the police of the district in which she lives send her the following notice:

1. For your trial a time has been set for the in the forenoon, at o'clock, at division of the police headquarters,

entrance via, on the city railway side, first floor, room 122, before Mr., to which you are hereby summoned.

When she appears before the police authorities she is given a hearing. Should she have a fixed place of abode, and refuse to consent to an examination by the police authorities, then she receives permission to be examined by a private physician, but must bring a statement concerning her health, given by this physician, to the police authorities. At the time of her arrest the authorities in the district in which the arrest is made send out the following report to police headquarters, provided it be a first arrest:

II.—The person arrested to-day under the suspicion of public prostitution, declares:

There has been, upon my release, handed to me the notification to appear, the order being given for me to present myself for my trial upon at nine o'clock a. m., before the fourth division of the police headquarters, Sittenpolizei (room 122), entrance on the city railway side, and at the same time to present an official statement by a physician concerning my condition of health. In the contrary case, my compulsory production shall result.

Should a woman, upon first examination by the police, be found to have a fixed habitation and to be healthy, then she receives an official warning as noted below, and is allowed to go:

III.—After was to-day, for the first time, brought before us, and was, upon medical examination, found to be sexually healthy, the following disclosures were made to her: That, according to police observations, she is suspected of leading an immoral life; she is, therefore, impressively warned and urged at once to endeavor to lead a better life, and to find means, without delay, for obtaining an honest livelihood. Should she not heed this warning, and should she permit herself to be again seen in the streets and public resorts, comporting herself in a suspicious manner, then proceedings will be again begun to place her under a special sanitary police control.

Should this warning not be heeded and the woman in question later on be found upon the streets or at resorts, acting in a manner such as to arouse suspicion, she is, without more ado, arrested, taken to police headquarters, and examined in the manner before mentioned for such persons as admit that they are given to prostitution. Should the female in question be under eighteen years of age, then, as no police control is permitted of persons under eighteen, her parents or guardian are notified of the facts of the case, and warned to keep better control of her, in the following manner:

IV.—Your daughter ward admits is under strong suspicion of leading an immoral life, and to be a professional prostitute. The police headquarters have, therefore, issued a warning to her, and will, if this is unheeded, institute proceedings for her bringing up under guardianship.

Should this be without result, then court proceedings are entered upon and the child is placed in an institution. Should the person in question be between the ages of eighteen and twenty-one years, then the parents or guardian are notified and at the same time a notification is sent to that department of the district court having to do with affairs of guardianship. The notification to the parents, or guardian, is as follows:

V.—Your daughter ward is

strongly suspected of leading an immoral life, and following the profession of prostitution. Police headquarters have, therefore, given her a warning, and will, if it is without result, order that she be placed under the control of the morals police. You are hereby, as the legal representative of, admonished to check her immoral actions.

That which goes to the district court reads as follows:

VI.—..... born on 18.. in District daughter ward of living in Street, number is strongly suspected of leading an immoral life, and practicing public prostitution. Police headquarters have, therefore, given her a warning, and will, if this is without result, order her being placed under the control of the morals police. A copy of the proceedings of is enclosed. The father, mother, guardian, has been notified. I would respectfully suggest that such measures as are deemed proper be adopted, on the basis of Paragraph 1666 (1838) of the Civil Code of Laws, and that I be informed of what has been done, as soon as possible. The minor in question lives here in Street, number, has, for the time being, found shelter at

Should these measures have been without result, and the person in question, who is between the ages of eighteen and twenty-one, still follow her mode of life, then the woman is placed under police control, and the following report is sent to the district court:

VII.—With regard to my writing of date, I respectfully inform you, with the addition of a copy of the proceedings of that has to-day been placed under the control of the morals police.

The decision, a copy of which accompanies the foregoing notification, is as follows:

VIII.—(1) In consideration of the fact that, by the confession of, it is to be looked upon as proved that she is following professional prostitution, she is placed under control of the morals police; (2) to be released from police custody; (3) to be referred to the hospital; (4) copy of the notification of delivery of and of the proceedings of is to be made and to be sent to the first district attorney at the royal district court I, here, with the remark that has to-day been transferred to the hospital station of the city shelter here, and placed under the control of the morals police.

When a woman is placed under the control of the police she receives a copy of the police regulation covering the women who are inscribed as prostitutes. These are as follows:

IX.—POLICE REGULATIONS FOR THE SAFE GUARDING OF HEALTH, PUBLIC ORDER, AND PUBLIC DECENCY.

A female who, because of public prostitution, is placed under the moral and sanitary police control, is subjected to the following restrictions:

1. She is obliged to subject herself to a medical examination of her state of health, according to the following regulations.

The medical examination takes place for those prostitutes placed under class I twice a week; for those prostitutes placed under class II once a week, for those prostitutes placed under class III once every four or five days.

To class I belong

a. All prostitutes up to the completion of the twenty-fourth year.

Furthermore, without regard to age

b. Those prostitutes who have not been inscribed for a longer period than one year.

c. Syphilitic prostitutes, in whom three years have not yet elapsed since the outbreak of the syphilis.

d. Those prostitutes in whom, because of their personality, because of their behavior (breaches of police regulations, withdrawal from the sanitary control, etc.) or for other reasons, a determination of their state of health at shorter intervals, seems desirable, in the opinion of the morals police.

Included in class II are:

All prostitutes from the beginning of the twenty-fifth year to the completion of the thirty-fourth year, in so far as they are not included under class I.

In class III are included:

Those prostitutes who are over thirty-four years of age, in so far as they are not included under class I. Transference of prostitutes from one class to another occurs according to the disposition of the morals police.

2. She must present herself for medical examination punctually at the time specified to her, and furthermore, as soon as she finds herself sexually diseased, in the workrooms of the morals police. Should the date on which she is to present herself fall upon a holiday, then she must present herself upon the next following day of medical examination.

3. Should she be found sexually diseased, or, in fact, suffering with any contagious disease, she is compelled to submit to her transference to some hospital, prescribed by the authorities, and to submit to treatment until she is cured. In the hospital she must unconditionally obey the recommendations, or the orders, of the physicians and superintending officers, as also the regulations of the institution.

4. She must wear simple and decent clothing. The wearing of male attire is forbidden.

5. Upon the streets and squares of the city she may not draw the attention of others to herself by her behavior. She is not permitted, for instance, to stand or to sit upon the street, in doorways, gateways, entrance halls, or upon the sidewalks; to promenade up and down a small stretch, to ramble about, in an offensive manner, upon the streets, and to be seen in the company of a person of whom she knows that she is under the supervision of the morals police, or who has been punished for procuring, or who is known to her as a lover (*Zuhälter*). Furthermore, to give men signs or other signals to follow her or to speak to her.

6. The use of the following streets, or pleasure grounds is, except in cases of the most pressing need, forbidden to her: Lustgarten, Tiergarten, including the Königsplatz, Friedrichshain, Humboldthain, Victoria Park, the street Unter den Linden, Friedrichstrasse from the Oranienburger Thor to the Puttkamerstrasse, and Besselstrasse; Wilhelmstrasse, from Unter den Linden to the Leipzigerstrasse, Potsdamerstrasse, Potsdamerplatz, Königgrätzerstrasse, between Voss and Köthenerstrasse, Königsstrasse, Alexanderplatz and the adjoining square of the Alexanderstrasse, Behrenstrasse, Leipzigerstrasse, Neue Wilhelmstrasse, Charlottenstrasse, and the cross streets between Charlottenstrasse and Friedrichstrasse; Schadowstrasse, Neustädtische Kirchstrasse from Unter den Linden to Mittelstrasse, Kleine Kirchgasse, Universitätsstrasse from Unter den Linden to Dorotheenstrasse, Kaisergalerie, Opern Platz and Pariserplatz, Platz am Zeughause, Kastanienwäldchen.

Furthermore, it is forbidden them to remain in the neighborhood of churches, schools, higher institutions of learning, royal and public buildings, particularly barracks; the frequentation of theatres, circuses and exhibitions, as well as the concert gardens belonging thereto, the Zoological Gardens, the museums, the city elevated and underground railway depôts, except if a ticket for a journey is to be bought, and, finally, all places which the police headquarters may specify later.

Similarly, driving up and down in open wagons, or riding bicycles upon the above named streets and squares.

7. In public resorts she may not make herself conspicuous—namely, to entice men to her or to intrude herself upon them. Smoking, brawling, and singing are forbidden, as is also entrance into the private rooms to be found in these resorts.

8. It is forbidden her to enter into any relations with immature persons of the male or female sex, or with pupils and scholars of civil and military institutions.

9. She must be careful that no scandal is created through her residence in the house in which she dwells, nor in the neighborhood thereof. Otherwise she is obliged, after having been warned once without result, to remove from this house, upon the orders of the morals police, within the time specified to her.

10. She must, without delay, at any hour of the day or night, permit or procure the admission of the police officer who calls for the inspection of her dwelling, and must, in so far as it is possible for her, give information concerning those persons found in her company.

11. Should she be found in a dwelling which is known to the police as a house of assignation for prostitutes, and if the conduct there has already given rise to complaints, then admission to this dwelling may be forbidden her by the morals police.

12. She may not, under any pretext, show herself at the window of her own or of a strange dwelling. The windows of her dwelling must, while she is receiving male visitors, be closed and covered with curtains, so that a view into the dwelling is made completely impossible. It is forbidden her to place a lamp, a light, or any other signal at the windows, or in any other way to entice men from the window or from the door of her own or of a strange dwelling.

13. She must, upon request or upon inquiry, truthfully state her place of dwelling. She must give notice, personally, of every change of dwelling within three days, but at the utmost, upon the next visit for medical examination to the registration bureau of the morals police. In any written request to the morals police the place of dwelling must always be exactly noted.

14. It is forbidden her to live in the vicinity of churches, schools, and higher institutions of learning, royal and public buildings, particularly of barracks, as well as upon those streets or squares whose use is forbidden her in paragraph 6 of these regulations, and on the ground floor, or in the cellar, when this dwelling looks out upon the street. Furthermore, it is forbidden her to live in hôtels, inns, and furnished room hôtels, or to visit such. As soon as it is brought to her notice by the morals police that one of the conditions of residence mentioned in this paragraph is present and that offence is caused thereby, she is obliged to give up her dwelling within the period of time set by the authorities.

15. Finally, it is forbidden her to share her dwelling with another person while she receives the visits of men, or to harbor her lover in her dwelling.

16. She is forbidden to employ servants who are minors.

17. She is obliged to keep in a safe place her control book, and the card of identification handed to her at the time of her release, until it is handed over to the proper authorities. She is not allowed to leave her control book or her card of identification in the care of other prostitutes, or of any other unauthorized person.

18. During her stay in the offices of the morals police she must behave herself quietly, decently, and give absolute obedience to the superintending officers and doctors.

Breaches of these regulations will be punished, according to paragraph 361, No. 6, and 362 of the Penal

Code of the German Empire, with imprisonment up to six weeks; at the same time it may be decided that the condemned person is, after the completion of the punishment, to be turned over to the national police authorities, who thereby receive the right to place the person in question either in a workhouse for a period up to two years or in an institution of correction or education, or in an asylum, or employ her upon works for the public benefit.

Berlin, June 28, 1902.

POLICE PRESIDENT.

(To be continued.)

LIGATION OF THE EXTERNAL CAROTID IN RHINOLOGY AND PHARYNGOLOGY.*

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A review of the literature of rhinopharyngology convinces the writer that the manifold uses of external carotid ligation, and the ease and safety of its performance are not fully realized at the present day. We are still laboring under the impression created in the preaseptic days, that external carotid ligation is a serious operation. Many confound in their minds the more serious operations of ligation of the other carotids, internal and common, with that of the external. The latter is relatively a trivial matter.

Indications.

Ligature of the external carotid artery is indicated for forestalling or arresting hæmorrhage from tissue, the vascular supply of which is derived from that vessel. It is also of value in the inhibition of recurrence of benign and malignant neoplasms in this area, though this requires usually more than simple ligation, and is not so certainly within the province of the rhinopharyngologist. As such, we are more interested in its uses for the arrest of serious hæmorrhage after tonsillectomy, and as a preliminary to extirpation of nasopharyngeal fibromata and malignant disease of the nasal and pharyngeal cavities, the maxillary antrum, and the tonsils.

After *tonsillectomy* many serious and a few fatal hæmorrhages have occurred. In nearly every instance, the hæmorrhage could have been stopped as by magic by ligation of the external carotid artery on the bleeding side. Of course, if the hæmorrhage is from the cut end of a vessel of considerable size, the mouth of this vessel can usually be found high up in the supratonsillar fossa and will only be exposed by pulling the anterior pillar forward with a hook made from a bent probe, or still better, with Hubbard's pillar retractor. Hæmorrhage in this locality has often been found by the writer in cases where the bleeding was said to be an oozing. In many cases, the bleeding comes from remaining glandular or cicatricial tissue, the vessels of which do not retract normally. In such a case, biting out the offending tissue will often stop the bleeding by permitting normal vascular retraction, or in other cases will enable the detection and torsion of the bleeding vessels. The tonsillar clamp may be applied, but few can wear it long, and it is not always efficient. A pad held in place by a hæmostat will often serve to arrest the bleeding either permanently or temporarily, while the ligation is being performed.

It is when these and other means fail that external

carotid ligation is demanded; and it is wise not to waste too much time temporizing. When it is clear that the hæmorrhage is not going to cease, or having ceased, is very likely to recur in a case where recurrence would be dangerous, it is better to proceed at once to ligation.

After *intranasal operations*, such as turbinotomy, if packing the nose fails to stop the hæmorrhage, an external carotid ligation is less painful and less dangerous, than a posterior plug.

Fibromata of the rhinopharynx may be safely extirpated without danger after the preliminary ligation of one or both external carotid arteries. If the growth is distinctly of unilateral origin, ligation of the corresponding external carotid is sufficient. If the growth springs from a broad base situated on both sides of the median line, bilateral ligation is necessary. In this class of cases it is better to allow an interval of a week between the two ligations.

The author has operated in eight cases of nasopharyngeal fibroma with preliminary external carotid ligation. Two of these have been already reported. In four I thought it necessary to insert a postnasal plug, in the other four it was not necessary. With the ligation of only one artery in a fibroma of sessile base spreading to the other side of the median line, the hæmorrhage was more profuse than the first rush after adenoidectomy, and it threatened to continue until the patient would have been exsanguinated, therefore a plug was inserted. Ordinarily, preliminary ligation should permit completion of the operation. In one case the operation had to be abandoned because only one common carotid was compressed with the finger. The external carotid had been ligated two years previously, when the primary growth was extirpated. When it came to the operation for the recurrence, I made the mistake of not ligating the external carotid of the opposite side, depending upon digital compression of the common carotid artery upon an aneurism needle. Had the remaining external carotid been ligated, temporary compression of the common upon the side of the prior ligation would have obviated the abandonment of the operation before its completion. The boy was becoming exsanguinated, and a handful of gauze sponges were packed into the large nasopharynx. To persist a moment too long in these cases is fatal. Collapse comes on suddenly, and the patient bleeds into his own vessels without warning. It is almost impossible to restore vasomotor control.

When one looks over the appalling list of deaths upon the table from simple evulsions and severe preliminary operations for the extirpation of nasopharyngeal fibromata, or when one has seen the blood welling up out of the mouth like a drinking fountain while the surgeon is hurriedly tearing away as much as possible of the growth, the quiet, orderly procedure after an external carotid ligation is, by contrast, a revelation.

The inhibition of repullulation of nasopharyngeal fibroma from starvation owing to diminished blood supply is probable, though open to some doubt because of the rapid restoration of the blood supply. Excision of the external carotid and a number of its branches as advocated by Dawbarn for malignant growths would doubtless prevent recurrence in fibromata, but it does not seem probable in the

*Read at a meeting of the American Laryngological Association, June, 1902.

nign conditions as recurrences are easily taken care of and life is not threatened.

Angioma. All that has been said of fibroma is equally true of angioma in the pharynx, nasopharynx, nose or fauces.

In malignant disease in the external carotid area, external carotid ligation is of use in two ways: To forestall hæmorrhage, and to inhibit recurrence. If for the latter purpose more than a simple ligation is necessary. Exsection of the external artery and all its branches is required, and not only on one side, but both. However, this is a more formidable operation, with higher mortality, probably six per cent. Simple ligation will prolong life a number of months, which may be of great moment to the patient, and it is a minor procedure which may be easily done under local anæsthesia.

The malignancy which is particularly amenable to ligation is the sarcomatous form. It spreads by the vessels, whereas carcinoma spreads chiefly through the lymphatics and is, for this reason, less influenced.

As rhinologists, we are more interested in malignant disease of the maxillary antrum, and of the nose and nasopharynx. In all of these locations sarcoma may be retarded, and operation for the extirpation of either sarcoma or carcinoma rendered free from risk of hæmorrhage and from all necessity for haste. These advantages enable a careful extirpation of all diseased tissue, without which operations for malignancy in most instances are unjustifiable.

Mortality.

The mortality from cerebral embolism due to washing away a portion of the clot extending backward to bifurcation, and carried into the cerebral vessels through the internal carotid, is estimated by Crile at from 2 to 3 per cent. This is based upon reports in literature by all operators and represents operations for all conditions, including some in which the vessels themselves were diseased. My own statistics show thirty-eight external carotid ligations without a single death at any time attributable directly or indirectly to the operation. In all my cases particular care was taken to ligate as far as possible above the bifurcation. Attention to this point will doubtless lessen mortality. No mention of the exact point of ligation is made in many published reports of cases.

Wyeth's statistics, compiled in preaseptic days, shows only $4\frac{1}{2}$ per cent. mortality from all causes. Even taking the mortality at Crile's figures, $2\frac{1}{2}$ per cent., the operation is imperatively demanded. The mortality from hæmorrhage in the external carotid area in a hæmophilic without ligation, according to the cases collected by the author, is 18 per cent. This included spontaneous as well as post operative cases.

The statistics of operations in the preaseptic days are useless for determining the present mortality, hence advisability of the operation. The surgeons of those days had to reckon with, besides sepsis *per se*, the secondary hæmorrhage at the coming away of the infected nonabsorbable ligature.

Results.

The only after effect noted by the author in thirty-eight external carotid ligations was insomnia

and headache in one case. It was probably due to increased intracerebral blood pressure owing to the diversion of an increased flow into the internal carotid artery. Slight insomnia, too vague to be certain of, was noted in a few cases.

In regard to the choice between ligation and temporary compression by means of clamps as advocated by Crile, there are several facts to be considered. Temporary compression has the advantage that it may be applied to the common carotid, thus lessening the amount of anæsthetic needed, because of the cerebral anæmia. This is a safe and decidedly advantageous method when used as it is by Crile, with the patient in the head-up position and wearing the Crile pneumatic rubber suit, by which the blood pressure of the patient is under the absolute control of a skilled sphygmomanometrist.

For many operations this is the best of all methods, but it requires an equipment rarely available, which is, of course, no criticism upon the method itself. For the removal of fibromata of the nasopharynx it has the disadvantage of requiring a post-operative postnasal plug, to prevent secondary hæmorrhage immediately or remotely after the release of the carotid compression. Such a plug is only occasionally necessary after an extirpation done with the aid of external carotid ligation. It is especially likely to be needed if the origin of the fibroma is on both sides of the median line and only one external carotid be ligated.

The objections to obliteration of a centimetre or more of arterial trunk in the ligation of the external carotid artery are more sentimental than real. Absolutely no harm is done to any tissue by the local anæmia, which is of only a few weeks' duration. Any surgeon who has tried to starve a malignant growth by arterial ligation will realize how promptly collateral circulation is established. The choice, then, between external carotid ligation and common carotid compression for operative hæmostatic narrows itself down to one point, namely, mortality.

Crile's compilation of operations by anybody and everybody shows a mortality from external carotid ligation of about $2\frac{1}{2}$ per cent. from cerebral embolism. This is no basis for comparison with common carotid compression under the perfect technic of Dr. Crile himself and his corps of assistants trained in the use of special and elaborate apparatus for the control of the circulation in the head-up position. The only statistics at present available are those of Crile. Up to July, 1905, he had no unfavorable results in temporary carotid compression in fifty-one cases. If common carotid compression with clamps, and with the accessory aid afforded by the pneumatic suit and sphygmomanometrist, were to be put into general use by anybody and everybody it would probably show a mortality of at least $2\frac{1}{2}$ per cent.

While it is, of course, desirable to reduce all operative mortality to the lowest possible limit, yet considering that the mortality of unoperated malignant diseases is very close to 100 per cent., the matter of $2\frac{1}{2}$ per cent. seems insignificant. Hence, if it came to no operation at all, or to external carotid ligation in a given case of operation for malignancy, the matter of $2\frac{1}{2}$ per cent. mortality would be of little moment.

The author has used temporary compression of the common carotid by an assistant with the index finger which pressed the artery against an aneurysm needle. The patients were in each instance in the Trendelenburg-Roser position; the operations were of short duration; compressions were only made during the stages actually needed, the artery being released meanwhile, and all the patients had had their external carotids ligated preliminary to an operation a year or more before. The hæmostasis was efficient and the result was favorable.

Hæmostasis by cording the extremities as advocated by Dawbarn has not been tried by the author, and therefore cannot be here justly compared with external carotid ligation. Theoretically, it would seem to involve little risk if the cerebral circulation be carefully watched. These methods are of advantage to the general surgeon in all work upon the internal carotid area, but in the field of the rhinopharyngologist, who is mostly concerned only with the hæmostasis of the external carotid area, it is a distinct disadvantage to diminish the cerebral blood supply. The author's opinion is that permanent external carotid ligation is safer for nose and throat operations, because it leaves the cerebral circulation unimpaired, while creating an anæmia of the operative field. Not only is cerebral circulation unimpaired, but it is probably improved by the increased amount of blood thrown into the internal carotid by the ligation of the external carotid.

Technics.

In technics the author wishes to add a few suggestions to the classic descriptions in the textbooks.

The incision should be ample, so that a sufficient length of artery will be exposed. It should be made from the level of the jaw downward along the sternomastoid muscle to the level of the first ring of the trachea. This will allow of ample room for exposure of the common carotid artery first. The common is followed upward to its bifurcation. This will prevent all chance of ligating the common in cases of anomalous anatomy. The finger of an assistant on the temporal pulse will distinguish whether the internal or external carotid is being temporarily compressed between the finger of the operator and the aneurysm needle, but obviously it will not warn the operator against ligation of the common. The superior thyroid and even lingual may be given off from the common carotid, an instance of which I have seen. This is equivalent to a high bifurcation, and, unless on our guard, the classic direction to ligate between the superior thyroid and the lingual will result on our ligating the common carotid artery.

The operation should be done under infiltration anesthesia when there is the slightest contraindication to general anesthesia. The author did one ligation with no anesthesia at all, the boy being so exsanguinated that the sensorium and its accessory mechanism could not functionate sufficiently to perceive a sense of pain. The perception of pain is greatest at the skin. This is completely prevented by infiltration anaesthesia, not under the skin, of a 1 per cent. cocaine solution, which is made with sterile normal salt solution to which is added one drop of carbolic acid to the ounce. This is necessary to sterilize the cocaine because of the destruction of

cocaine at the temperature of boiling water. After the skin incision but little pain is produced in cutting down quickly upon the arteries with a sharp knife. A dry dissector is painful and should not be used, certainly not before the common sheath is exposed; and preferably not then.

Ordinarily the pulsation of the arteries is easily felt, and the bifurcation can be palpated through some depth of overlying tissue. If the patient is exsanguinated, however, the pulsations may be so feeble as not to be felt until the artery is exposed. If the ascending pharyngeal is of any size it is better to ligate it also.

In the after treatment it is only necessary to avoid circulatory excitants. All of the writer's thirty-eight ligations healed *per primam*.

Report of Cases.

The author has ligated the external carotid artery thirty-eight times. A complete report of all would needlessly expand this paper. A few illustrative cases will suffice. As two instances of ligation preliminary to extirpation of nasopharyngeal fibromata have been published, none of these need be mentioned.

CASE I.—*Almost fatal hæmorrhage after tonsillectomy in a hæmophile arrested by external carotid ligation.* Dennis M., aged twenty, was admitted to the Western Pennsylvania Hospital in an almost moribund condition. His relatives gave a hæmophilic family history. They stated that he had had his tonsils removed four hours before and had been vomiting great quantities of bright red blood ever since. He had fainted a number of times. Various remedies, including pure chromic acid, had been applied without avail to the bleeding right tonsillectomy wound. When I saw the patient he was a typical picture of exsanguination. His pulse was imperceptible at the wrist, his lips were as white as his face. He would faint away, then rouse, roll his head from side to side and in a whisper try to ask for water.

To lose another ounce of blood in such a state would mean certain death.

The patient gave no evidence of pain, while without any anæsthetic the author ligated the right external carotid artery. The operation required just six minutes. The pulse began to improve. An intravenous injection was given. The next day the case was gone over carefully and purpuric hæmorrhages were found in the conjunctiva, skin, and nasal and buccal mucosæ. The most profound traumatic anæmia from loss of blood was present. Hæmoglobin 20 per cent.; red cells 680,000. As 700,000 is supposed to be the minimum compatible with life his condition may be understood. The carotid wound healed *per primam*, and ten days later the patient was discharged. One month after admission the patient's general condition had improved sufficiently to walk home from the hospital. He died subsequently of hæmorrhage from the nostril, which came on spontaneously without operation or traumatism, proving the case one of hæmophilia.

CASE II.—*Fibrosarcoma of the pharynx cured by external carotid ligation. Extirpation. Fibrosarcomatous recurrences in the nasopharynx. Common carotid compression cure.* Andrew D., aged eighteen years, was admitted to the Western Pennsylvania Hospital for nasal hæmorrhages, but which his nose had been packed the packing being still in place. For three years there had been a gradually increasing swelling of the left upper jaw and cheek. Within the last year the right nostril had closed, and a foul, bloody discharge issued from the nostril and lip. The jaw

could be separated but slightly and mastication was difficult.

On examination a very slight bulging inward of the right nasopharyngeal wall was noted. There was a hard mass back of the maxilla in the sphenomaxillary and zygomatic fossæ. The occlusion of the right nasal chamber seemed to be from the bulging inward of the antral wall posteriorly. The right side showed dark on transillumination, pus was flowing from the middle meatus; and I expected to find a malignant growth in the antrum. Palpation of the nasopharynx was impracticable because of the intolerance of the patient and fixation of the inferior maxilla, which could only be opened about one centimetre.

Under ether, palpation revealed the presence of a hard immovable nodular tumor back of the right maxilla, to which it seemed tightly attached. I then opened the antrum, and found it full of pus. It was very small from bulging forward of its posterior wall, the inner wall bulging inward. It contained no growth. I then ligated the external carotid artery. The superior thyroid and the lingual were found to spring from an axis, above which the external carotid was tied. Then the lingual was ligated. The tumor was dissected loose from the soft tissues, and with lion jawed forceps I tore out its dense fibrous attachments to the periosteum of the sphenoid and maxillary bones. Notwithstanding the tearing away of the enlarged internal maxillary artery, the bleeding was slight and it ceased soon after packing. The antrum was also packed.

Both the antral and the tumor cavities healed promptly, though the external and nasopharyngeal deformities remained. The boy was discharged. Clinically and microscopically the tumor appeared to be a pure fibroma. Three months later the lad was readmitted and was found to have a large hard mass entirely filling the nasopharynx. It seemed to be attached to the right side, and was not so large as to impede mouth breathing.

Under ether anaesthesia, I exposed the common carotid, which an assistant compressed on an aneurism needle. The site of the previous external carotid ligation was not laid open. I then proceeded with Stucky's forceps to tear away the nasopharyngeal tumor, which was too broad based for the application of a snare. The bleeding was so profuse that the boy was almost exsanguinated in a few minutes, which compelled me to abandon the operation before the growth was as completely extirpated as I would have liked. The lad recovered uneventfully, but a foul ulcerating surface persisted in the nasopharynx.

The growth removed was reported by Dr. Ernest Willets to be a fibrosarcoma.

Remarks. The mistake here made, from a hæmodynamic point of view, was in not ligating the opposite (left) external carotid. Then the compression of the right common would have effectually checked hæmorrhage, so that a complete and thorough extirpation of the nasopharyngeal tumor could have been made. As a matter of cure in this case, thorough extirpation would have been of no avail, for the mass proved to be malignant; but had the growth been purely fibrous, as the primary tumor was, the imperfect technics would have been a regrettable thing. In a similar subsequent case I ligated the opposite external carotid, digitally compressed the common on the previously ligated side, and succeeded perfectly in keeping the bleeding within bounds until the operation was completed in an orderly manner.

CASE III.—*Almost fatal hæmorrhage after turbinotomy stopped by external carotid ligation.*—Paul S.,

aged sixteen years, was referred by Dr. W. W. Jones for nasal stenosis and occasional epistaxis. I resected both inferior turbinals, packing with bismuth lint, as suggested by Freer. The packing was removed and the patient discharged from the hospital on the third day. Eight days later, after playing basket ball against orders, there was a profuse bleeding from both nostrils. Readmitted to the Eye and Ear Hospital, both nostrils were packed with bismuth lint by myself. The following day a profuse hæmorrhage past the packing occurred from both nostrils. In my absence packing was placed by Dr. C. C. Sandels, which completely stopped the bleeding for fourteen hours, when a profuse flow of blood, at least six ounces, occurred suddenly. The wounds were then sealed up with cotton and collodion by Dr. E. W. Day. This held well until the next day, when recurring hæmorrhage demanded anterior and posterior plugging. Pulse was then 120 and soft. Patient showed effects of loss of blood. Upon my arrival home I found no bleeding past these plugs and decided to leave them *in situ* a total of twenty-four hours, notwithstanding a double acute purulent otitis media. In response to an urgent call I found the boy almost exsanguinated from a profuse hæmorrhage, and blood still flowing freely. As another hæmorrhage would have proved fatal, I decided to ligate the external carotid artery, in which decision Dr. Jones and my colleagues on the staff concurred. Dr. Helen F. Upham made digital compression over the common carotid, while I did the operation in ten minutes, under infiltration anaesthesia, practically without pain until the common sheath was opened, when some twinges were felt. The ligature was placed between the superior thyroid and the lingual, as closely to the latter as possible. The bleeding immediately ceased. Plugs and packing were removed at once.

The otitis disappeared under douching, the pulse was just perceptible at the temporal in a week, and the boy made a complete and uneventful recovery without the loss of one drop of blood after ligation.

Remarks. Here is a case in which, probably owing to anatomical anomalies, profuse bleeding occurred in a rush past packing and plugs, placed, not by one man, but by a number of men, all experienced rhinologists. To have temporized with methods which were proved useless would have been fatal. The patient was already in traumatic anæmia. Another torrential hæmorrhage such as he had already undergone four times would have ended in fatal collapse.

CASE IV.—*Sarcoma of maxillary antrum retarded by external carotid ligation.* Referred by Dr. Frank L. Todd. Mr. C., aged thirty-eight years, had a rapidly increasing swelling of the left cheek, with occlusion of the left nostril and a bulging downward of the roof of the mouth, all of which were first noticed by the patient six months before. For a few weeks prior to admission the bulging downward of the hard palate had been noticed to ulcerate and to extend over to the other side. Both nares then became occluded. Upon examination the ethmoidal and maxillary sinuses of both sides and the sphenoidal sinus were found to be filled with a growth which, clinically, seemed sarcomatous, and a microscopical examination of a specimen by Dr. Joseph H. Barach proved it so to be.

The growth being manifestly inoperable, and the patient being anxious for a few months of life in which to arrange his affairs, I ligated both external carotid arteries between the lingual and the superior thyroid. Each operation required but fifteen minutes.

No pulsation could be felt in the temporals for seven weeks. For three months the progress of the growth was apparently arrested. Then it began slowly

to increase in size, but at no time did it reach its former rate of growth. It proved fatal about a year after the ligation.

Remarks. While the author realizes that the rate of growth is subject to intervals of arrest and progression, yet this and other cases seem to point to a halting of two months or more from simple ligation of both external carotids without exsection. Of course exsection of the artery and the tying of its branches would retard progress still farther, yet it is a more serious procedure, and as we are doing only a palliative operation, the slighter the better. In addition to retardation of the growth, relief of pain and freedom from hæmorrhage can be promised.

Summary of Cases.

The author has ligated the external carotid artery thirty-eight times in thirty cases, both arteries being tied in eight cases.

To arrest hæmorrhage after tonsillectomy, 7 cases.

To forestall hæmorrhage in extirpation of malignant disease of the tonsil and tongue, 4 cases.

To forestall hæmorrhage in extirpation of malignant disease of the maxillary antrum, 3 cases.

To inhibit growth in malignant disease of the maxillary antrum, 4 cases.

To forestall hæmorrhage in extirpation of nasopharyngeal fibromata, 8 cases.

To arrest spontaneous nasal hæmorrhage, 2 cases.

To arrest postoperative nasal hæmorrhage, 2 cases.

PARK BUILDING.

SOME NOTES ON MALARIAL FEVER AS SEEN IN THE JUNGLE.

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Haddonfield, N. J.

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A long experience has shown me that, no matter how wild a tale or theory may be, to patiently listen to it, as by so doing I may learn a germ of truth in a mass of other material, and in such ways I have gained much valuable information. This has been of use to me in travelling through the jungle many thousands of miles. I have listened to the tales, no matter how wild, of the uneducated natives. Of officials whose lives had been passed in the jungle, in outlying provinces, and who were educated men and close observers, and to this, after winnowing it, have added my own personal practical scientific experience, all of which is respectfully submitted.

First, it is beyond dispute that the mosquito of a certain variety carries the germ of malaria and transmits it to individuals, but, secondly, and of still greater importance is the fact that persons can and do contract malarial fever when there are no mosquitoes to give it to them, and it is also certain that a person can acquire malarial fever if he disobeys certain natural laws, and which Kipling might call "the law of the jungle." A few of these coming to my knowledge, and in my own experience are cited here.

If an expedition is travelling in the jungle in either the wet or the dry season, the men travelling on foot first get malarial fever, the men on horseback rarely get it, the men on elephant back will still more rarely, and seldom get it. I attribute this seldom getting it to their high position in the ground con-

tirely to the miasma arising from the soil and rotting vegetation. In some bad districts you can smell the miasma and unless prophylactic doses of quinine are taken all hands will have fever. In the jungle all the natives use mosquito curtains, but they know from long experience that unless they sleep as high as possible from the ground they will suffer in consequence. It is the immutable law of the jungle that if you sleep on or near the ground, do not change your clothing at once when wet by a tropical shower, get wet in the early morning from the heavy dew and let your clothing dry on you, or the same after fording a tropical stream, or if you bathe in canal or river a short time after coming from a hard day's march, then fever will follow in a few hours afterward, as the Siamese say, "surely." One strict order issued by me on one expedition in the jungle with 500 men, and travelling 1,200 miles, was that no man should be permitted to bathe till two hours had elapsed after arrival at the halting place for the night.

In all my travels, covering many thousands of miles from the Siamese Malay states to the Indo-Chinese frontier, with hundreds of men under me and in all kinds of weather, I never lost a man from pernicious malarial fever, although travelling for a long time through a country absolutely depopulated from this cause. But they had to obey my orders. In Bangkok, the men who have fever are those who come usually in close contact with the soil, as, for example, the king's gardener, at Dusit Park, who has to take teaspoonful doses of quinine to keep well, while very few around the city are affected. In other words, knowing that the mosquito does transmit malarial fever, I believe it exists first in the water and soil, and that the mosquito acquires it first from the water in which he was hatched.

As will be seen later I wish to call attention to the difference between the cases of malarial fever in the marine battalion at Guantanamo, Cuba, during the Spanish war, and the regiments some distance away before Santiago. There were hardly any cases in the battalion, while among the other troops who were more in the jungle, there were few who were well. Now there were plenty of mosquitoes at Guantanamo, as I can testify, for in my night watches as senior watch officer of the U. S. S. *Resolute*, I had plenty of opportunities to feel them as we lay within a few hundred feet of the shore. But, and here to my mind comes the great difference in the sick rate from malarial fever, the men were well sheltered from the tropical rains, and the men at Santiago were not. Besides the marine battalion were supplied with distilled water from our ship for drinking purposes. The men before Santiago drank unboiled water from streams and ditches. The camp of the marine battalion was on a bare hill with the jungle for a great distance cleared away, so as not to lend cover for riflemen. The troops before Santiago lived in the jungle and near the upturned earth of the trenches. As far as mosquito curtains were concerned, they were about on a par, as there were none used, as far as my recollection goes. The point is that the battalion obeyed the law of the jungle and the troops before Santiago possibly because they could not help it, dis-

obeyed that law and suffered in proportion. That law which is immutable and which says: In the jungle you must boil your drinking water; you must clear away the jungle and let the sun in, and you must not live close to, or turn over the soil in the tropics if you do not wish to arouse this sleeping giant. Also, of course, not to neglect your mosquito curtain.

I learned by bitter experience in Siam and the Malay peninsula that if you live in the deep jungle, even for only a few days, without clearing it away and letting the sun in, especially in the wet season, that every man, in spite of mosquito curtains, will be taken down and many die of pernicious malarial fever. But if you clear off the jungle for a reasonable distance around your house, and wait over one dry season, so that the hot tropical sun can have a good chance at the soil, you can return and live in good health where was before a death trap. A very practical demonstration of this is Port Swettenham, in the federated Malay states, where a few years ago it was almost certain death to remain over night, and the coolies engaged in building the railway died in great numbers. The jungle was cleared away for a quarter of a mile or more, the sun was let in, and to-day a peaceful village exists there.

If you drink unboiled water in the jungle, no matter how clear and sparkling the mountain stream may be, you will have fever. Now strange to say the ignorant natives through some process of reasoning have a faint glimmering of the truth, and in the deep jungle in the clear mountain streams they will not take the water directly from the stream, but will dig a well on the nearest sandbar and wait for the water to gradually filter through the sand. No matter how thirsty he will patiently wait for this sand filter to act. I have personally known a man in the Burmese government service who spent nine months in the jungle at one time. All of the party used mosquito curtains, and all had had attacks of malarial fever, with the exception of this man, who was the only man who insisted on and drank boiled water all of the time, and escaped scot free.

The man living on the border, or near the border, of the jungle will have malarial fever, while the man living a few hundreds of yards away in the open rice field will seldom have it, and it will be of a far milder type, not pernicious fever. This was most apparent in the tin mining districts, where the Chinese tin miners, although living and sleeping under mosquito curtains, as do all alike rich and poor in this part of the world, turning over the soil and coming in close contact with soil and water, die of malarial fever by scores and hundreds, while often the peasants in the open rice field a short distance away have very little fever. The man who lives in the open rice fields where the sun gets at the soil will seldom get it, and it will be of a mild type, while the man near by engaged in digging a canal or embankment will surely suffer more.

Certain parts of Siam are worse than others. In building the Korat Railway the number of deaths from malarial fever was not excessive till a range of limestone hills was reached between Bangkok and Korat, about 2,000 feet in elevation, and fifteen miles across the range. This had a very bad reputation for pernicious malarial fever, and in building and

grading the fifteen miles, 10,000 coolies and thirty Europeans died, the majority from fever. After passing this range of hills there was far less mortality.

The only case of black water fever, so prevalent on the west coast of Africa, that I saw in Siam was the case of a Jesuit missionary in the Laos country, whose work carried him across a range continuous with these hills, and which also had as evil a reputation. This range also separated two monthons or counties, in only one of which was a court house, and litigants had to cross this range; from this fact grew a condition the lawyers might call "a deterrent of litigation," for on the way over the defendants died of pernicious fever, and on the way back the plaintiffs, or vice versa, and this soon led to a general stoppage of litigation, as very few came back who started over.

In the central and southern part of Siam, over the great rice plain, as flat and level as a floor, which is also highly cultivated and free from jungle, and covers an area of many thousands of square miles, there are two seasons of fever which ebb and flow almost as steadily as do the tides of the sea. First at the beginning of the rainy season there is a great wave of fever which sweeps over this great plain, and thousands have it in a more or less mild form, everybody sleeps under a mosquito curtain. I attribute this outbreak to the early and heavy rains, bringing down the malarial foci from the rotting vegetation of the mountains and higher plateaus, and also to the fact that at this period the soil is being turned over in the rice planting. A few weeks go on and the rice is planted. Now the fever diminishes and few are ill, but there is no diminution of the mosquitoes. Then at the close of the rainy season, when the waters subside and leave the detritus of the great tropical jungle, another great wave of fever breaks out and thousands have it again, to be followed by a gradual abatement of the disease. Now mark the difference. In the ruby and sapphire mines, in the great tin mines, in the building of embankments and digging of canals, there is no such remission of the disease, but it occurs at all times, worse, however, in the wet season. And the death rate is so great that I have seen mines where, in years past, 200 coolies had been at work and every one died in a short time of pernicious malarial fever.

Now this is one more law of the jungle. If you build your house within a few hundred feet of one of the high limestone cliffs that here and there dot the level plain "you will surely die," as the Siamese expression goes, and it is only too true. But if you build it some distance away you are safe. If a dozen men are working in the tin mines, surveying, or prospecting in the jungle, those who do not change their clothing when wet, who drink unboiled water, and who sleep on the ground, all of the mosquito curtains in the world will not save from fever, while those who use the mosquito curtain and obey the law of the jungle can travel through the "country of the ghosts" and laugh them to scorn.

At the close of the Spanish-American war, in company with Lloyd Griscom, then a captain and quartermaster in the army, late minister to Japan, and now minister to Brazil, I came from Puerto Principe

to Nuevitas, and one of the escort accompanying us was Dr. Agramome Agramonte, the chief surgeon of the Cuban army. In conversation with him he told me that there were certain districts in the island which he had been, where you could "smell" the miasma; and in riding through certain valleys it was so intense that fever always came on in a few hours. Not at all strange to say, I have found this to be literally true on the opposite side of the world in the kingdom of Siam and in the Malay peninsula.

TWO CASES OF PROFOUND MENTAL DISTURBANCE DUE TO PELVIC DISEASE CURED BY OPERATION.

By A. L. FULLER, M. D.,
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The relation between pelvic disease in women and insanity is an unsettled question, in which there is great diversity of opinion. The weight of authoritative opinion seems to be that the pelvic disease is not a causative factor in insanity, but that it, in common with other physical derangements, may aggravate an existing insanity. The gynecologists as a body seem to hold the view that there is no relation between pelvic disorders and mental disease, and that such cases should be treated solely with regard to its effect on the general health, while the alienists hold that treatment of pelvic disease may have some favorable effect on the mental condition.

It has seemed to me for several years past that a pelvic disease, which we all know to have such a deleterious effect on the physical health, may equally well in a neurotic patient cause severe mental disturbance; and for this reason I venture to report the two following cases:

CASE I.—Mrs. K., Bohemian, aged thirty-one, multipara, was brought to me in July, 1903, with the following history: Ten months previously she had been delivered of her fourth child. The labor was apparently normal, and there were no post partum complications. Five months previously she had begun to "lose her mind," and at the time of my first examination was in a state of profound melancholia. Her husband told me she was "crazy" and would sit all day brooding over little troubles, mostly imaginary, would hardly speak to any one, and had tried drowning herself once because "she was too wicked to live." Suffered from insomnia, walking the floor and talking to herself most of the night, loss of appetite and flesh, and headaches. She had been under treatment of five other physicians, sometimes separately and sometimes in consultation, all of whom had pronounced her insane and recommended her removal to some institution. As her condition had developed during lactation they had ordered her to wean the child and treated her by tonics, electricity, and hydrotherapy, with no results.

Considering the fact that her condition appeared shortly after labor and during lactation I was inclined to think some pelvic trouble was at the bottom of it. Examination showed a laceration of the cervix with an accompanying endometritis. After a few days' preparatory treatment I did a curettement and trachelorrhaphy. The local results were good, and in a few days there was a noticeable improvement in her condition, which gradually improved till in a few weeks her condition was normal in every respect. In December 1905 she was delivered of another child and a few months later

began to develop the same symptoms as formerly. I was called to see her and found a new laceration of the cervix and perineum also, which I repaired as before, and in the course of a month she had completely recovered.

CASE II.—Mrs. T., Bohemian, aged thirty-three, was brought to me in September, 1904, with a history of insanity for the previous three years. Her husband stated that it came on a few months after the birth of her first child, which had died when a few days old. She was at the time of my examination suffering from melancholia in a pronounced form. During the previous three years she had been treated by several physicians, sometimes at home and sometimes in institutions, and change of climate had been tried in connection with other treatment, in spite of which her condition became progressively worse; and hearing of the previous case he had brought her to me as a last resort. Examination showed a lacerated cervix and perineum, with retroversion of the uterus and endometritis. I did a curettement, trachelorrhaphy, and perineorrhaphy, following them with shortening of the round ligament. The results were finally quite as satisfactory as in the preceding case, though a longer time elapsed before a complete cure was attained, it being nearly six months before her condition was entirely normal.

Both of these patients are now entirely well and have been so since the times of their respective operations.

It appears to me that these cases illustrate very markedly the relation that pelvic disease in women may bear to mental derangement, for in both cases the condition was well marked, developed so shortly after labor as to lead to a suspicion as to its causative relation, and yielded so completely to treatment directed solely to the pelvic condition, that it is impossible to attribute the mental derangement to any other cause; and while I would not be understood as believing that all, or even the large majority of cases of insanity in women are due to pelvic disease, I am most firmly convinced that a not inconsiderable percentage of such cases are due to pelvic disease, and may be cured by treatment of the pelvic disease. I am strongly of the opinion that in all cases in which pelvic disease and insanity co-exist, the former should be cured before the patient is considered a candidate for institutional treatment. No reasonable argument against such a suggestion can be adduced for, while we cannot explain exactly how or why pelvic disease can produce mental derangement, neither can we explain exactly how or why it produces such severe physical derangements, and there is no doubt as to its causing the most severe degrees of ill health in many cases.

It may not be altogether out of place here to suggest that the ill health so often attendant on such comparatively slight local lesions as lacerations of the cervix, is not *entirely* due to irritation or reflex nervous disturbance as is generally held. In these cases there is always an endometritis with its attendant accumulation of pus in the cavity of the uterus, and it appears to me that some of the products of the pus metabolism may be absorbed by the blood and carried into the general system, producing a form of chronic septic intoxication or sapremia. It is quite conceivable that such products may be carried into the circulation in such small quantities daily as to give rise to no definite symptoms, and yet by their gradual accumulation in the system produce the derangement of health we so often find

in these cases. This appears to me to account for the ill health even more rationally than the theory of nerve irritation, for we often meet with the same grave conditions in displacements of the uterus with endometritis or even endometritis alone, where there is no cicatricial tissue to irritate the nerves with its pressure.

ECCZEMA IN THE SECOND YEAR OF LIFE.

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Infancy comprises about three years of life, and is divisible into two periods: Nursing, about twelve months; ambulant, second and third years.

Nurslings are affected with neurotic eczema, while tuberculous eczema, pyogenic and seborrhœic dermatitides are more common in runabouts.

It is twenty years since Unna proposed a three-fold classification of infantile eczemas into neurotic, scrofulous, and seborrhœic, based upon an hypothesis that all or most of them were of parasitic origin. In fact, he said: "Lister did not wait to discover the pyogenic cocci before he propounded his antiseptic treatment of wounds and revolutionized the practice of surgery. Let us venture a little then, in our specialty and see if better results cannot be obtained than heretofore."

The period of infancy does not extend beyond three years. The completion of the set of deciduous teeth occurring between the thirty-second and thirty-sixth month is a convenient boundary line. In a founding asylum with which I was at one time connected the children were classified as babies and runabouts. As none were kept beyond three years, they were all infants. This division of infancy into two periods is both reasonable and practical. When the child begins to bear his weight on his feet and then to creep and walk, he grows taller, his flesh becomes harder, his fat in large measure disappears, and his figure is so changed as to cause anxiety to an inexperienced mother. The problems of feeding are also very different. The baby must be nourished at the breast or with modified cows' milk. The runabout eats a variety of solid and semisolid foods and fruits. The skin also is whiter and thicker and firmer, and callouses are formed on the hands and feet and sometimes the knees.

Considering eczema still as a name for any catarrhal inflammation of the skin, we may refer to an analysis of 2,500 patients made by Bulkley in 1881. Of these 2,500 patients, 466, or 18²/₃ per cent., were under three years. These infants were distributed according to age as follows:

Under one year.....	191, or 41 per cent.
Between 1 and 2.....	146, or 31 per cent.
Between 2 and 3.....	129, or 28 per cent.

In 1901 he published another analysis of 8,000 patients, probably including a large number of those in the previous list. Of these 8,000, 1,040, or 13 per cent., were under three years. By ages they were divided:

Under one year.....	604, or 58 per cent.
Between 1 and 2.....	239, or 23 per cent.
Between 2 and 3.....	197, or 19 per cent.

Of the infantile eczemas, when separated

according to the two periods of infancy, 41 per cent. were nurslings and 59 per cent. were runabouts. In the 1901 list there is almost an exact reversal of these figures, 58 per cent. were nurslings and 42 per cent. runabouts.

Eczema is the same disease whether occurring in infancy or manhood. In the young child the skin is so delicate, the tissues so succulent, the vital processes so rapid, that the vesicular and moist forms are more apt to appear. So say the books. And writers have fallen into the lazy habit of throwing all cases of eczema in patients below four or five years of age in one indiscriminate pile and calling it infantile eczema. Why not infantile measles or infantile syphilis? There are good reasons for infantile syphilis, because nearly all these cases are congenital. But no infant was ever born with eczema. How many fair and wholesome infants we have seen born of eczematous mothers or begotten by eczematous fathers! On the other hand, how many children of parents with unimpeachable skins develop eczema! I have seen it even as early as the third day. These precocious lesions are of the papular or papulosquamous forms. That they are eczematous is shown by the ease with which they pass into vesicular and excoriated conditions.

Varieties of Eczema.

In the nursing period by far the most common form is the neurotic. The typical picture of infantile eczema is vesicular, covering the face like a circular mask, avoiding the regions of the eyes and nose. It is not parasitic. Johnston, in Morrow's *Atlas*, says: "In the facial eczema of babies without disease of the scalp and in the eruptions developing simultaneously on the back of the neck and arms there is nothing in the least suggestive of a parasite at work. *Morrococcus* may cause seborrhœic dermatitis, but it has no place here."

Some may hesitate to include intertrigo in the list of eczemas. It is exceedingly common in the earlier period of infancy.

Scrofulous eczema is seldom seen in babyhood, seborrhœic never. Crusts of dried sebum may form in the region of the anterior fontanelle, but they are readily dissolved in oil and leave a clean, smooth surface. The growth of hair is not interfered with. Parakeratosis does not occur until much later in life.

In the runabout period neurotic eczema is rare. If it is found it is usually a legacy from babyhood. It may persist as late as the fifth year. But no longer vesicular and weeping, it is pustular. In fact no longer an eczema, but a pyoderma.

Scrofulous eczema, seldom seen in the nursling, is common in the ambulant child. The latter leads a strenuous life. He is busy from morning until night. If he is the first and only child of well-to-do parents, much time and energy is consumed in "showing off." He has a wealth of complicated toys. The responsibility of caring for them and making them go is something fearful. If his lot is cast in a home of poverty he has to shift for himself. He makes horses of chairs and uses them again for ladders. He takes his outings in the care of an older child who goes about his own business with half an eye on the baby.

They also suffer much from digestive troubles. The child of the rich is stuffed with sweets. The

child of the poor has free access to the food supply. Eating like a savage, only as appetite prompts, either makes a man of him or a dyspeptic. No wonder that some of them break down. It is to these cases that the remark of Bulkley is most applicable: "While in children as well as adults eczema is often directly dependent upon faulty metabolism and disordered action of some of the excretory organs, it must be remembered that it is a disease of lowered vitality. Thus, while remedies and measures are taken to promote excretion and correct assimilation, the tonic idea should pervade all treatment." I have not observed that these patients are more prone to lupus or tuberculous infections than others.

Seborrhœic dermatitis in the runabout period takes on a character similar to the same disease in adults and responds with the same readiness to local treatment. It is in these cases that mild and brief applications of the x ray, as in psoriasis, are helpful, and parasitocides like ammoniated mercury and resorcin accomplish brilliant results. But the time of treatment will be reduced and the certainty of cure enhanced by at least two thirds, if proper attention be paid to tonic and corrective internal medication.

273 WEST SEVENTIETH STREET.

Therapeutical Notes

Sunburn Treatment.—Any good cold cream will be found a soothing and healing application for sunburn, the cream formula which is published concurrently being exceptionally well adapted for the purpose. To allay the intense smarting nothing is better than the lead water of the Pharmacopœia, liquor plumbi subacetatis dilutus. An evaporating lotion containing a small percentage of cocaine will be found very soothing, the following being suggested:

R Ammonium chloride,	5i;
Cocaine hydrochloride,	gr. xij;
Glycerin,	5iij;
Alcohol,	5iij;
Orange flower water,	5iij;
Rose water, q. s. ad.	5vi.

This should be applied very sparingly on a thin linen cloth and only to whole surfaces.

For a protective complexion balm which prevents and soothes sunburn Pharmaceutical Formulas gives the following formula:

R Blanched Jordan almonds,	5i;
Tincture of benzoin,	5x;
Orange flower water,	5xix;
Rose water, q. s. ad.	5lix.

Reduce the almonds to fine powder and make into a cream with rose water; then gradually add the rest of the water, strain and wash the mare with the orange flower water. Transfer to a one gallon bottle, add the simple tincture of benzoin and shake. — *American Druggist and Pharmaceutical Record*, July 22, 1907.

Treatment of Styes, or Blepharociliary Furunculosis.—Styes are not only painful, but annoying by their tendency to return at short intervals. They also are apt to lead to loss of eyelashes and produce deformity of the eyelids. Sabouraud has found the most satisfactory treatment to be the following (*La Clinique*, June 14, 1907). With a small pair of for-

ceps pull out each hair which shows a collection of pus, or even a red spot, at its root. Direct the patient to apply, from ten to thirty times a day, a collyrium prepared as described later. If examined again in a few days, the inflammation as the rule will have ceased; but if any pustule is then seen, immediately pull out the eyelash, and continue the applications as before. Ordinarily, everything will have been finished in three or four weeks, and new hairs will rapidly take the place of those epilated. The remedy used is a combination of astringents, known formerly as *lapis divinus*. The formula, given by Sabouraud, is:

R Potassium nitrate,	100.0 grammes;
Copper sulphate,	100.0 grammes;
Alum,	100.0 grammes;
Camphor,	5.0 grammes.
M. Form into pencils.	

A solution of this may be made with rose water of the strength of one half per cent., and this is the preparation which is to be used, as indicated.

Effects of a Dechlorinized Dietary Upon Epileptics.—The beneficial effects of a diet which is arranged so as to be poor in chlorine, upon epileptic patients, who are at the same time on the bromide treatment, were first brought to light by Toulouse and Richet. André Viteman, in 1906, published a remarkable work on the chemical elimination of chlorine, of bromine, and of other substances, both by the kidneys and into the cephalorachidian fluid. He demonstrated that a rigid dechlorinized diet combined with the bromide treatment (2 grammes, or gr. xxx, in twenty-four hours) in an epileptic, will yield the following modifications: The urea and the phosphates in the urine are eliminated in much larger quantity, and, on the contrary, the proportion of bromide is lowered. In the organism deprived of chlorine there occurs therefore a retention of the bromides, when a moderate dose of this salt is administered. Elimination does not commence until after the saturation of the organism by the salt, and this depends both on the quantity given and the weight of the individual. Among sixteen cases, Viteman found albuminuria in six (in one as much as 0.30 per cent.), which he thought might fairly be imputed to the undue prolongation of the treatment. As regards the cephalorachidian fluid, it was ascertained that its proportion of chlorides was diminished under the chlorine free diet, and that the same time the bromides passed into the spinal canal and replaced the absent chlorides. These experiments permit us to understand the therapeutic effect of the dechlorinized regimen, in conjunction with the administration of the bromides. The epileptic paroxysms show a remarkable diminution, and this fact is explained by the retention of the bromides, which do not suffer elimination by the kidneys; and also by their passage into the cephalorachidian fluid. The dechlorinized diet therefore facilitates an intense and rapid absorption of the special medication. However, it seems that this double regime should not be continued for too long a period, or there will be modification of general nutrition developed, and, possibly, infectious may be super-added. The occurrence of albuminuria observed by Viteman indeed, shows a possibly injurious action from this treatment on the kidneys if too long continued. — *Journal des Sciences Médicales*.

Successful Treatment of Nævus by Radiotherapy.—F. Barjon has reported two cases of angioma of the face in children (one four months of age, the other three and a half years), in each of which treatment by punctate cauterization and electrolysis had been tried ineffectually before x ray treatment was instituted. The first patient was cured after eleven séances of ten minutes each of a large erectile vascular growth of the left cheek and neck (5 x 3 centimetres). The older child had a growth at the side of his nose. He was also entirely cured after thirteen séances. Photogravures of the results accompany the report.

Embryotomy in Private Practice.—Ronsse, in *Bulletin de la Société de gynécologie et de Belge*, controverts Pinard's dictum that embryotomy should never be performed on the living child. It might be so if cases of contracted pelvis were always seen by the obstetrician in an early stage of labor, uninfected by repeated examinations or attempts at delivery, free from fever, and in good general condition, when he could always perform Cæsarean section or symphyseotomy, but such conditions rarely obtain in private practice, and before the doctor sees his patient she has often been brought into a condition in which such operations would almost necessarily be fatal. Moreover, the child has suffered from the protracted labor and attempts at delivery; even if born alive it will probably not survive for long, and the problematical value of its life is not to be esteemed an equivalent for the danger to the mother of an operation so likely under the circumstances to be fatal. A basiotripsy carefully performed entails far less risk to the mother than either Cæsarean section or symphyseotomy. During six years Ronsse has performed thirty embryotomies in his private practice; three of the mothers died, but in all of them the fœtus was in a state of decomposition when extracted. The remaining twenty-seven all had a normal childbed. Eighteen were primiparæ and twelve multiparæ. The pelvis was contracted with a conjugata vera not exceeding 9 cm. in thirteen cases. In twenty instances the child was dead when Ronsse was sent for; in eight, it died during the manipulations undertaken to deliver it. The placenta was adherent and had to be removed in nine cases. Ronsse adds the statistics of 1,655 embryotomies published by various authors. In twenty-six of these cases the death of the mother may fairly be attributed to the operation; a mortality of 1.57 per cent. Many of these cases were infected before the operation, which, performed under good conditions, may be considered without danger for the mother. Moreover, with modern instruments the operation is an easy one, within the power of the general practitioner. In exceptional cases, therefore, embryotomy on the living child is justifiable.—Through *The British Gynecological Journal*.

On the Opothherapeutical Effects of the Hypophysis Cerebri.—Renon and Delille reported to the Société de thérapeutique the results which they had obtained from the experimental use of the hypophysis of the ox. In most cases they simply gave a cachet containing ten centigrammes of the (en-

tire) powdered gland. Whatever the disease was in which the powdered gland was given, it was observed that the latter had a decided effect upon the pulse, the arterial tension, the sleep, and the appetite. As the rule, the pulse was slowed; and the arterial tension was raised in all cases. Appetite was restored. The patients slept a little more. The effects upon the bodily weight and the blood were variable. All the recent work upon this subject was collated by Thaon in a *Thèse de Paris* (January 16, 1907), where the author adds some interesting data with regard to the intoxications and infections of the hypophysis. As regards special applications, they report good results in exophthalmic goitre. They always observed in these cases that by the fourth or fifth day the insomnia, tremor, digestive troubles, sweating, and annoying flashes of heat, all were ameliorated in a manifest degree. The tachycardia diminished gradually, and the pulse attained its minimum towards the fifteenth day, although three or four weeks of treatment are sometimes required to produce this effect. The excessive arterial tension was almost immediately increased and attained its maximum towards the second or third week, rarely later. Then after a stationary period, it lowers again, but regains a position a little higher than before the treatment was instituted. The goitre remains about the same, or slightly diminishes. The exophthalmia retrocedes towards the fifteenth day, sometimes sooner. The bodily weight increases four to six pounds. In from five to eight days after the cessation of this treatment, the insomnia, tremor, and exophthalmos may reappear; the blood tension remains increased. In two cases all the symptoms were ameliorated, except the tachycardia and the goitre. In chronic pulmonary tuberculosis the effects were the same upon the heart and nervous system, the hypophyseal medication raised the arterial tension, diminished the pulse rate in spite of the fever, increased the appetite, and soothed the insomnia. It is regarded as a valuable adjuvant to the ordinary treatment with arsenic and recalcification of Ferrier. In a case of typhoid fever, the remedy produced immediate improvement. It is suggested that further investigation be made into the properties of the two parts of the gland, as it is thought that the posterior half exerts a special effect on the heart.

Treatment of Gallstones with Glycerin.—

Plautier (*Journal de médecine et de chirurgie*, and *La Tribune médicale*, June 15, 1907) recommends glycerin (pure and neutral) in the treatment of hepatic colic. He declares that (1) administered by the stomach it is absorbed by the lymphatic vessels, and notably by those which go to the hilus and the gallbladder; it can be found in the blood of the subhepatic veins. 2. Glycerin is a powerful cholagogue, and is a valuable remedy in hepatic colic. 3. A relatively large dose (20.0 to 30.0 grammes) of glycerin will frequently bring the crisis to an end. 4. A small dose (5.0 to 15.0 grammes) taken each day in a little alkaline water will prevent further attacks. 5. Glycerin, without being a lithontriptic, is the medicament *par excellence* in biliary colic. The small daily dose may be taken for months or years without bad effect.

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BACTERIA IN ICE.

The investigations of the artificial ice supply made by the Board for the Study of Typhoid Fever in the District of Columbia (*Bulletin No. 35, Hygienic Laboratory, United States Public Health and Marine Hospital Service*) reveal a serious sanitary defect in the manufacture of a commodity absolutely necessary for comfort in all large American cities during the summer months. While the studies of the board indicate that ice played no important part in the dissemination of typhoid fever in 1906, the sanitary conditions surrounding the factories seem to be such that no one can think of using the product in his drinking water without hesitation.

Diagrams are given of a cold storage plant in which meat and sausages were carried on open trucks through a room in which there is a urinal, the floor of which was so soaked with human urine that the materials on the trucks might be spattered with it. In another artificial ice factory the water for freezing was taken from a spring which opened into the cellar of the factory. The floor of the cellar was covered with trash, rotting wood, mud, and the washings by rain from the surrounding inhabited hillsides. The spring itself was covered by a rusty, ill fitting iron door, one of the hinges of which was broken. In a third factory a very filthy, undrained stable in the centre of the factory building had just been discontinued and was being converted into an ice storage room. A new but undrained stable had been erected near by, in which

there was a dug well covered with a board, which, in turn, was covered with horse manure and was surrounded by pools of horse urine. The water from this well was said to be used for condensing purposes only.

Out of twenty-eight specimens of artificial ice bought in the open market, 14.3 per cent. showed *Bacillus coli communis* in one cubic centimetre, and the same percentage showed the same bacillus in ten cubic centimetres. In other words, 28.6 per cent. of the specimens of artificial ice examined showed contamination with *Bacillus coli communis*. On the other hand, 49.9 per cent. of six specimens of natural ice were found to be contaminated with the bacillus. The manufactured ice examined by the board contained more bacteria than the water from which it was frozen. This discrepancy is probably due to the unclean methods used in the manufacture of the product. We call the attention of the boards of health throughout the country to the results of this investigation into the artificial ice industry of Washington.

THE RUBBER TEAT AND ITS DUMMY.

Fortunately the abominable Alexandra nursing bottle has almost passed into disuse. It was convenient for nurses, for it relieved them of considerable exertion of an extraordinary degree—that of holding a small bottle for a few minutes at the proper inclination to a baby's mouth. The child could sleep and suck, alternately or simultaneously, in its little carriage while the *bonne* gossiped with her acquaintances in the park. But this very convenience was due to the long, slender rubber tube that connected the nipple with the bottle, and it was absolutely impossible to keep the tube clean; consequently bacteria galore found their way into the infant's stomach and too often set up serious if not fatal disease. However, danger of infection was not wholly escaped when the long tube was done away with, as Dr. Ernest Wende, of Buffalo, demonstrated most convincingly several years ago. Dr. Wende, it will be remembered, found that rubber teats, after they had been in use for only a short time and their cleansing had been punctiliously attempted, teemed with microorganisms, not only on the surface, but deep in the substance of the rubber.

But it seems that gastrointestinal disease is not all the evil that the rubber teat is capable of causing. In the August number of *Pædiatrics* we find an abstract of a very interesting and suggestive paper read at a meeting of the Burma Branch of the British Medical Association by Dr. Tom F. Pelly of Rangoon. Dr. Pelly fully appreciated the dangers arising from bacterial contamination of

the rubber teat, but his special purpose in this paper has been to set forth certain observations of his own which make it almost sure that the use of the rubber teat is apt to lead to certain deformities of the alveolar processes which result in an abnormal permanent denture that predisposes the child to dental disease and perhaps to adenoid disease in the pharynx, also to an irregular formation of the hard palate.

These results Dr. Pedley is inclined to ascribe to the faulty shape of the teat, whereby the child is forced to suck its milk instead of squeezing it into its mouth as it does from the mother's breast. "If," he says, "we have in the past given this matter a thought, we have come to the conclusion that Nature has especially and mercifully endowed the infant with great powers of suction. This is an error, for the muscles concerned should not be called upon to do much more than those of a man drinking from the hollow of his hand." He suggests as a substitute for the teat the end of a rubber finger stall large enough to cover a man's thumb, but he adds that a baby three months old can quite easily be taught to drink from a cup, and that no harm can result from a baby's drinking without sucking.

The trouble wrought by the rubber teat finds a powerful accessory cause, in Dr. Pedley's opinion, in the excessive employment of its dummy, the baby "comforter" or "pacifier," a rubber teatlike device for deluding the child into the feeling that it is receiving food and for enabling it to close its jaws on a soft substance. It seems that the use of this dummy teat is extraordinarily prevalent in England, as observed by Dr. Pedley during a visit to his native country. He says that it ought to be wholly interdicted, and adds: "It seems to me that the arrest of this evil is as deserving of the attention of our legislators as many of the subjects to which they devote so much time and energy." We are sorry to say that the use of the dummy is extensive in this country also.

SCHISTOSOMUM INFECTION.

It is known that some of the ova of *Schistosomum hamatobium* are furnished with an apical spine and others with a lateral spine. It was formerly taught that those ova which were passed in the urine from a bladder infection bore the apical spine, while those which were passed in the fæces from a rectal infection had the lateral spine. In Egypt patients frequently pass ova in the fæces as well as in the urine, although the genitourinary infection is the most common. In the West Indian Islands of Martinique, Antigua, Vieques, Culebra, Puerto Rico, and Cuba, on the Isthmus of Panama, and in Venezuela and Brazil the case of schistosomum infec-

tion have always been of the intestinal type and the ova passed in the fæces have been furnished with the lateral spine.

It has recently been alleged that there are two types of parasite; one, *Schistosomum hamatobium*, infects the genitourinary tract and produces ova with the apical spine, and the other, *Schistosomum Mansoni*, infects the intestinal tract and produces ova with the lateral spine. Holcomb (*United States Naval Medical Bulletin*, July) reports ten cases of schistosomum infection occurring in the West Indies in which ova with the lateral spine were found in the fæces. He adopts unqualifiedly the name *Schistosomum Mansoni* for the parasite, as suggested by Smabon. The paper contains a description of the male parasite, made from the examination of ten specimens in Puerto Rico and in Washington. They were all of a sepia color, instead of white. Their average length was 8.43 mm. Both the caudal and cephalic extremities tapered slightly and were almost devoid of tubercles. The main body of the parasite was tuberculated. The gynæcophoric canal extended from the ventral sucker to the tip of the tail. The ventral and oral suckers were close together, the latter being the larger, pedunculated, and furnished with a long anterior lip and a high posterior lip. The ventral suckers appeared to be larger than those of *Schistosomum hamatobium*.

This parasite is considerably smaller than *Schistosomum hamatobium*, which, according to Manson, measures from 11 to 15 mm., and, according to Braun, is from 12 to 14 mm. long. The paper contains a description of the ova and of the free living miracidium. The former measure from 112 to 162 micra in the long by 60 to 70 in the short diameter. The spine, which is placed laterally, measures from 15 to 17 micra, and projects at the junction of the posterior and middle thirds of the shell. The ova of *Schistosomum hamatobium* measure 160 by 60 micra (Manson); 120 to 190 by 50 to 73 micra (Braun).

"THE CRIMINAL WAVE."

Certain journalists are pleased to describe in lurid colors and to lay considerable stress upon the "wave of crime" which is now said to be passing over the country, with a special centre in and about New York. Murder, theft, arson, exhibitionism, rape, outrage, and assault are the special gusts which are said to proclaim its presence and offer a certain pretext for viewing it in the light of mental contagion acting on the masses. Mental contagion, however, is no summer idyl sung by the listless reporter in the dog days; it is a living, moving force of hideous power, and if any remarks are pertinent to the subject of a "criminal wave," from the medi-

cal standpoint at least, they should connect themselves largely with the responsibility of some of the newspapers in bringing about by their suggestive stories the very evils of mental contagion that they should most sincerely deplore and seek to prevent.

The mental disturbances of collectivism are numerous. It should be remembered that a crowd is only one form of collective life, and a crowd may be grouped in masses and exhibit its peculiar features of mental contagion or it may be scattered in time and in place and yet be potentially a crowd, held together and swayed by the press, by lectures, and by books. Thus a community of opinion is established which prompts many persons to like action. It is by the factor of suggestion in mental contagion that many of the minor crimes are brought about, and the many hysterical stories told by young girls are further evidences of the same suggestive factor. The very same element of mental suggestion on the part of the press is in large part responsible for the sudden flaring up of the activities of the many *demi-fous* who are always with us; and, even worse, it is recognized by investigators of crime the world over that the semiinsane and many of the really insane easily fall victims to the influence of mental contagion. They are particularly apt to commit sexual crimes under the influence of the suggestions that they find about them.

Even the healthy individual, when merged in the crowd, loses his self control, and it is a well known fact that the crowd is often semiinsane, most students holding that the actions of a crowd transcend the heights and the depths of its individuals. The same crowd will courageously put out a fire and heroically defend their country or burn a factory and brutally lynch a falsely accused victim. As Le Bon has well said, the crowd is the people, or rather a fraction of the people, in delirium, the delirium of enthusiasm or the delirium of fury. It will carry in triumph the man it has just insulted, or will in a moment cut the throat of a man it has just been praising. In his *Julius Caesar* Shakespeare painted the partial insanity of the crowd with his masterly touch.

That which rules the psychology of communities is that each individual who forms a part of it resigns more or less voluntarily the peculiar control of his higher centres. His consciousness narrows as his emotional interest deepens, and he becomes for the time being an automaton under the sway of the ideas about him and he is guided by his neighbors or under the influence of a leader. The responsibility of prominent acts, those acts committed by a mob, under a leader should be placed for the most part on the leader. The individual who has lost himself under the voice of the mob leader is not

a truly responsible being; the leader is the actual criminal, if criminal acts are done by individuals in the mob. It becomes a duty, then, for the press, which in this day and generation is one of the most important of leaders, to look carefully to its pages in the light of its responsibility as a potent means of inducing mental contagion. Publicity has its strength and its weakness for every community, and the factor most to be avoided is morbid mental contagion.

THE SILICATES IN DYSPEPSIA.

In a recent communication to the Therapeutical Society of Paris (*Bulletin général de thérapeutique*, July 30th) Dr. Pascault gives an account of his observations with regard to the therapeutic properties of the silicates, particularly sodium silicate. He acknowledges his indebtedness to Dr. Décène Olivier, who in 1901 published an essay on the subject in the *Echo médical de Lyon* and in 1906 presented a communication on it to the Academy of Medicine.

It is argued that the silicates are sedative. Applied to a fresh wound, says M. Pascault, sodium silicate, properly diluted, assuages pain, reduces congestion, and arrests hæmorrhage. It acts also as a calmative on contusions with the skin unbroken, and so may act upon an intact mucous membrane. It may not be an antiseptic, but it is unquestionably an antizymotic. It hinders the fermentation of milk in the stomach and thus promotes its digestion. Given to dyspeptics, it corrects fœtor of the breath and of the fæces. Administered to typhoid fever patients, it notably lowers the temperature in from twenty to thirty hours and allays the adynamic symptoms. In one case of puerperal fever vaginal and uterine injections of silicates were very rapidly followed by improvement.

But it is by its influence on gastric "hypersthénia," according to M. Pascault, that sodium silicate is especially of service in dyspepsia. Its employment should generally be preceded by the administration of a purgative, and the colon should be kept free, for fœcal impaction is often the cause of gastric dyspepsia. The results of its use have been variable—none at all in a few very nervous persons (probably, says the author, because their dyspepsia was cerebral rather than gastric), but favorable and lasting in most of the other patients, and particularly excellent in cases characterized by slowness of digestion, with a feeling of weight or constriction, also in cases of flatulence with a deceptive diarrhoea. More of all, however, the author thinks the silicates efficacious in controlling certain reflex symptoms of gastric origin, such as flushings of the face, congestive headache, attacks of

fatigue connected with irregular digestive action, vertigo, and insomnia. He has had no experience with it in treating the severe pains of hyperchlorhydria, but thinks that it would be of advantage.

News Items.

Change of Address.—Dr. Charles J. Hatfield, to 2008 Walnut Street, Philadelphia.

The Health of Dr. Francis H. Markoe.—We regret to learn as we go to press that thus far there has been no decided improvement in the condition of this distinguished New York surgeon, who for several weeks past has been confined to bed in consequence of an aortic aneurysm.

Yellow Fever in Cuba.—According to press dispatches, yellow fever has appeared at Cienfuegos, in the American army of occupation, for the first time since the army was sent to the island. Ten well developed cases have been discovered, and there has been one death, that of a member of the hospital corps, who died on August 12th. No alarm is felt, as it is believed that the authorities are fully capable of checking the progress of the disease.

Personals.—Dr. Russell E. Blaisdell, of Poughkeepsie, has been appointed from the civil service list a physician of the sixth grade in the Hudson River State Hospital.

The doctorate address, at the eighty-fifth annual commencement of Rush Medical College, held on July 12, 1907, was delivered by Dr. Lewellys F. Barker, professor of medicine in Johns Hopkins University, physician in chief to Johns Hopkins Hospital, on the subject: The Psychic Side of Medicine.

The Christian A. Herter Lectures for 1907.—According to *Science* (July 5, 1907), Professor E. H. Starling, of the University of London, has accepted the invitation to give the Herter lectures at the University and Bellevue Hospital Medical College. The lectures will commence after the Christmas recess, and their subject will be: The Fluids of the Body and Their Regulation. They will deal with the production and absorption of lymph, the intake by the intestines and the output by the kidneys; with the regulation of the total amount and molecular concentration of the body fluids under varying conditions, such as bleeding, transfusion, heart failure, dropsy, muscular exercise, high altitudes.

Meetings of State and National Medical Societies in the Month of September, 1907:

Medical Society of the Missouri Valley, Council Bluffs, Iowa, September 5th.

Washington State Medical Association, Seattle, September 10-12.

Colorado State Medical Society, Glenwood Springs, September 17-19.

American Association of Obstetricians and Gynecologists, Detroit, September 17-19.

American Electrotherapeutic Association, Boston, September 17-19.

Medical Society of the State of Pennsylvania, Reading, September 23-26.

The Mortality of Boston.—The number of deaths reported to the Board of Health for the week ending August 10th was 222, as against 237 the corresponding week last year, showing a decrease of 15 deaths, and making the death rate for the week 18.90. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 30 cases, 5 deaths; scarlatina, 19 cases, no deaths; typhoid fever, 19 cases, no deaths; measles, 33 cases, 3 deaths; tuberculosis, 48 cases, 14 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 14; whooping cough, 1; heart disease, 27; bronchitis, none; marasmus, 8. There were 22 deaths from violent causes. The number of children who died under one year of age was 56; under five years of age 24; persons over sixty years of age, 34; deaths in public institutions, 78.

Militia Surgeons and the Medical Department of the Army. "It is generally to be hoped," says the *Army and Navy Journal*, August 10, 1907, "that the modification of the rules whereby surgeons belonging to National Guard organizations may be admitted to the Army Medical School without examination as formerly required, will attract an increasing attendance of such officers and thus provide a sufficient number of surgeons required for the Medical Department of the Army. The fact that only two militia surgeons were in the Army Medical School last year was

discouraging to the officers in charge of the institution and showed plainly enough that it was necessary to offer additional inducements to attract candidates for admission. It may be that the admission of militia surgeons without requiring them to take the entrance examination will have the desired effect. The fact remains, however, that the question of pay is an important factor in the problem, and it is to be feared that until an increase of pay is granted there will be constant difficulty in keeping the personnel of the Army Medical Department at the necessary strength. The pay of medical officers of the military services is much inferior to the income which practitioners of equal skill and experience can earn in civil life, and until that inequality is at least partially adjusted by a wise revision of the pay table the army will be at a grave disadvantage in obtaining surgeons of approved ability for the Medical Department. It will be impossible for any considerable number of medical officers in the National Guard to avail themselves of the opportunity to attend the Army Medical School. As the majority of National Guard surgeons are physicians of large practice and of established reputation, it would be impossible for them to give up the practice to attend the school, no matter how great its advantages; they have passed beyond that stage."

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending August 10, 1907:

	August 10.		August 3.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	82	18	84	9
Smallpox.....	1	0	0	0
Varicella.....	14	0	8	0
Measles.....	221	20	313	30
Scarlet fever.....	117	6	157	18
Whooping cough.....	39	17	24	12
Diphtheria.....	214	22	220	26
Tuberculosis pulmonalis.....	398	148	354	163
Cerebrospinal meningitis.....	7	14	13	15
Totals.....	1,090	245	1,173	273

The Mortality of Baltimore.—The report of the health commissioner, for the week ending August 10th, showed a total of 252 deaths, as compared with 212 the corresponding week of last year, 210 in 1905, and 216 in 1904. The annual death rate in 1,000 of population was: Whole, 22.27; white, 20.03; colored, 34.09. The principal causes of death were: typhoid fever, 4; measles, 2; diphtheria, 2; consumption, 19; cancer, 7; apoplexy, 3; organic heart diseases, 12; bronchitis, 3; pneumonia, 3; diarrhoea, under two years of age, 62; Bright's disease, 22; congenital debility, 24; old age, 4; suicides, 3; homicides, 2; accidents, etc., 21. The nativity of the decedents was: United States—Whites, 153; foreign, 31; colored, 58; unknown, 10. The following number of cases of infectious diseases were reported, as compared with the corresponding week of last year:

	1906.	1907.
Diphtheria.....	13	7
Scarlet fever.....	21	5
Typhoid fever.....	50	37
Measles.....	8	7
Mumps.....	0	1
Whooping cough.....	2	1
Chickenpox.....	1	1
Consumption.....	17	11

Report of the Department of Sanitation of the Isthmian Canal Commission.—During June, 1907, the total deaths on the Isthmus of Panama, including the Canal Zone, Colon, and Panama, numbered 283, in a total population of 101,497, corresponding to an annual death rate of 33.45 in 1,000 population. There were 9 deaths from typhoid fever, 34 from malarial fever, 1 from æstivoautumnal fever, 1 from malarial cachexia, 5 from dysentery, 4 from amebic dysentery, 1 from beriberi, 3 from septicæmia, 24 from tuberculosis of the lungs, 1 from abdominal tuberculosis, 2 from general tuberculosis, 2 from bronchopneumonia, 51 from pneumonia, and 1 from uncinariasis. The death rate among the black employees of the commission was 29.96 in 1,000; among the whites, 21.05 in 1,000. On the other hand, the morbidity rate was 35.32 in 1,000 for the whites and 16.75 in 1,000 for the blacks. This apparent discrepancy is accounted for by Dr. H. R. Carter, who is the Acting Sanitary Officer, in the absence of Dr. Gorgas, by the fact that so many more whites than blacks suffer from malaria. Through the courtesy of L. O. Howard, Ph. D., of the Bureau of Entomology, of the Department of Agriculture, an assistant entomologist, Mr. August Busk, was detailed for the work of classifying the mosquitoes of the Isthmus and studying their development and life habits. It is too early to speak definitely of the results of Mr. Busk's researches, but enough is already known to demonstrate the

great practical aid that will accrue to the department of sanitation from the work. About fifty different species have been discovered, eight or ten of which belong to the sub family *anophelina*. While it is true that all mosquitoes should be done away with, the problem of the prevention of malaria will be much simplified when it is known that certain localities produce malaria bearing mosquitoes, while certain other areas do not produce them. There are only two species of day biting mosquitoes on the Isthmus and those are positively proved to be harmless. One of these species breeds in parasitic growths on the trees, and is frequently abundant enough to make the life of a whole camp miserable.

Statement of Mortality of Chicago for the Week Ending August 3, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of mid-year populations—2,107,620 for 1907, 2,049,185 for 1906:

	August 3, 1907.	July 27, 1907.	August 4, 1906.
Total deaths, all causes.....	503	548	501
Annual death rate in 1,000.....	12.44	13.55	12.75
Sexes—			
Males.....	290	298	283
Females.....	213	250	218
Ages—			
Under 1 year of age.....	161	132	139
Between 1 and 5 years of age.....	42	65	49
Between 5 and 20 years of age.....	47	44	29
Between 20 and 60 years of age.....	171	220	187
Over 60 years of age.....	82	87	97
Important causes of death—			
Apoplexy.....	3	9	5
Bright's disease.....	34	28	34
Bronchitis.....	6	6	6
Consumption.....	47	65	58
Cancer.....	17	24	27
Convulsions.....	3	6	5
Diphtheria.....	3	6	9
Heart diseases.....	37	61	32
Influenza.....	1	0	0
Intestinal diseases, acute.....	120	90	116
Measles.....	4	4	6
Nervous diseases.....	31	27	10
Pneumonia.....	31	42	32
Scarlet fever.....	7	11	7
Suicide.....	1	0	2
Sunstroke.....	0	2	0
Tetanus.....	2	1	0
Typhoid fever.....	5	7	4
Violence (other than suicide).....	41	49	27
Whooping cough.....	4	2	2
All other causes.....	106	123	115

At the close of the week public health conditions remained fairly satisfactory, with no untoward indications. The forty-five fewer deaths reported represent a drop of nearly 8 per cent. in the annual death rate—from 13.55 for the week of July 27 to 12.44 for the week of August 3.

For the first time in years no death from diphtheria was reported during the seven consecutive days, and only 5 from typhoid fever in a population of upwards of 2,100,000. There was a drop of 18 deaths from consumption—from 65 to 47—and of 11 pneumonia deaths—from 42 to 31. The scarlet fever wave seems to be subsiding.

The Health of Philadelphia.—During the week ending August 3, 1907, the following cases of transmissible diseases were reported to the Bureau of Health:

	Cases.	Deaths.
Typhoid fever.....	43	9
Scarlet fever.....	17	0
Chickenpox.....	2	0
Diphtheria.....	38	6
Cerebrospinal meningitis.....	1	0
Measles.....	12	1
Whooping cough.....	12	2
Tuberculous of the lungs.....	95	59
Pneumonia.....	19	14
Erysipelas.....	5	1
Cancer.....	24	20
Mumps.....	1	0
Tetanus.....	3	2

The following deaths were reported from other transmissible diseases. Tuberculosis, other than tuberculosis of the lungs, 13; dysentery, 3; diarrhoea and enteritis, under two years of age, 136; puerperal fever, 5; cholera morbus, 2; septicaemia, 1. The total deaths numbered 660, in an estimated population of 1,500,595, corresponding to an annual death rate of 20.91 in a thousand population. The total infant mortality was 250; under one year of age, 227; between one and two years of age, 20. There were 37 still births, 18 male, and 19 females. The maximum temperature for the week was 80 degrees, on July 30th. The humidity was high. Total precipitation amounted to 0.49 inch. Four deaths from heat and sunstroke were recorded. The infant mortality was high. There were thunder storms on August 1st and 2nd.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

August 8, 1907.

1. Comparative Tests for Occult Blood in Gastric Contents and Fæces, with Especial Reference to the Benzedin Test, By JOHN W. DEWIS.
 2. A Critical Estimate of the Fermentation Specific Gravity Method of Quantitating Sugar in Diabetic Urine, By HENRY A. CHRISTIAN.
 3. The Treatment of Fever Cases in the Public Service, By C. A. DREW.
 4. Arteriovenous Anastomosis, By JOSHUA C. HUBBARD.
1. **Comparative Tests for Occult Blood in Gastric Contents and Fæces, with Especial Reference to the Benzedin Test.**—After speaking of Teichmann's test, the spectroscopic blood test, the guaiac test, the aloin test, the paraphenyldiamin test, Dewis says of the benzedin test that it is by far the most delicate of the occult blood tests. In fact, the objection has been repeatedly raised that it reacts to such minute quantities of blood as to be clinically useless. The modification of Schlesinger and Holst overcomes the objection of excessive delicacy of the test, and renders it more practical and exceedingly simple (it can be performed within two minutes) and also prevents any possible reaction from enzymes. But even this modification may not prevent small amounts of blood (even nonpathological) from giving a slightly positive benzedin sometimes, but practice soon teaches what degree of color change indicates occult blood. Frequently the benzedin test is negative, and it is for this reason of great value, obviating the need of other tests, and this is particularly true as a test for fæces. A positive benzedin and a positive guaiac would be more trustworthy than a positive benzedin alone, and guaiac is a safer test than benzedin for stools where meat has not been excluded from the diet. Benzedin and guaiac together meet every practical demand of a clinical test for the presence of blood.

2. **A Critical Estimate of the Fermentation Specific Gravity Method of Quantitating Sugar in Diabetic Urine.**—Christian says that the fermentation specific gravity method gives results as good as do the other methods. It is very simple in application, requires no laboratory equipment and involves a minimal cost for apparatus. All that is required is to take the specific gravity of the urine at room temperature, add a small bit of commercial yeast and place in a warm place, such as an incubator at 37° C., a heated room, near a stove or radiator, etc. Active fermentation soon begins and is evinced by bubbles and currents in the urine. When fermentation is finished the specimen partially clears and the evolution of gas ceases. A negative test with Fehling's or Nylander's solution proves the end of the process—twelve to eighteen hours is usually sufficient. The specimen is now allowed to return to the room temperature of the previous specific gravity determination, and the specific gravity redetermined. The difference between these two readings, multiplied by 0.3, gives the percentage of fermentable substance expressed in terms of glucose.

4. **Arteriovenous Anastomosis.**—Hubbard believes that it is perfectly evident that there is no danger in continuing our investigations in arteriovenous anastomosis further, as there is no shock following the operation. Carrel's method is not applicable to a certain number of the cases where the operation is done on old persons with atheromatous arteries. In young persons and on experimental arteries it doubtless is most satisfactory, but as the operation has been proposed to cure conditions dependent upon lack of circulation in the extremities some other technique must be found, as practically all cases, except perhaps some due to trauma, will necessarily be in elderly persons.

An objection which may be raised to the invagination method is the fact that the divided end of the artery leaves a certain portion of its wall in the blood stream uncovered by intima, which favors clot formation. The slight modification of invaginating the artery into a vein instead of into another portion of the same artery would seem not to invalidate the method. However, as at present, this objection might be raised. Two ways to avoid this have occurred to the author. One is by smearing petrolatum or some other substance on to the cut end of the invaginated artery to keep it out of the blood stream. The other way was suggested to him by the appearance of the arterial wall in a patient, where the intima formed a distinct layer inside the others and one which remained intact when the others cracked away from it. The author thinks that it might be possible to cut the outer layers of the artery a quarter of an inch or so back of the intima and thus leave a greater length of intima as a cuff, the back of which could be covered with petrolatum, so that when invaginated into the vein it might stick to the venous wall and cover over the cut end of the outer portion of the artery.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
August 10, 1907.

1. The Influence of Gonorrhoea as a Factor of Depopulation; By JOSEPH TABER JOHNSON.
2. Syphilis as a Cause of Depopulation and Race Degeneration, By EDWARD L. KEYES.
3. Artificial Childlessness and Race Suicide, By J. NEWTON HUNSEBERGER.
4. A Clinical Method for Determining the Alkalinity of the Blood, By HERMAN M. ADLER.
5. The Vessel Changes and Other Histological Features of Cutaneous Syphilis, By JOHN A. FORDYCE.
6. Uncinariasis; Its Development, Course, and Treatment, By BAILEY K. ASHFORD and WALTER W. KING.
7. Experimental Anæmia, By C. H. BUNTING.
8. Principles of Vaccine Therapy. (*To be continued*), By SIR ALMROTH E. WRIGHT.
9. The Management of Dislocation at the Shoulder Joint Complicated by Fracture of the Neck of the Humerus, By HUBERT ASHLEY ROYSTER.
10. Dysenteric Abscess of the Liver in the Philippine Islands, By JOHN R. McDILL.

5. **The Vessel Changes and Other Histological Features of Cutaneous Syphilis.**—Fordyce states that the conditions from which syphilis is to be distinguished are tuberculosis, lichen scrofulosorum, blastomycosis, leprosy, epithelioma, and drug eruptions. It often requires the minutest examination to draw a distinction between specific lesions and lupus. The following points may serve as a guide: In syphilis there is a greater degree of proliferating endarteritis and other vascular changes; many of the giant cells are incomplete and can be traced to the vessels, and progressive and retrogressive changes are more rapid than in lupus. The small follicular lesion presents a picture so closely resembling that of lichen scrofulosorum that it can scarcely be distinguished from it microscopically, and we are obliged to take into consideration the clinical features, as the age of the patient, the presence of concomitant symptoms of syphilis, and the absence of scrofulosis. In blastomycosis and leprosy it is such a simple matter to demonstrate their respective organisms in the tissue that the histological changes are of secondary importance. Epithelioma is readily excluded by the presence of an epithelial growth in the corium. The most frequent drug eruption that comes into question is the bromide, the lesions of which present epithelial hyperplasia with milium abscesses and a diffuse infiltration of round and polynuclear cells, often with eosinophiles through the derma. Giant cells and vascular sclerosis are lacking. All clinicians have observed that certain specific lesions yield to treatment with great facility, while others are obstinate in their response to therapeutical measures. It does not seem

possible from ordinary histological examinations to offer any explanations or draw any conclusions as to why this is the case. It may be that in one the spirochætae are more malignant and in another the resisting power of the patient lowered. On the other hand, the reason may be sought on anatomic grounds, the implication of certain structures, as the vascular apparatus, for instance, where proliferation may interfere with the permeability and absorption of the therapeutic agent. However, these are simply hypothetical questions for which as yet no satisfactory solution is offered.

6. **Uncinariasis; the Development, Course, and Treatment.**—Ashford and King report their experiments. They observe that the prime object of treatment is to expel the unciniariae, and our choice of the anthelmintics will naturally be the one most rapidly and easily effecting this result. They attempted to ascertain the relative efficiency of male fern, thymol, and betanaphthol by counting the actual number of unciniariae expelled by each dose. The highest number of unciniariae expelled by a single dose of filix mas was eight, while one of the same patients later expelled 3,686 unciniariae after a single dose of three grammes of thymol. There is a surprising equality of anthelmintic effect after five doses of either drug, though thymol shows a somewhat greater rapidity under equal conditions of proper preparatory treatment. However, when the preliminary purge and, more especially, the abstinence from solid food for a day are omitted, betanaphthol shows much less favorably. The presence of food in the bowel seems to interfere with the efficiency of betanaphthol more than of thymol, for those who took thymol at their homes expelled their parasites almost as rapidly as those whose diet they could supervise. Frequently in these resistant cases a dose or two of thymol caused a complete disappearance of ova from the stools, while increased doses of betanaphthol did not have so marked an effect. Betanaphthol is not only less efficacious, but it is more dangerous. It has, at times, an irritant effect on the kidney, setting up an acute toxic nephritis in an organ so often the seat of chronic parenchymatous changes. This effect was not common, but the accident was so serious as to warrant their return to thymol as a much safer vermicide. Thymol on rare occasions may irritate the kidney, but its effect is much less severe. It may produce, infrequently, more or less severe collapse. The chief objection to its use is its irritating effect on the bowel and the authors certainly believe that enterocolitis has been initiated by its administration. Eucalyptol is now being studied by the present commission, but their report has not yet been made. Both thymol and betanaphthol were administered in the same manner except that one half as much betanaphthol was used as a dose as thymol. Betanaphthol in larger doses did not seem to give proportional results. In choosing the anthelmintic one has to be governed somewhat by the circumstances of the case, condition of the patient, and so forth, but, all things being equal, they decidedly prefer thymol for general use. When it is not possible to use it, betanaphthol is an excellent substitute. The taking of either is unpleasant and, naturally, one wishes to use that one of which the least number of doses need be taken to obtain the greatest result.

9. **The Management of Dislocation at the Shoulder Joint Complicated by Fracture of the Neck of the Humerus.**—Royster had four such cases within seven months. He observes that fracture of the neck of the humerus, complicating dislocation at the shoulder, occurs more frequently than is usually supposed. The injury is difficult of diagnosis and often escapes the most careful external observation or even the scrutiny of the skiagraph. Ordinary expectant methods have produced many useless arms and functionless joints. The only rational treatment is to cut down over the

joint, reducing the dislocation and setting the fracture at once, immediately after the injury.

10. Dysenteric Abscess of the Liver in the Philippine Islands.—McDill states that liver abscess as a complication of amoebic disease of the colon always has amoebas in its wall as the specific pathogenic organism of the disease. This complication can be reduced to a minimum by early recognition and proper treatment of the primary intestinal amoebiasis. Solitary abscesses, which are sometimes formed by confluence of more than one, are the only ones, so far, amenable to successful surgical treatment, which is by drainage. The best route to the liver for exploration and drainage is by transpleural methods, which avoid lung collapse. Early operations are most favorable and over 90 per cent. of operable cases coming promptly under surgical treatment should recover. Most of the fatal operable cases are due to poor surgical judgment before much experience had been acquired.

MEDICAL RECORD.

August 10, 1907.

1. Some Plain Truths About Syphilis.

By L. DEANAN BULKLEY.
2. The Differentiation of Black Pigment Found in the Liver, Spleen, and Kidneys from Coal Dust or Other Foreign Deposits.

By FREDERICK GAERTNER.
3. Prostatic Concretions, with Special Reference to Etiology and Treatment.
By JOHN M. THOMPSON.
4. Ophthalmia of the Newly Born, By J. CLIFTON EDGAR.
5. Sterility in the Male, Its Causes and Surgical Treatment.

By FRANCIS R. HAGNER and HOMER G. FULLER.

2. The Differentiation of Black Pigment Found in the Liver, Spleen, and Kidneys from Coal Dust or Other Foreign Deposits.—Gaertner says that soot and coal dust deposition within the liver, spleen, and kidneys, or in any other organs or tissues is recognized by nearly all pathologists and anatomists as a distinct abnormal, *i. e.*, altered physiological, condition, and is mentioned in nearly all the latest scientific works on pathology and pathological anatomy as a distinct pathological condition. Coal dust and soot deposits within these organs as a rule do not do any great harm or damage, but all the damage is done at the base of the lung, just at the very point where lymphadenitis or perilymphadenitis is set up or rather brought about by the absorption, infection, and constant irritation of this coal dust, or other foreign substances taken up into the lymphatic glands and its surroundings; eventually there occurs a perforation into an artery or vein, whereby the material is taken up by the bloodvessels and carried over the entire body and deposited at certain anatomical points, thus producing this secondary metastasis. But immediately surrounding these small perforations is the very place where all the serious damage is done, and this is as a rule the direct cause of death. In the spleen the anthracotic pathological condition lies principally along the smaller arteries and in the marginal zone of the malpighian bodies, and it is also found in the perivascular lymphatic canaliculi and in the lymphatic vessels of the capsule. It is for the most part confined to cells, especially leucocytes, round cells, and the spindle shaped and star shaped cells. It presents a finely granular black pigment which is not affected by caustic soda or potash, caustic ammonia, hydrochloric, nitrohydrochloric, or sulphuric acids, or potassium ferrocyanide. It is not affected by the various coloring materials which are used in staining the tissues. This black spleen pigment corresponds exactly, as well microscopically as chemically, with the coal dust of the lungs and of the bronchial and tracheal lymphatic glands. It is very rarely visible macroscopically in the liver. It is present at times a light gray color. Microscopically it is seen deposited espe-

cially in the periportal interacinous tissues along the smaller arteries and at times also within the cells of the tissue along the vena centralis, also in the lymphatic vessels of the capsule and in the periportal lymphatic ducts. In the kidneys it is by no means a frequent occurrence, although it may exist abundantly in the liver and spleen. In the periportal and mesenteric lymphatic glands the anthracotic pigment is led by way of the perivascular lymphatic ducts, which fact may be determined because the capsule of the lymphatic glands and the peripheral lymphatic ducts are found laden with it. This black, finely granular pigment is not easily to be confounded with bile pigment (bilirubin); it might more easily be confounded with iron pigment, micrococci, fatty degeneration of the epithelium cells, with the so called cells of fat particles (Gluge's corpuscles), or finally with the putrid products of the epithelium.

3. Prostatic Concretions, with Special Reference to Etiology and Treatment.—Thompson observes of the treatment that in calculus of the prostate the physician has an exceptional opportunity of employing the ounce of prevention that is better than the pound of cure; that while the therapy of this process is curative and expectant as well as preventive, successful results are to be looked for only by the administration of prophylactic measures. But no matter to what stage one may chance to find the process developed, three essential facts must be borne in mind, namely: (1) Obstruction to the exit of the gland's secretion; (2) consequent retention; (3) persistent alkalinity. Accompanying these conditions one is likely to find a phosphatic, alkaline, foetid urine, charged more or less with bacteria. In order to meet these wants by proper and efficacious remedial measures, the two methods of treatment that suggest themselves are internal and local. The first calls for an agent capable of rendering the renal secretion acid, sterile, antiseptic—in short, an agent that will destroy every possible source of irritation and preserve the urine sufficiently to prevent all danger during the act of micturition; the second admits of whatever will serve the physician in overcoming obstruction and in eliminating the excessive product from which the concretions are formed. Among the several remedial agents provided of late years in the materia medica of genitourinary disease the formaldehyde products have found the most general favor. In cases where an assured continuous antiseptic reaction was desirable, however, they have proved disappointing. In virtue of the small amount of the formaldehyde set free in the bladder; furthermore, in that large variety of urogenital disorders characterized by a foetid, strongly alkaline urine, they have failed to exert anything like the necessary therapeutic effect on the reaction. The only preparation capable of liberating a sufficient amount of formaldehyde in the urinary tract, as well as of exerting the proper degree of acidity, is what may be called a reinforced hexamethylenetetramin, formed by the addition of anhydromethylenecitric acid to the latter. By reason of this acid larger quantities of formaldehyde are set free than when hexamethylenetetramin is employed alone; furthermore, when the latter unites in the renal tract with a strongly alkaline urine such relatively small quantities of the formaldehyde appear to separate that one is scarcely able to determine its presence in the urine. This reinforced hexamethylenetetramin is readily soluble in water, palatable, and non-toxic; doses of 10 to 15 grains dissolved, will be found to produce a marked change in the urine within an hour. In order to remove the retained product and to secure free exit from the excretory ducts, no form of treatment will bear comparison with massage. Unfortunately, however, owing to the insidious development of this process, the remedy is limited in its employment. But during the incipient stage,

should this manœuvre not prove irritating, it can be relied upon invariably to remove the locked up product which is the direct cause of the calculus formation. Each prostatic lobe should be treated gently and cautiously once a week, and the length as well as the intensity of the manipulation by the index fingers must be determined by those conditions which experience alone enables one to infer from an examination of the gland itself.

AMERICAN JOURNAL OF OBSTETRICS.

August, 1907.

1. Notes on Conservative Ovarian Surgery, By C. R. HYDE.
2. Puerperal Eclampsia, with Report of Cases, By H. G. PARTRIDGE.
3. Polycystic Lutcin Degeneration of the Ovaries, By S. WIENER.
4. Hyoscine Anæsthesia in Obstetrics, By G. F. BUTLER.
5. Sins of Omission and Commission in Gynecology, By G. H. BALLERAY.
6. Labor in Contracted Pelves, By K. C. MCILVERAITH.
7. Two Cases of Malformation of the Uterus, By J. MILLIGAN.
8. The Treatment of Puerperal Infection, By G. H. NOBLE.
9. Menstrual Arthritis, By J. D. MORGAN.
10. Imperforate Vagina and Absence of Anus, By E. T. HARGRAVE.

1. **Notes on Conservative Ovarian Surgery.**—Hyde has collected data on this subject from a number of gynæcologists. He concludes that there are microcysts in ovaries that are healthy to the naked eyes. He believes that hopelessly diseased ovaries associated with bad symptoms should be removed unless the patient insists that a portion of one should be saved. Pregnancy does not occur in more than five per cent. of cases in which conservative operations have been performed on the ovaries. Such operations prevent the induced menopause, but this seems to be their only merit. An ovary which has been thus treated has a doubtful future; a second operation may be required. Ovaries containing small cysts should be left alone unless the patient has suffered with pain, dysmenorrhœa, or nervous phenomena. Secondary operations are required in five per cent. of cases. The reports thus far obtained are unsatisfactory and inconclusive, and much work remains to be done before conservative ovarian surgery can be approved or disapproved.

2. **Puerperal Eclampsia.**—Partridge thinks very little progress has been made concerning the ætiology of eclampsia. It is probable that it is due to a toxine of foetal origin which circulates in the maternal blood, irritates the nerve centres and causes convulsions. There is a leucocytosis in this disease varying with the severity of the case. The blood pressure is increased, especially in the post partum cases, owing to change in the quality of the blood, or vasomotor disturbance. As to treatment, Edebohl's operation on the kidneys does not seem logical, lumbar puncture shows no particular merit, treatment with thyreoid extract is still *sub judice*, and Cæsarean section usually implies too great shock to one who is already very weak. The author speaks very favorably of the injection of saline solution, whether rectal, subcutaneous, or intravenous. It dilutes the toxines, does not increase the œdema, and, in his experience, did no harm in any way. Immediate delivery, manually if necessary, is generally regarded as the most important single method of treatment. The Bossi dilator as an aid to delivery is regarded as somewhat dangerous, dilatation by the hand being preferred.

4. **Hyoscine Anæsthesia in Obstetrics.**—Butler thinks this method is rapidly gaining in favor. It produces a state of seminaræsis from which the patient can be roused at a moment's notice. It gives relief to

pain and also spares the patient the psychical traumata of childbirth. Pure alkaloids must be insisted upon; scopolamine is often contaminated with substances which modify its action, while this is not the case with hyoscine. The latter is more expensive, but can be obtained in a state of chemical purity. The first injection should be given when the pains are very severe, and should consist of three or four decimilligrammes of hyoscine and one centigramme of morphine. In an hour a second injection is given, the morphine being omitted unless the pains are very severe. Two more injections may be required at intervals of one to four hours. Resultant symptoms which have been observed are thirst, vomiting, dizziness, headache, diarrhœa, and hallucinations. No bad action of the heart has been noted, nor any tendency to nephritis. The lacteal secretion is not affected. No injury to the child has been observed. A few cases of post partum hæmorrhage have been reported, but no death has resulted from the method.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

August, 1907.

1. Signs of Predementia Præcox; their Significance and Pedagogic Prophylaxis, By SMITH ELY JELLIFFE.
2. The Surgical Treatment of Goitre, By M. B. TINKER.
3. Tendon Transplantation in the Treatment of Congenital and Acquired Talipes, By A. P. C. ASHHURST.
4. Further Remarks on the Care of Gunshot Wounds of the Abdomen, By G. T. VAUGHAN.
5. The Causes and Treatment of Sterility in Women, By E. REYNOLDS.
6. The Influence of Tuberculous Ancestry on the Prognosis in Pulmonary Tuberculosis, By K. von RUCK.
7. The Pathology of Adenoids and Adenoid Tuberculosis, By E. H. WHITE.
8. Congenital Laryngeal Stenosis, By T. J. REARDON.
9. When Shall We Advise Tympanomastoid Exenteration in the Treatment of Suppurative Otitis Media and in What Percentage of Cases May We Expect a Cure? By H. O. REIK.
10. Some Causes of Failure in Plastic Operations on the Female Genitalia, By S. M. BUCKNER.
11. Chronic External Ophthalmoplegia, By W. C. POSEY.
12. The Second Anatomical Proof of the Value of the Paradoxical Reflex, By A. GORDON.

1. **Predementia Præcox.**—Jelliffe includes within this term a provisional group of young patients who gradually develop certain abnormal mental and physical characteristics. The condition develops soon after puberty, when imagination, self esteem, want of concentrative power, etc., are prominent in so many individuals. The emotional faculties in young people with this tendency are over developed. The ancestry of such individuals shows three elements in marked prominence, dementia præcox, the alcohol habit, and crankiness. The influence of inbreeding in producing this type depends upon the qualities of those who breed. If the stock is healthy there may be no taint in the offspring. Fatigue or overstrain, whether from study or play, is an important factor in producing this condition. Enlightened teaching is the most important factor in the prophylaxis of this condition. Nervousness in children must not be underestimated, excesses of all kinds must be guarded against; and marriage, especially early marriage, must be prohibited. Out of door occupations must be encouraged, and the surroundings must be such as to encourage rational living and rational views of life.

2. **The Surgical Treatment of Goitre.**—Tinker refers to the great work of Kocher in this field, which exceeds 3,000 operations. He considers goitrous tumors as adenoma, carcinoma, sarcoma, and cyst, in addition to the simple enlargement of the thyreoid gland. Clinically, he considers three groups: 1. Those in which the symptoms are due to enlargement of the gland and pressure on surrounding organs. 2. The malignant tumors with malignancy in addition to the pressure

symptoms. 3. Those which are associated with general symptoms, exophthalmic goitre, or Graves's disease. The early diagnosis of the variety of goitre is of great importance, especially with reference to the possible malignancy. The treatment by means of sera and extracts from the thyroid gland of animals and human beings has had moderate success. The greatest degree of success has come from excision of the whole or a portion of the diseased gland. The operation should only be undertaken by one who is entirely familiar with the anatomy of the neck. The mortality from the operation in skilled hands is very low and the relief is immediate and decisive.

3. Congenital and Acquired Talipes.—Ashhurst observes that in congenital club foot the surgeon resorts to open operation more frequently than the orthopaedist, the latter preferring repeated stretchings and retention with a brace. The author thinks the majority of those who have either congenital or acquired club foot will not require operation. Concerning patients with infantile palsy, one or two years should elapse between the onset of the paralysis and resort to tendon transplantation. This interval should be occupied by treatment with massage, electricity, and relief of the paralyzed muscles from strain. Nerve transplantation is an alternative to tendon transplantation, but several theoretical objections are urged against it; and especially should the extent of muscle degeneration be considered. More than a year may elapse before tendon transplantation is tried on congenital club foot. Preparatory to operation the foot must be temporarily retained in over correction. Periosteal implantation gives better results than transplantation into another tendon, also it is better to transfer a healthy tendon to the place of a weak one than to suture the distal end of a paralyzed tendon into a normal tendon. The incision need not be a long one, and silk seems to be preferable for suture material. The limb must be elevated for forty-eight hours, and be kept in plaster three or four weeks.

5. Sterility in Women.—Reynolds thinks the treatment of this condition one of the most unsatisfactory features of gynecological practice. The causes from a clinical standpoint are: 1. The not easily remediable: (a) the production of ova which are incapable of impregnation; (b) organic or functional imperfections of the tubes. 2. The remediable: (a) inhospitable endometrium; (b) hostile secretions. As to ovarian imperfection, this can be positively proved only when the ovaries are exceedingly small, from senility or arrested development. Imperfect action of the tubes may depend upon organic stricture and alterations of the mucous membrane. The inhospitable endometrium may be considered with regard (1) to the results of infection, (2) to hyperplasia from chronic congestion without infection. Hostile secretions may be either in the uterus or the vagina, and the changes to be desired may be simultaneous in both, or the uterine secretion may be made normal, though the vaginal is abnormal.

6. Pulmonary Tuberculosis.—Von Ruck refers to the opinion of the ages that heredity was a potent factor in tuberculosis, and that a victim of the disease who possessed the heredity taint was necessarily doomed. In spite of the consensus of many writers to this view, the author believes that a tuberculous history does not, *ipso facto*, make an existing disease more serious, nor does it necessarily darken the chances for a cure. In some cases it may mean a transmitted partial immunity. With regard to inherited resistance Reibmayr is quoted as dividing all tuberculous patients into four groups, as follows: 1. Those in which the resistance is low and the prognosis almost uniformly fatal, the course being acute and the tendency to recovery slight. 2. Those in which resistance is slight, the childhood mortality being great, but life being more prolonged than in the first group. It seldom passes the thirtieth year. 3.

Those in which resistance is moderate, death under ten years being infrequent. Life is often prolonged to sixty years, and a tendency to recovery predominates. 4. Those in which resistance is complete, immunity being such that unless there be an unhygienic life or other provocation tuberculosis is not acquired.

7. Pathology of Adenoids and Adenoid Tuberculosis.—White offers the following conclusions: 1. Primary tuberculosis occurs in a certain proportion of all adenoids. The author's estimates and those which he has investigated make it about five per cent., this being considered very conservative. 2. In determining the presence of adenoid tuberculosis the histological method is the most satisfactory. 3. Tuberculosis does not appear to be an important factor in the production of adenoid hypertrophy. 4. Adenoids and tonsils are the important channels of infection in tuberculosis of the cervical glands. 5. In the development of pulmonary tuberculosis adenoids may sometimes be direct channels of infection, but their importance is probably more often indirect by predisposing to catarrhal inflammations of the upper respiratory tract.

BRITISH MEDICAL JOURNAL

July 27, 1907.

1. Remarks on an Outbreak of Epidemic Cerebrospinal Meningitis, By W. ROBERTSON.
2. Remarks on Ocular Symptoms in Cerebrospinal Meningitis. Notes Based on the Examination of Seventy-three Cases, By A. J. BALLANTYNE.
3. Infective Cyclitis in Relation to Penetrating Wounds of the Eyeball, By P. DUNN.
4. Medicine in Ancient Greece; the Methods of Hyocrates and Work Accomplished by Him, By G. LUDMER.
5. Abnormal Fat Assimilation Associated with Some Diseases of the Intestine, By O. T. WILLIAMS.
6. On the Ætiology and Pathological Histology of Beriberi, By R. T. HEWLETT and W. L. DE KARTÉ.
7. Arthritis and Erythema Nodosum, By J. O. SYMES.

1 and 2. Cerebrospinal Meningitis.—Robertson's remarks are based on the epidemic of cerebrospinal meningitis which recently occurred in Leith. In only a small proportion of the cases were purpuric or other rashes seen. There is no possible doubt that the disease is infectious, but, contradictory as it may sound, it is not the sufferer who is a source of danger to others, but an "intermediary." A parent or visitor harbors the meningococci about his throat or nostrils, and may retain them there for a period of three weeks. During that time he coughs, blows his nose, and sneezes or spits around his house or its precincts, thus causing infection to be blown in all directions. The author does not favor the view that in most cases the infection reaches the meninges through the cribriform plate, but rather inclines to the belief that the disease is carried by food. But the possibility of the entrance of meningococci through the tonsils or abraded buccal services cannot be overlooked. Another method of infection may be by inhalation. Serum therapy has as yet given no promise of success, either as preventive or curative. All we can do is to combat acute symptoms, especially pain, with morphine. Lumbar puncture gives only temporary relief. The best palliative is hot baths at frequent intervals. Ballantyne, in a series of cases of cerebrospinal meningitis, found eye symptoms in all but four out of seventy-three cases. The only lesion of the lids was herpes, seen in one case. Retraction of the eyelids was seen in fifteen cases, and seemed to be confined to cases in which the chances of recovery were small. Blepharospasm was very frequent, associated with and a part of a general hyperæsthesia. True photophobia was never seen, however. Conjunctival hyperæmia was observed in many cases, and actual catarrhal conjunctivitis in thirteen; conjunctival hemorrhages were seen in two cases. In only one case was a corneal lesion seen.

and no evidence of iritis, choroiditis, or cyclitis was found in any of the cases. Abnormalities of the pupils were the most common symptoms, the pupils being normal in only six out of sixty-nine cases. Strabismus was found in fifteen cases. The most striking feature was the great variation in the symptoms, squint, retraction of the lids, sizes and reactions of the pupils, vision, etc., in the same patient from day to day, and even in the course of a single examination. The conjunctivitis, which occurs as an early symptom, should prove useful in distinguishing cerebrospinal from other forms of meningitis. The examination of smears for the meningococcus is of little value. Eye symptoms are of grave significance as a rule, but their absence does not justify a favorable prognosis.

5. Abnormal Fat Assimilation.—Williams records certain clinical and chemical observations which tend to show that there are conditions in which certain soaps or other insoluble compounds of fatty acids are not absorbed by the intestinal mucous membrane, and that with the presence of these conditions certain diseases of the alimentary tract are related. His analyses show that true intestinal sand, appendix concretions, and some bodies formed in the intestines are largely made up of fats and soaps. These fats and soaps are compounds of saturated fatty acids. The constitution of these bodies and their chemical relation to each other throws much light upon the aetiology of appendicitis and mucous colitis, and possibly upon the underlying factors in certain diseases accompanied by colic.

6. Beriberi.—Hewlett and De Korté suggest that beriberi is a protozoan infection, that the infecting agent is eliminated in the urine, and that the urine is the source of the infection. These views are based on the results of experiments with monkeys, which animals suffer from a disease very like beriberi; on being fed with the urine of cases of beriberi, monkeys develop a condition of illness, emaciation, puffiness, cyanosis, weakness of the hind legs, and alteration of the knee jerks. Examination of the urine of cases of beriberi shows the presence of numerous casts and also small refractile spherical bodies, two to three micromillimetres in diameter, apparently having a thick capsule enclosing hyaline contents.

7. Erythema nodosum.—Symes states that the arthritis which accompanies some cases of erythema nodosum is thought by most observers to be of rheumatic origin. His own experience is that the signs or a history of chorea, endocarditis, or arthritis are not found in more than ten per cent. of all cases of erythema nodosum. The disease differs from rheumatic fever further in that it more commonly attacks females than males, and is most prevalent in the autumn, winter, and spring, while rheumatism is most common in summer. A long period of prodromal malaise, comparative freedom from the risk of recurrence, slight constitutional disturbance during the pyrexial period, and the presence of phlyctenulæ in the eyes are also characteristic of erythema nodosum. The arthritis may differ entirely from that met with in rheumatic fever, and it, together with the pyrexia and rash, are but little influenced by the administration of salicylates.

LANCET.

July 7, 1907.

1. Plague (*Croonian Lectures, IV*).

By W. J. R. SIMPSON.

2. General Surgical Anæsthesia (II).

By F. W. HEWITT.

3. The Carriage of Infection by Flies.

By R. M. BUCHANAN.

Dissecting the Method and Some

Simple Methods for Staining Liquid Blood.

By R. ROSS, J. E. SALVIN-MOORE, and C. E. WALKER.

5. A Case of Cerebrospinal Meningitis: Isolation of the Specific Organism; Preparation of a Vaccine; Recovery.

By C. RENDLE, J. C. MOUTRAIL, R. S. WILLETT, and A. E. WILLIAMS.

6. A Study of the Conditions Producing the Anomalous Reaction Not Infrequently Met With on Testing Urine for Sugar with Fehling's Solution.

By F. W. PAVY.

7. A Case of Cerebrospinal Meningitis During Pregnancy.

By J. D. WILLIAMSON.

8. The Treatment of Trypanosomiasis.

By A. NIERENSTEIN.

9. Cerebral Hyperæmia as a Factor in the Therapeutical Action of Lumbar Puncture, illustrated by a Case of Tetany.

By F. C. EVE.

2. Anæsthesia.—Hewitt, in his second lecture on this subject, considers the question of shock. Two distinct varieties are met with during general anæsthesia: (1) Respiratory in which the respiration is primarily affected (reflexly), and (2) circulatory, where the respiration is affected only secondarily. When the two are mixed, a state of composite surgical shock is produced. Respiratory surgical shock is most common during light or moderate anæsthesia, before the corneal reflex has vanished; whilst circulatory shock, which is by far more common under chloroform, is met with during profound narcosis. The risk of preparing patients, or commencing operations before full anæsthesia has been secured, is from the respiratory and not from the circulatory side. Respiratory shock is specially liable to complicate operations upon the rectum, urethra, abdominal organs, uterus, perinæum, and kidney. The immediate cause is usually a reflex spasm affecting either the tongue, fauces, palate, and adjacent parts, and having stertor as its audible expression; the larynx, and producing stridor; or the respiratory muscles, and bringing about respiratory spasm. Circulatory shock is chiefly met with in operations on parts possessing important nerves or rich in nerve supply. The immediate cause is usually a sudden relaxation or paralysis of the vasomotor system, generally associated with some cardiac inhibition. The favorable conditions for the establishment of respiratory shock are partial anæsthesia, manipulations upon sensitive parts, and the presence of an air way likely to become occluded. Those for circulatory shock are deep chloroform anæsthesia, the horizontal, semirecumbent, or sitting posture, and intestinal, omental, uterine, or renal traction. Certain subjects are prone to one or the other; the state of the heart itself seems to have little or no influence. Simple chloroform overdosage may be indistinguishable from circulatory shock. Respiratory shock may usually be avoided by securing full anæsthesia before the patient is moved, and by so adjusting the degree of anæsthesia that reflex modifications in respiration are as far as possible eliminated. Circulatory shock can be avoided by using ether instead of chloroform; if the latter is used, too deep anæsthesia must be avoided, and the patient placed in the Trendelenburg posture, in which position circulatory shock is almost never seen. The treatment of respiratory shock is to reestablish respiration as soon as possible by separating the clenched teeth, sponging out the fauces, pushing the lower jaw forwards, tongue traction, artificial respiration, and, if need be, laryngotomy and direct lung inflation. The treatment of mild circulatory shock is to lessen the depth of anæsthesia, and to substitute a chloroform-ether mixture, or ether for the chloroform. When severe, the anæsthetic must be withdrawn, the head lowered, the feet raised, and artificial respiration be performed. Unless the patient be very deeply anæsthetized recovery can be effected very rapidly, and the operation proceeded with. Drugs are of little or no value.

3. Infection by Flies.—Buchanan's experiments with flies show conclusively that these insects alighting on any substance containing pathogenic organisms are capable of carrying away these organisms in large numbers on their feet and of depositing them in grad-

ually diminishing number on surface after surface with which they come in contact. They further serve to demonstrate the necessity of the exercise of stringent measures to prevent the access of flies to all sources of infection and to prevent food of all kinds from flies alighting on it.

4. **Microscopical Blood Diagnosis.**—Ross, Salvin-Moore, and Walker again describe their "chromolin granulations"—i. e., certain strings of granulations found in the red corpuscles of the blood. They occur sparingly in health, but are often common in disease (tropical liver abscess, etc.), and are the remains of the nucleus of the original cell. An excessive percentage of such corpuscles indicates an abnormally early discharge of red corpuscles into the blood. These granulations are best demonstrated by one of the methods of staining liquid blood, which are fast replacing the staining of dried films. They consist in the addition of the stain to the drop of blood, before spreading it out into a film.

8. **Trypanosomiasis.**—Nierenstein suggests the following method of treating sleeping sickness or trypanosomiasis: A fresh 20 per cent. solution of atoxyl warmed up to 40°, to be administered in small doses to commence with and the doses to be gradually increased, not, if possible, passing the limit of one cubic centimetre of the 20 per cent. solution; the atoxyl to be followed as soon as possible by mercury in the form of sublimate and, in addition, some other trypanocide to be given. The writer specially recommends fuchsin.

9. **Lumbar Puncture.**—Eve states that all the good results following lumbar puncture cannot be ascribed to the relief of intracranial tension alone. He suggests that an important factor is the marked passive hyperemia which much inevitably result from the removal of any considerable quantity of cerebrospinal fluid. He cites a case of tetany in which lumbar puncture did much good, and suggests that it should be tried in a variety of acute or subacute cerebral affections which have resisted other forms of treatment or are tending to become chronic.

ANNALS OF SURGERY.

August, 1907.

1. Avulsion of the Spine of the Tibia, By J. H. PRINGLE.
2. Osteogenesis Imperfecta and Idiopathic Fragilitas Ossium, By C. C. SIMMONS.
3. Traumatic Epithelial Cysts, By L. BÜRGER.
4. Syphilis of the Bones and Some Radiographic Findings, By M. W. WARE.
5. The Correction of Certain Forms of "Saddle Nose," By L. FREEMAN.
6. Intussusception, By J. D. RUSHMORE.
7. Operation in Two Stages for Relief of Jejunum, By E. F. ROBINSON.
8. An Enormous Cyst of the Urachus, By T. L. MACDONALD.
9. Ureteritis Cystica Chronica, By B. STOW.
10. Operation for Hypospadias, By B. H. RUSSELL.
11. A Male Pseudohermaphrodite, By J. S. STONE.
12. A New Retractor to be Used in Suprapubic Cystotomy, By G. WALKER.
13. Multiple Fractures, with an Analysis of Two Hundred and Forty Cases, By A. P. C. ASHURST.
14. Fracture of the Head and Neck of the Radius, By T. T. THOMAS.
15. Isolated Fracture of the Great Trochanter, By G. E. ARMSTRONG.
16. Postoperative Treatment, By J. H. GIBBON.

4. **Syphilis of the Bones.**—Ware finds record of this disease, affecting the bones, as early as the writings of Hippocrates. The condition may be hereditary or acquired. The infectious organism, whether in the bone or in the periosteum, is propagated by the blood-vessels, the pathological process being therefore an osteomyelitis, either in the marrow or beneath the periosteum or about the epiphyseal line of ossification. The process may be diffuse or circumscribed, and gran-

matous, sclerotic, purulent, or a combination of all. The final results may be necrosis, osteoporosis, sclerosis, formation of sequestra, epiphyseal separation, joint complication with functional disturbance, interference with bone growths, and spontaneous fracture. With osteochondritis in the lower extremities the limbs are contracted, palsy being present in the upper extremities. The condition is not infrequently mistaken for rickets. Other common lesions are syphilitic, orychia, saddle nose, and perforation of the hard palate.

5. **Saddle Nose Correction.**—Freeman refers to this deformity as one of the most annoying and objectionable to which the Caucasian face is subject. It may be the result of disease, injury, or lack of development. Methods for its correction may consist in the sliding of bone flaps from the forehead, the subcutaneous insertion of metal or celluloid plates, and the injection of paraffin. Bone flaps should be reserved for bad cases, with much cicatricial contraction, the results being usually unsatisfactory, owing to operative limitations and the formation of unsightly scars. In mild cases and in those in which the skin is loose and can be stretched, it is better to insert plates or inject paraffin. Cold paraffin often does very well if the skin is looser and the deformity not great. Hot paraffin injected in a fluid state is sometimes unmanageable, and finds its way where it is not wanted. By the use of metal or celluloid plates these dangers and difficulties are avoided. The plates are indicated when the deformity is so great that paraffin must be injected under great pressure to correct it, but in which the skin may be stretched sufficiently to insert a plate. In the badly scarred cases only plastic operations are applicable.

6. **Intussusception.**—Rushmore states that this term is another name for internal strangulated hernia. The symptoms, with the exception of the tumor, are evident and striking, and the diagnosis is usually comparatively easy. If the tumor is not easily felt a general anesthetic should be given to complete the diagnosis instead of waiting to determine the presence of a tumor without it. The treatment should be surgical and be practised within twelve hours of the occurrence of the strangulation, like the treatment of any other form of strangulated hernia. Should gangrene occur the degenerative process would progress more rapidly than in other forms of hernia. Abdominal section and manual reduction offer the best chances for recovery. Such mechanical agents as air, gas, and water, while free from the danger of atmospheric exposure and manipulation of the gut are objectionable from the fact that with their aid alone one does not know the condition of the intestine to be reduced, nor even whether it has been reduced. Though young infants show a relatively high mortality from this operation, it is not more than 12.5 per cent. when performed very early.

13. **Multiple Fractures.**—Ashurst finds very little upon this subject in textbooks on surgery, Malgaigne alone devoting considerable space to its frequency and prognosis. Bruns found a mortality of 40 per cent. in a series of one hundred and twenty-four cases. The rarity of reported cases is due to the fact that in very many cases death occurs almost immediately after the reception of the injury. A comparative table prepared by the author shows that multiple fractures are ten times more dangerous than others. The author classifies his subject into three groups: 1. Fractures of the skull or trunk and the extremities, for example, the pelvis and thigh, the skull and arm, the spine and foot. 2. Fractures of different extremities, including (a) those of both legs, both forearms, both clavicles, etc., (b) dissimilar fractures, for example, the leg and forearm, the arm and thigh, the thigh and opposite leg. 3. Multiple fractures confined to one extremity, as the femur and one or both bones of the leg. In view of the gravity and extent of these multiple injuries, if the

patient survives the immediate effect, union of the fractures may occur and the limbs prove very useful, even if not entirely normal.

REVUE DE CHIRURGIE

July, 1907.

1. Surgical Anatomy of the Hyothyreoepiglottic Region, By P. POIRIER and R. PIEQUÉ.
2. Traumatism and Appendicitis. A Pathological and Medicolegal Study, By E. JEANBRAU and J. ANGLADA.
3. The Radical Cure of Hernia, By E. J. CORBELLINI.
4. Diastasis of the Inferior Tibioperoneal Articulation, By E. QUÉNU.
5. Volvulus of the Small Intestine and the Initial Portion of the Large Intestine, By M. GUIBÉ.
6. Suba-tragaloid Luxations, By A. BAUMGARTNER and A. HUGNIER.

1. Surgical Anatomy of the Hyothyreoepiglottic Region.—Poirier and Piqué offer the following conclusions: 1. The hyothyreoid region calls for a careful description with reference to its topographical anatomy on account of the importance of the hyothyreoepiglottic structure of which it is the means of approach. 2. Boyer's bursa is not constant, and usually consists of a strip of cellular tissue, which facilitates the interaction of the subhyoid muscles and the approximation of the larynx and hyoid bone. When it is present it is limited to the interval of the muscles upon the median line. 3. The thyreohyoid membrane, so called, does not really exist, instead one can distinguish (1) the median thyreohyoid ligament, and (2) a fine and cellular membranous portion. 4. The epiglottis is united to the larynx and the tongue by a true crucial membrane. 5. The structure described as the glossothyreoepiglottic structure is really limited to the hyoepiglottic membrane, between the thyreohyoid membrane and the epiglottis. The sagittal subhyoid partition completely subdivides it into two lateral compartments. 6. Each of these compartments has a fatty fringe, præepiglottic, analogous to the præpericardial fatty fringes. 7. In this structure the phlegmon described by Brousses and Brault is sometimes developed. 8. Such a phlegmon should be treated early by a long transverse incision, as recommended by Malgaigne.

2. Traumatism and Appendicitis.—Jeanbrau and Anglada conclude from their investigations, as follows: 1. In a person whose appendix is healthy and contains no foreign bodies a blow upon the abdomen or a violent effort will very rarely cause appendicitis. 2. In a person who has had attacks of appendicitis a blow upon the abdomen, even at a distance from the cæcal region, may relight a latent inflammation, and result in perforation of the appendix and danger to life. 3. In a person with latent appendicitis, a violent effort, a fall, or a strain may tear up adhesions, or the wall of the appendix itself, and result in perforation. 4. The maximum delay in an acute attack from the causes mentioned should not exceed two days. If an attack does not occur within this period, it is due to the traumatism received. 5. If the patient recovers from an attack due to such traumatism, and other attacks should follow they could not properly be attributed to the traumatism. As to the medicolegal aspects from the French law of 1898, concerning accidents sustained while one is engaged in his work: 1. If the appendicitis caused by the accident is recovered from without operation, the patient can only collect indemnity for the time which is lost. 2. If the accident causes appendicitis and an operation is required and the patient recovers, he can only collect for the loss of his time and the physician's charges. 3. If death should result the patient's estate could collect damages if it is clear that the traumatism is the cause of death, and if the accident resulted from some cause not connected with the patient's ordinary duties.

4. Diastasis of the Tibioperoneal Articulation.—Quénu offers the following conclusions: 1. The infe-

rior tibioperoneal diastasis is not exclusively peculiar to a form of fracture of the peronæum, it is observed with fracture in the upper fourth of the peronæum, with Dupuytren's fracture, with fracture of the lower extremity of the intratibioperonæum, with supramalleolar fracture of the tibia, with oblique fracture in the lower fourth of the tibia, and perhaps without any fracture at all. 2. The first of these varieties of fracture may be seen without any other bony lesion and without permanent diastasis. 3. Dupuytren's fracture is usually accompanied by inferior tibioperoneal diastasis. 4. As to the mechanism in this condition there is abduction from the combined point with rotation inward of the sole of the foot; tearing away of the posterior tibioperoneal ligament is rare; rupture of the ligaments will permit the diastasis in question; penetration of the astragalus between the two bones is a result of diastasis. 5. Radiography should be practised in all fractures of the lower fourth of the peronæum and tibia, as well as in those of the upper extremity of the peronæum. 6. The prognosis in these cases should be a very conservative one. 7. An apparatus should promptly be used to approximate the two bones, and no operation should be performed in the early period of the condition.

LA SEMAINE MEDICALE.

July 17, 1907.

1. Chronic and Incomplete Torsions of Pedicles Connected with the Uterus, By M. LEJARS.
2. Unilateral Pleural Secretion in Heart Disease.

1. Chronic and Incomplete Torsions of Pedicles Connected with the Uterus.—Lejars deals with the symptoms produced by various forms or degrees of torsion of pedicles which connect tumors and cysts to the uterus as well as of the oviducts. He reports a number of cases in which such torsions were found to exist.

July 24, 1907.

Tendinitis and Peritendinitis, By Professor R. DE BOVIS.

Tendinitis and Peritendinitis.—De Bovis refers inflammations of and about the tendons in various parts of the body to two principal causes, traumatism and rheumatism. The two causes may be combined. That caused by gonorrhœa he considers a subvariety of the rheumatic. Treatment of cases of rheumatic origin consists of antirheumatic remedies, emollient embrocations, and rest. After the acute stage has passed the application of iodine to the skin favors resolution. In traumatic cases rest is the first requisite, but a more active treatment is admissible, particularly the use of massage and hot applications with a pressure bandage in the intervals. Bier's stasis is also useful. The diagnosis is usually not difficult to make.

LA PRESSE MEDICALE

July 20, 1907.

1. Clinical Examination of the Lumbar Region, By P. DESFOSSÉS.
2. Chlorotone as a Local Anæsthetic. Its Use in Laryngology, By L. FIOCRE.
3. Endocarditis in the Infant, By R. ROMME.

2. Chlorotone as a Local Anæsthetic.—Fiocre employs insufflated pure chlorotone, a white, crystalline body which has a slight odor of camphor, and is formed from the chemical combination of chloroform and acetone, in the treatment of painful affections of the larynx, especially to combat the obstinate dysphagia met with in extensive tuberculous infiltrations in this region.

July 24, 1907.

1. Studies in Regard to Diseases of the Liver Due to Diseases of the Heart, By A. BAUER.
2. The Form of the Labia Minora. The Paralympheal Fold. The Commissural Folds, By F. JAYLE.
3. Modern Ideas in Regard to Hysteria, By PAUL HARTENBERG.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

July 23, 1907.

1. The Indications for the Operation to Enlarge the Pelvis, By MENGE.
2. Concerning the Present Stand of the Serological Demonstration of Syphilis in the Syphilitic Diseases of the Central Nervous System, By PLAUT.
3. Serodiagnosis in Syphilis, Tabes, and Paralysis by Specific Precipitates, By FÖRNET and SCHERESCHESKY.
4. Concerning A. E. Wright's Oponon and Its Therapeutic Effects in Infectious Diseases, By LÖHLEIN.
5. Why Should the Vermiform Appendix be Removed in Gynecological Operations? By PANKOW.
6. The Importance of the Auricle in Hearing, By GEIGEL.
7. Psychoses of the Defendant in Connection with Insurance of Workmen, By TINTEMANN.
8. The Operation for Carcinoma of the Rectum, By BERNDT.
9. Concerning a Diagnostic Symptom in Appendicitis, By TRETZEL.
10. The Clinical Value of Büchner's Estimation of Albumin in the Urine, By ENGELS.
11. Concerning a Case of Puerperal Pyæmia Treated with Menzer's Streptococcus Serum, By BEWERSDORFF.
12. Concerning the Treatment of Congenital Want of Vitality (*Continued*), By PFAUNDLER.
13. Studies on Swimmers (*Concluded*), By KEINBOCK, SELIG, and BECK.
14. The Medical School at Düsseldorf, By SCHLOSSMANN.
15. Emanuel Mendel, By LAQUER.

1. **Indications for the Operations to Enlarge the Pelvis.**—Menge says: 1. In contracted pelvis with conjugate diameters of 3.5 cm. and less, the Cæsarean section alone is to be considered for either living or dead children of medium size. 2. In contracted pelvis the conjugate diameters of which exceed 5.5 cm., the removal of a dead child by craniotomy is alone to be considered. 3. In contracted pelvis the conjugate diameters of which vary from 5.5 to 6.5 cm. Cæsarean section alone is indicated when the child is alive and of medium size. 4. In contracted pelvis the conjugate diameters of which measure from 6.5 to 7.5 cm., in which the Cæsarean section was formerly the sole indication when the child was living, hebstectomy may be performed in such cases as promise a successful spontaneous delivery when the pelvis has been enlarged. This is only in head presentations. The Cæsarean section remains indicated in this degree of pelvic contraction in oblique and pelvic presentations, and also in head presentations when rapid delivery is demanded in the interest of either the mother or the child, or when the umbilical cord has prolapsed and its reposition seems to be hopeless. 5. In contracted pelvis the conjugate diameters of which measure 6.5 to 7.5 cm. hebstectomy may be performed, in cases of head presentation, before the head is engaged and before the membranes are ruptured, but it is desirable to wait until the os has become fully dilated. After the membranes have ruptured hebstectomy should be performed as early as possible. 6. In contracted pelvis the conjugate diameters of which measure 7.5 cm. and more, the spontaneous delivery of a full term child should always be sought, but if in the course of the labor too much difficulty is met with hebstectomy should be performed. 7. In contracted pelvis the conjugate diameters of which measure from 7.5 to 8 cm., hebstectomy may be indicated when the child is in an oblique position which cannot be changed to a head presentation, or when there is a prolapse of the umbilical cord, the reposition of which seems to be difficult or hopeless, or when there is a pelvic presentation. 8. An obstetrical operation is to be added to the hebstectomy only when either the mother or the child are in danger and remain in danger after the enlargement of the pelvis.

3. **Serodiagnosis in Syphilis, Tabes, and Paralysis by Specific Precipitates.**—Fornet and Schereschewsky thus sum up the results of their investigations: The serum of paralytics and taebtics gives exclusively with the serum of syphilitics a positive precipitin reaction, and vice versa.

4. **Oponons.**—Löhlein has tried in various ways to settle the question of the possible identity of the normal amboceptors and the oponons, and his results lead him to believe that they are not the same. At any rate, it can safely be said that the identity of normal amboceptors and oponons has not yet been demonstrated.

5. **Removal of the Vermiform Appendix.**—Pankow gives these reasons for removal of the appendix in the course of other operations: 1. Appendicitis is much more frequent in women than has been supposed, and occurs in 60 per cent. of all women who have reached the age of puberty. 2. Appendicitis plays a far greater part in the origin of inflammatory diseases in the pelvis and of the annexa than has been credited with hitherto. 3. Appendicitis is not uncommon, and prognostically favorable cases are to be looked upon as the cause of sterility due to a closure of the tubes. 4. A portion of the pains on the right side of the abdomen formerly ascribed to the ovary is caused by an acute appendicitis.

13. **Studies on Swimmers.**—Keinböck, Selig, and Beck found the heart lastingly affected in seven out of twelve cases from overtraining, and warn against this effect. The frequently repeated excessive exertions of the swimmers resulted in two cases in chronic dilatation and hypertrophy, in three cases in a slight arrhythmia, in four cases in mitral or aortic murmurs, due probably not to affections of the valves themselves, but of the cardiac muscle.

BERLINER KLINISCHE WOCHENSCHRIFT.

July 8, 1907.

1. The Present Position of the Question of Pulmonary Phthisis, By AUFRICHT.
2. The Mechanical Predisposition of the Apices of the Lungs to Tubercular Phthisis, By D. ROTHSCHILD.
3. The Articulation of the Manubrium with the Body of the Sternum and Its Relation to the Primary Tuberculous Phthisis of the Apices of the Lungs, By C. HART.
4. Some Remarks in Regard to Stenosis of the Upper Aperture of the Chest and Its Relation to Phthisis of the Lungs, By D. VON HANSEMAN.
5. The Articulation of the Manubrium with the Body of the Sternum and Its Relations to the Genesis of Tuberculous Pulmonary Phthisis, By M. LISSAUER.
6. Experimental Contributions to the Question of Hydro-nephrosis, By J. BENCE.
7. Concerning the Presence of Biliary Acid in Woman's Milk, By A. MAYER.
8. Pathology and Treatment of Alveolar Emphysema of the Lungs, By I. MOHR.
9. Mendel, By A. LEPPMANN.

1. **The Present Position of the Question of Pulmonary Phthisis.**—Aufrecht says that a few years ago the question in regard to the origin of pulmonary phthisis seemed to be permanently settled, the tubercle bacillus was the cause, and this was introduced into the lungs by inhalation. But modern researches have rendered the latter proposition doubtful, and the evidence seems to be now that the only positive way from the organs in the neck, particularly from the tonsils and from injuries of the skin over the glands, leads to the lungs. But the tubercle bacillus can be carried from the glands only into the pulmonary vessels and can carry out its deleterious work at their terminal ramifications. The way thus leads to the places where, according to the author's anatomical studies, the caseous tubercle of the lungs proceeds. The inhalation theory of pulmonary tuberculosis he considers no longer tenable.

2, 3, 4, and 5. **Mechanical Predisposition of the Apices of the Lungs to Phthisis.**—Rothschild, Hart, Von Hansemann, and Lissauer present controversial papers on the question of the articulations of the manubrium and their relations to the genesis of pulmonary tuberculosis. After reading them all one may say that the responsibility of these joints for the occurrence of phthisis is certainly not proved.

July 15, 1907.

1. Concerning Two Cases in Which Tumors Were Successfully Removed from the Junction of the Cerebellum and Pons,

By H. OPPENHEIM and M. BORCHARDT.

2. Atoxyl Treatment of Pellagra,

By V. BABES and V. VASILIU.

3. Concerning Hyperostosis of the Superior Maxilla,

By K. WALLICZEK.

4. Improvised Asepsis,

By O. CROSSE.

5. The Question of Spontaneous Injury to the Cervix in Abortion and Its Forensic Importance,

By L. BLUMREICH.

6. Tuberculosis of the Eye and Its Treatment,

By HELBRON.

1. **Two Cases of Tumor of the Junction of the Cerebellum and Pons.**—Oppenheim and Borchardt report the successful removal of tumors from the junction of the cerebellum and pons in two cases. The principal symptoms are given as headache, especially in the back part of the head, dizziness, vomiting, nervous deafness in the right ear, cerebellar ataxia, bilateral choked disc, nystagmus, limitation of vision to the right, loss of reflex of the right cornea with slightly changing disturbances of sensation over the right side of the face, particularly in the region of the right greater occipital nerve, paresis of the right facial nerve with quantitative decreases of its excitability, paresis and hypoflexia of the velum palati, slight incoordination of movements in the right arm and in the right leg. The diagnosis of a tumor probably at the junction of the cerebellum and pons on the right side was made. The second case presented similar symptoms. Borchardt states that of the six cases in which he has performed this operation three of the patients had previously become blind.

2. **Atoxyl in Pellagra.**—Babes and Vasiliu report a number of cases in which improvement was obtained by the administration of atoxyl. With the exception of the cases in which serious cerebral symptoms and tachycardia were present small doses proved sufficient to produce improvement, and the symptoms disappeared in a few days. The control patients, who were not treated with atoxyl, remained in the same desperate condition as before, while at the end of from one to three weeks those treated with atoxyl appeared for the most part well.

3. **Hyperostosis of the Superior Maxilla.**—Walliczek reports a bilateral case of this nature met with in a man, twenty-seven years of age, and comes to the following conclusions: 1. Hyperostosis of the superior maxilla is a rare, nearly always symmetrical disease. 2. It regularly causes a greater or less degree of bony occlusion of the nasal passages and obstruction to nasal respiration. 3. It usually causes a diminution or disappearance of the antrum of Highmore. 4. In the majority of cases it is called into existence, or may be ascribed to traumatism. 5. It has not yet been determined whether or not other causes, such as dental caries, syphilis, tuberculosis, and acute infectious diseases may produce it, but in the present case multiple caries of the teeth seemed to be the only cause of the disease. 6. The prognosis cannot be considered favorable. 7. Treatment should at first be internal and expectant. In every case mercury should be energetically tried, combined later with iodide of potassium, before resorting to surgery. The operation

should be limited to the removal of the exostoses and to rendering free the interior of the nose.

6. **Tuberculosis of the Eye.**—Helbron states that the treatment of tuberculosis of the eye is always both local and general. Tuberculosis of the external parts, where an operation is possible, is best treated by the removal as far as possible of all diseased tissue. Tuberculosis of the lids is amenable to light treatment. Tuberculosis of the internal parts of the eye demands first on account of the accompanying symptoms local treatment with atropine, or when the tension is raised, pilocarpine. An eye which has been blinded by the disease, or is suffering from a serious tuberculous conglomerate, had best be enucleated. General treatment is the same as for tuberculous lesions elsewhere.

Letters to the Editors.

MEDICATION OF THE EYE IN CHILDREN.

LA FAYETTE, ALA., August 5, 1907.

To the Editors: I should like to put the following method of putting medicine in a child's eyes, which I recently learned and which I have never seen in the literature. After failing myself to put some medicine in a little boy's eye, which was paining him from a foreign body, the boy's mother told me that she could put the medicine in his eye. She did it in the following way: She put the boy's head in her lap with his back toward her, and told him to close his eye; she then poured the medicine on the inner canthus of the closed eye; when the child was told to open his eye the medicine ran in and anesthetized the eye sufficiently for him to have the foreign body removed. I have done a good deal of eye practice, but this method of putting medicine in a child's eyes was new to me.

B. F. REA, JR.

Proceedings of Societies.

AMERICAN SURGICAL ASSOCIATION.

Twenty-eighth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. DUDLEY P. ALLAN, of Cleveland, Ohio, in the Chair.

The Final Results of Operations for Carcinoma of the Breast.—Dr. WILLIAM S. HALSTED, of Baltimore, said that it was especially true of breast carcinoma that reliable statistics or misleading statistics could be presented, and that the pathologists' reports could be misconstrued. Excluding all but 65 cases in which only a partial operation had been done, there remained 232 operations performed at the Johns Hopkins Hospital. Eighty-nine patients were free from recurrence for from three to four years. The liability of bone carcinoma increased directly in its proximity to the original growth. This also held true for subcutaneous recurrences. Rarely did bone metastases extend below the knee or the elbow. There seemed to be a relationship between bone and subcutaneous tissues, as the growth appeared to permeate the bone from the skin. The centrifugal spread took place along the deep fascia. There was an uninterrupted connection from the original area to other areas, assisted by the deep fascia and the lymphatics. The results with axillary and cervical involvement were the ones which were wanted. He divided his cases into three groups: Group 1, in which the pectoral muscles and the axillary and cervical glands were removed; group 2, in which the pectoral muscles and later the axillary glands were removed; and group 3, in which the pectoral muscles were removed. The degree of involvement of the axilla could be divided into that of the lower, middle, and

upper glands and the subclavian glands. The results in 18 of these 232 he had been unable to obtain. In 64 cases the glandular involvement was not discovered, but in 16 there was recurrence. In 45 of the 64 there was a cure, and 51 patients were free from disease for three years. Of 110 cases with axillary involvement alone, 24½ per cent. had been cured. Of 44 patients with the glands of the neck and axilla involved, three were cured and one was free from disease for three years. Before accepting this statement that there was neck involvement, it must be established that carcinoma was present, and the proof of cure was sufficient only after three years. In one case the neck glands were removed at a second operation a year after the first. Eleven and a half years had elapsed and the patient was perfectly well. This was a very striking case. The diagnosis of cancer cysts was difficult, but should be made at the time of the operation, for the only patients saved were those in whom the diagnosis was made on the operating table. We must remove a large amount of skin and also a large amount of fascia. He recommended a supraclavicular operation.

Dr. J. COLLINS WARREN, of Boston, employed the report of the Massachusetts General Hospital, and not that of his own cases. It included the work of a number of operators. There were 376 cases, covering a period of ten years. He included the bad, good, and indifferent, with a varied technique.

Dr. ROBERT G. GREENOUGH, of Boston, read a paper in which the cases of death from intercurrent diseases had been thrown out. Sixty-four of the 364 patients were alive and well, with great freedom from disability. In one third of the 64 cases swelling was present in the palm of the hand. Seven died after three years without a sign of recurrence. These were included in the 71 successful cases. Fifteen died of the operation, principally of shock or pneumonia. Of the cases of adherence to the skin, 16 per cent. were cured; of those of adherence to the chest wall, 11 per cent.; of those with no adherence to the chest wall, 21 per cent. cured; of those with enlarged glands in the axilla, 14 per cent.; of those with no enlarged glands in the axilla, 29 per cent.; of those with palpable enlarged cervical glands, of 40 cases 2 were cured; of those with ulceration of the tumor, 6 per cent.

Dr. ARTHUR T. CABOT, of Boston, read a report of forty-two private cases. Nine of the patients were free from recurrence for from four to nineteen years; five others were living with a recurrence. The remaining twenty-eight had died of the disease—seventeen in one year, six in five years. Of nine living, the pectoral muscles had been removed from two. Of twenty-eight that died, the muscles had been removed from twelve. It would be seen that the cures had occurred in localized disease, and that when the lymphatic system was seriously involved the prognosis was bad.

Dr. JOHN C. MUNRO, of Boston, presented a preliminary report. Twenty-seven per cent. had been cured. Of the recurrences, four fifths had come on within two years. Disability following total extirpation was a minor affair. He had been unable to classify his cases, as the three year time limit did not expire until March 15, 1907.

Dr. WILLY MEYER, of New York, used the collective report of the German Hospital, but with a transient population like that of New York he had been unable to trace his cases. He had performed the operation 86 times since 1894, and all the patients except one were females. The majority of the cases occurred in the fifth decade of life. Eight out of 45 patients died later without metastases. He did not approve of cleaning out the supraclavicular space where there was no involvement. He tried to preserve the subscapular space. In three cases the axillary veins were removed with a cancerous mass. It facilitated the work without troublesome sequelae. Swelling of the arm had occurred

many times, but persisted in only one case. Postoperative neuralgia had always been transient. The extent of involvement stood in a direct relation to the prognosis. If the growth was in the upper two quadrants of the breast and attached to the skin, the supraclavicular glands were usually involved, and when the neck glands were involved they must be removed. The duration of the disease prior to the operation was of importance, and the degree of malignancy was a critical factor in determining the fate of the patient. In the face of the worst cases the surgeon should not hesitate. He should make an effort to keep out of the infected tissue by removing the muscles, sheaths, skin, and glands in one mass.

Dr. LEWIS S. PILCHER, of Brooklyn, wished to emphasize especially cases in which the neck glands were involved. No one disputed the gravity of the prognosis when the supraclavicular nodes were present, but that this condition was hopeless is opposed to clinical experience. Of ten cases where the supraclavicular nodes were involved, published seven years ago, three had been cured. Two of the patients were now living and one had died of heart disease.

Dr. ALBERT VANDER VEER, of Albany, N. Y., reported only cases from May 1, 1899, to May 1, 1906. He could see an improvement in the statistics of the past forty or forty-five years. In his early practice no attempt was made to remove the axillary glands. We owed much to the laboratory man. The value of an early and prompt diagnosis was now appreciated, and the family physician should give it his attention. The patient should have the benefit of an early examination by a competent surgeon. He reported 103 cases, with an immediate mortality of one, due to contracted kidney. He did not refuse to operate in any case, no matter how desperate. A good family history was very important, because there were degrees of malignancy. Fifty-one of his patients gave a family history of carcinoma. Seventeen died in three years, seventy lived over three years, and the remainder had not been heard from.

Dr. ALBERT J. OCHSNER, of Chicago, dealt with 164 cases of operation during the last fourteen years. With two exceptions, all the fifty-seven patients now living had been operated upon more than a year ago. Those who had lived three years or more numbered thirty-nine. Of the fifty-seven living, ten had had swelling or stiffness of the arm. Few of the patients in the advanced cases lived more than a year, and twenty-four died within a year. Five died of shock. Twenty died within two years.

Dr. NATHAN JACOBSON, of Syracuse, N. Y., said it was not always easy to determine the period of the growth, and it was of great importance, as the virulence was variable. Acute cases were usually scirrhous or medullary, and in one of his cases the axillary growth was greater than the mammary tumor. One patient died within six months after the disease was first discovered. He did a wide excision in one case of apparently but a few days' standing. Three months later the patient had a general recurrence, with nodes all over the body. There was nothing that had been discovered by the pathologist or surgeon that would indicate this virulence. Recurrence in the opposite breast was not uncommon, or in different organs of the body, simultaneously with recurrence in the original site. From a so called cancer cure hospital where a caustic paste was used he learned that every patient eventually died. There was no doubt that the removal of a recurrent growth might be followed by a cure. Whether sex was a factor was yet a question. Of three men who had cancer of the breast all had died. The supraclavicular space should not be invaded by the operator unless there was evidence of developing carcinoma there.

Dr. JOHN C. OLIVER, of Cincinnati, said it had been

impossible to follow all his operative cases, and he only presented cases with which he had been able to keep in touch up to April 1, 1907. These were among intelligent persons, and perhaps these statistics were better than his average. Thirty-four per cent. were alive and well three years after the operation. Thirty-three and a third per cent. upon whom the radical operation had been done were cured. In two cases of recurrence in the second breast the second operations were followed by cures five years later. Three patients had recurrence more than three years after the operation, and one was fatal fourteen years later. Twenty-one had known of the tumor a year or longer, and one twenty years. Eight had been conscious of a tumor for from six to twelve months. One could judge of the prognosis by the time the tumor had existed in the breast. Such information was not reliable unless gathered from the family physician. The function of the arm was good in most of the cases. Statistics indicated that the location had something to do with the prognosis. Involvement of the central and lower quadrants gave the better prognosis. In fourteen of thirty-eight cases the operation had been purely palliative, and, subtracting these, he had cured 57½ per cent. The character of the growth had much to do with the outcome, and a soft colloid growth was the hardest to combat. The hope for the future lay in a better prophylaxis and in a better knowledge of the nature of the disease.

Very Late Recurrences After Operations for Carcinoma of the Breast.—Dr. JOSEPH RANSOHOFF, of Cincinnati, said that Continental surgeons had followed their cases very closely and stated that 20 per cent. of the patients died after three years and even five years from recurrence. The average living over three years without recurrence was a little below 30 per cent. We could often foretell how long the improvement would continue. The public had been educated in the importance of an early operation. Of thirty-one ulcerated breast cancers, only about 6 per cent. had failed to end in death for more than three years. The radical operation, if properly done, eliminated much mortality, but could not forestall a recurrence. *Squirmes en cuirasse* seemed to occur more frequently after the radical operation. There was local recurrence in about 55 per cent. of the cases, in the axillary and cervical glands as well as in the skin. Local recurrence might take place after the third year, but it was very unusual. He had had one thirteen years after the primary operation. Abdominal and visceral recurrence after six years without local recurrence was not uncommon. Da Costa had mentioned a spinal cancer returning nine years after a breast operation by the elder Gross. In 1883 he removed from the breast of a patient a scirrhous carcinoma. In 1904 there was recurrence in the scar, and four months later a large tumor developed under the scar. She died shortly after. In thirty-seven cases there was a recurrence after six years, the majority of which were local, three being in the other breast. These might be primary growths when the predisposition existed. The explanation of this later recurrence was largely speculative. He believed that all so called recurrences in the scar were a misnomer, as a cancer was prone to follow in the cicatrices of these scars, but it might develop in healed gastric ulcer or a torn cervix.

The Law of Accelerating Risk Clinically Tested in Breast Cancer.—Dr. L. WELLS ANDREWS, of Chicago, said that this theory was not generally accepted, but is a hobby of his own. It should be easy to designate the spread of tumors. There might be an accelerating of geometrical ratio. In most tumors there was a tendency to spread centrifugally. There was no evidence of paritism. We had an analogy between the radiation of heat and energy and that of the growth, begin-

ning at the centre of the growth. The risk of the growth would diminish inversely to the square root of its duration. The ratio should be the cue of the time instead of the square. We needed a ratio of index. The time in which a growth doubled would be the ratio of index, and the prognosis bore a direct relation to this index.

(To be concluded.)

Book Notices.

The American Society of Tropical Medicine. Papers Read Before the Society and Published Under Its Auspices. Vol. II, 1905-1907.

This volume consists of twenty-one reprints of papers read before the society and published under its auspices during the past two years. The papers include the following: Fighting Plague in Japan, by Shibasaburo Kitasato; Mosquito Work in Relation to Yellow Fever on the Isthmus of Panama, by W. C. Gorgas; On Ornithodoros Moubate, a Disease Bearing African Tick, by F. C. Wellman; Some Clinical Notes Upon a Recent Epidemic of Dengue Fever, by Aristides Agramonte; The Study of Tropical Medicine, Its Aim, Its Method, and Its Scope, by F. C. Wellman; Malaria in the Tropics, by William C. Gorgas; Fatal Case of Blackwater Fever Supervening on Amebic Dysentery and Showing Malarial Parasites in the Blood, by F. C. Wellman; Beriberi on the Isthmus of Panama, by Ira A. Shimer; Notes on the Common Mosquitoes of Biñe and Bailundo Districts, Portuguese West Africa, by F. C. Wellman; Tropical Neurasthenia, by W. W. King; A Criticism of Some of the Theories Regarding the Ætiology of Goundou and Ainhum, by F. C. Wellman; Notes on the Vital Statistics of the Philippine Census of 1903, by Isaac W. Brewer; Some Medicinal Plants of Angola, with Observations on Their Use by Natives of the Province, by F. C. Wellman; Beriberi, by P. A. Lovering; Glossina Palpalis Wellmani, a New Tse-Tse Fly Which Disseminates Human Trypanosomiasis, by F. C. Wellman; The African Poison Test as Observed in the Portuguese Colony of Angola, West Africa, by F. C. Wellman; Some Ætiological Suggestions, by F. C. Wellman; Experimental Myiasis in Goats, with a Study of the Life Cycle of the Fly Used in the Experiment and a List of Some Similar Noxious Diptera, by F. C. Wellman; Bite of the Ombuta (Clotho Arietans, Gray) Treated with Potassium Permanganate, Recovery, by F. C. Wellman; Report on the Insanitary Condition of Various Towns in the Colony of Angola, by F. C. Wellman; and Studies in Tropical Medicine, by F. C. Wellman.

Attention should be directed particularly to the many papers by Dr. F. C. Wellman, of Benguela, Angola, West Africa. Dr. Wellman is stationed on the west coast of Africa, at about 13° south latitude, in a climate which is depressing and enervating, and yet he has proved a most industrious worker in the field of tropical medicine. His work is well worth the attention of those interested in the study of tropical diseases. The paper on Fighting Plague in Japan, by Professor Kitasato, gives a very good idea of the methods to be employed in endeavoring to rid a community of plague when that disease has once started and in preventing the beginning of an epidemic. Dr. Gorgas's papers on yellow fever and malaria are interesting, as is also that by Dr. Agramonte on dengue.

The Masters of Fate. The Power of the Will. By SOPHIA P. SHALER. New York: Duffield & Co., 1906. Pp. x-358.

This is an interesting contribution to the study of the power of the will over the body, of the relation of

intellectual and moral development to invalidism. There is sympathy in the description of the invalid's attitude toward life; and the chapters on weaknesses peculiar to man, on unpromising children, on nervous invalids, on the blind and the deaf, on retarded development, on accidental malformations, and on unclassified maladies are illustrated by biographical facts from the lives of well known persons. The chapters on the management of body and mind and the practical work of life are suggestive of what can be done to subordinate inherited or acquired physical feebleness.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Diseases of the Intestines and Peritonæum. By Prof. Dr. Hermann Nothnagel, Late Professor of Special Pathology and Therapy, University of Vienna. Edited, with Additions, by H. D. Rolleston, M. A., M. D., F. R. C. P., Physician to St. George's Hospital and to the Victoria Hospital for Children, London. Second Edition. Thoroughly Revised. Authorized Translation from the German, under the Editorial Supervision of Alfred Stengel, M. D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders Company, 1907.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending August 9, 1907:

Smallpox—United States.		Cases. Deaths.	
Places.	Date.		
Alaska—St. Michael	May 26	1	
			From vessel.
Illinois—Aurora	June 1 July 27	55	
Illinois—Mechanicsburg	Jan. 16-Aug. 1	19	
Iowa—Davenport	July 13	7	
Kentucky—Lexington	July 20-27	1	
Kentucky—Louisville	July 25-Aug. 1	1	
Louisiana—New Orleans	July 20-27	1	Imported
Missouri—St. Joseph	July 20-27	2	
New York—Buffalo	July 29	1	
Ohio—Hamilton	May 29-June 15	21	
Pennsylvania—Philadelphia	July 6-13	1	
Washington—Spokane	July 6-27	11	
Washington—Tacoma	July 13-29	1	Imported.
Wisconsin—Milwaukee	July 20-27	5	
8 cases from foreign.			
Brazil—Rio de Janeiro	June 16-July 7	7	2
Canada—Winnipeg	July 20-27	1	
China—Shanghai	June 15-22	17	deaths native.
Egypt—Cairo	June 3-July 8	1	2
Colombia—Barranquilla	July 24		Present.
India—Calcutta	June 15-22	12	
India—Madras	June 15-22	1	3
Luxemburg	June 22-July 6	1	
Madeira—Funchal	July 11-21	40	3
Mexico—Aguas Calientes	June 20-27	13	5
Russia—Libau	June 22-July 13	8	
Russia—Riga	July 13-20	130	12
Russia—Riga	July 6-13	6	
Spain—Barcelona	July 10-20	1	2
Spain—Valencia	July 13-21	12	3
Turkey—Bassorah	June 22-29		Present.
Turkey—Damascus	June 29-July 6		Present.
Yellow Fever—Foreign.			
Brazil—Rio de Janeiro	June 16-June 30	4	2
Colombia—Barranquilla	May 27	1	1
Cuba—Matanzas	Aug. 1-6	1	1
West Indies—Trinidad, Port au Prince	June 29-July 13	2	1
Spain			
India—Bombay	June 27-July 2	1	
India—Calcutta	June 15-22	1	44
India—Rangoon	June 22-29	1	
India—Kashmir	June 18-24	1,149	879
Plague—Foreign.			
Africa—King William's Town	June 15-22	1	1
Brazil—Rio de Janeiro	July 16-July 7	7	
China—Amoy	July 27		Present.
Egypt—Alexandria	July 11-18	12	8
Egypt—Port Said	July 11-18	1	4
Egypt—Bahra Province	July 11-18	1	1
Egypt—Bent Suez	July 11-18	2	
Formosa	June 22-29	86	77
India—General	June 8-17	21,647	19,934
India—Bombay	June 27-July 2	27	
India—Calcutta	June 15-22	25	
India—Rangoon	June 22-29	51	
Persia—Island of Baluchistan	June 19		Epidemic.
Persia—Mahammerah	June 19		Present.

Public Health and Marine Hospital Service:

List of Changes of Stations and Duties of Commissioned and Noncommissioned Officers of the Public Health and Marine Hospital Service, for the seven days ending August 7, 1907:

BAHRENBURG, L. P. H., Passed Assistant Surgeon. Granted leave of absence for seven days, from July 15, 1907, under paragraph 191, Service Regulations.

DELGADO—J. M., Acting Assistant Surgeon. Granted leave of absence for one day, in July, 1907, under paragraph 210, Service Regulations.

DUFFY, FRANCIS, Acting Assistant Surgeon. Granted leave of absence for six days, from August 5, 1907.

ELFERS, J. C., Acting Assistant Surgeon. Granted leave of absence for twenty days, from August 3, 1907.

HERRING, R. A., Assistant Surgeon. Granted leave of absence for one day, in July, 1907, under paragraph 191, Service Regulations.

HICKS, B. I., Acting Assistant Surgeon. Granted leave of absence for twelve days, from August 4, 1907.

MISKIMON, R. R., Pharmacist. Directed to proceed to Wilmington, N. C., reporting to the Medical Officer in Command for duty and assignment to quarters.

MULLEN, E. H., Assistant Surgeon. Relieved from duty at Perth Amboy Quarantine Station, and directed to proceed to Ellis Island for duty.

O'REILLY, W. J., Acting Assistant Surgeon. Granted leave of absence for twenty-six days, from August 12, 1907.

PETTUS, W. J., Assistant Surgeon General. Granted leave of absence for twenty-six days, from August 12, 1907.

PORTER, J. Y., Sanitary Inspector. Directed to proceed to Fernandina, Mayport, Carrabelle, and Santa Rosa, for special temporary duty, upon completion of which to rejoin his station at Key West, Fla.

ROBERTSON, H. McC., Assistant Surgeon. Granted leave of absence for five days, from July 25, 1907, under paragraph 191, Service Regulations.

SAVAGE, W. L., Acting Assistant Surgeon. Granted leave of absence for thirty days, from August 4, 1907.

SCHWARTZ, LOUIS, Acting Assistant Surgeon. Granted leave of absence for one day, in July, 1907, under paragraph 210, Service Regulations.

SIMONSON, G. T., Acting Assistant Surgeon. Granted leave of absence for ten days, from August 5, 1907.

WATERS, M. H., Pharmacist. Excused from duty without pay for seventeen days, from August 3, 1907.

WICKES, H. W., Passed Assistant Surgeon. Granted leave of absence for one month, from August 7, 1907.

WILSON, R. L., Passed Assistant Surgeon. Directed to proceed to Fountainebleau, Miss., for special temporary duty, upon completion of which to rejoin his station at New Orleans.

WETMORE, W. O., Acting Assistant Surgeon. Granted leave of absence for seven days, from July 7, 1907, under paragraph 210, Service Regulations.

WOLLENBURG, R. A. C., Assistant Surgeon. Relieved from duty at Detroit, Mich., and directed to proceed to Ellis Island for duty.

Appointments.

Dr. THEODORE W. BROWN, appointed acting assistant surgeon, to duty at Norfolk, Va.

ROBERT R. MISKIMON, of Washington, D. C., and C. ROY OTT, of Ohio, appointed pharmacists of the third class.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, on an assignment, August 1, 1907.

APPEL, A. H., Major and Deputy Surgeon General. Appointed member of an Army Retiring Board at Camp at Durango, Colo.

BRIDGES, C. C., Captain and Assistant Surgeon. Transferred to same and will proceed to San Francisco, Cal., and take temporary duty from that place about October 5, 1907, for the Philippine Islands. Upon arrival at

- Manilla, he will report in person to the commanding general, Philippines Division, for assignment to duty.
- BUCK, C. D., Captain and Assistant Surgeon. Assigned to duty as surgeon, U. S. Army transport *Cook*, sailing August 10, 1907, from San Francisco, Cal., to Manila, P. I. Upon arrival at Manila he will report in person to the commanding general, Philippines Division, for assignment to duty.
- COLLINS, C. C., Captain and Assistant Surgeon. Appointed member of a board of officers, to meet at Fort Riley, Kas., for the examination of such officers as may be ordered before it to determine their fitness for promotion.
- DUNCAN, W. A., First Lieutenant and Assistant Surgeon. Relieved from duty in the Philippines Division, to take effect at such time as will enable him to sail from Manila about October 15, 1907, for San Francisco, Cal., reporting on arrival by telegraph to the Adjutant General of the Army for further orders.
- FARR, C. W., Captain and Assistant Surgeon. Leave of absence extended two months.
- HALLORAN, P. S., Captain and Assistant Surgeon, Fort Leavenworth, Kas. Relieved from duty at the post designated after his name, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5, 1907, for the Philippine Islands. Upon arrival at Manila he will report in person to the commanding general, Philippines Division, for assignment to duty.
- KREBS, L. LER., First Lieutenant and Assistant Surgeon, Fort Hancock, N. J. Relieved from duty at the post designated after his name, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5, 1907, for the Philippine Islands. Upon arrival at Manila he will report in person to the commanding General, Philippines Division, for assignment to duty.
- PHALEN, J. M., First Lieutenant and Assistant Surgeon, Fort Logan H. Roots, Ark. Relieved from duty at the post designated after his name, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5, 1907, for the Philippine Islands. Upon arrival at Manila he will report in person to the commanding general, Philippines Division, for assignment to duty.
- PORTER, R. S., Captain and Assistant Surgeon. Relieved from duty in the Philippines Division, to take effect at such time as will enable him to sail from Manila about October 15, 1907, for San Francisco, Cal., reporting on arrival by telegraph to the Adjutant General of the Army for further orders.
- RICH, E. W., First Lieutenant and Assistant Surgeon. Reports for duty at target range, Williamsburg, Va. Left Camp John Smith, Jamestown Exposition, Va., same date.
- RUFENER, E. L., Captain and Assistant Surgeon, Columbus Barracks, Ohio. Relieved from duty at the post designated after his name, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5, 1907, for the Philippine Islands. Upon arrival at Manila he will report in person to the commanding general, Philippines Division, for assignment to duty.
- SCOTT, G. H., First Lieutenant and Assistant Surgeon. Appointed member of an Army Retiring Board, to meet at Denver, Colo.
- WADHAMS, S. M., Captain and Assistant Surgeon, Fort Slocum, N. Y. Relieved from duty at the post designated after his name, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5, 1907, for the Philippine Islands. Upon arrival at Manila he will report in person to the commanding general, Philippines Division, for assignment to duty.
- WHITMORE, E. R., First Lieutenant and Assistant Surgeon. Appointed member of a board of officers to meet at Fort Riley, Kas., for the examination of such officers as may be ordered before it to determine their fitness for promotion.
- WHITMORE, E. R., First Lieutenant and Assistant Surgeon, Fort Riley, Kas. Relieved from duty at the post designated after his name, and will proceed to San Francisco, Cal., and take transport to sail from that place about October 5, 1907, for the Philippine Islands. Upon arrival at Manila he will report in person to the commanding general, Philippines Division, for assignment to duty.
- WINTER, F. A., Major and Surgeon. Granted twenty days' leave of absence.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending August 10, 1907:

(Orders issued by commanding general, Army of Cuban Pacification.)

CLIFFORD, A. B., Assistant Surgeon. Ordered to the *Maryland*.

ENGLANDER, S., Pharmacist. Detached from the naval hospital, navy yard, Mare Island, Cal.

MEARS, J. B., Assistant Surgeon. Granted leave for one month, under exceptional circumstances, with permission to visit the United States, to take effect about July 30.

MELHORN, K. C., and BIELLO, J. A., Acting Assistant Surgeons. Appointed acting assistant surgeons, from August 2, 1907.

REYNOLDS, C. E., Pharmacist. Detached from the naval medical supply depot, navy yard, Mare Island, Cal., and ordered to the naval medical school hospital, Washington, D. C.

RUGE, O. G., Pharmacist. Detached from the naval medical school hospital, Washington, D. C., and ordered to the naval medical supply depot, navy yard, Mare Island, Cal.

Births, Marriages, and Deaths.

Married.

GILES—GEARY.—In Philadelphia, on Wednesday, August 7th, Dr. William H. Giles and Miss Adelaide Geary.

GILLESPIE—BRECHEMIN.—In Westminster, London, on Saturday, July 20th, Dr. David Holliday Gillespie and Miss Lillian Brechemin.

McNAMARA—COYNE.—In Denver, Colorado, Dr. John McNamara and Miss Mamie Coyne.

SICKLES—MITCHELL.—In Wilmington, Delaware, on Tuesday, August 6th, Dr. Norman J. Sickles and Miss Valeria M. Mitchell.

STEVENS—HOYT.—In Concord, New Hampshire, on Wednesday, June 26th, Mr. George W. Stevens and Miss Dr. Jane Elizabeth Hoyt.

TERRILL—ORR.—In Clayton, Missouri, on Wednesday, July 31st, Dr. Samuel J. Terrill and Miss Mertie Orr.

Died.

BANKS.—In Millintown, Pennsylvania, on Saturday, August 3rd, Dr. Lucien Banks, aged sixty-six years.

BATEMAN.—In Easton, Maryland, on Saturday, August 3rd, Dr. James M. H. Bateman, aged sixty-three years.

BROOKS.—In Philadelphia, on Monday, August 5th, Dr. Joseph W. Brooks, aged fifty-one years.

BURNS.—In Cuero, Texas, on Tuesday, July 30th, Dr. Columbus Burns.

DALE.—In Oshkosh, Wisconsin, on Tuesday, July 30th, Dr. Harvey B. Dale, aged forty-two years.

GOLDSMITH.—In St. Louis, on Tuesday, July 30th, Dr. Adolph Goldsmith, aged forty-eight years.

HODGSON.—In East Berlin, Connecticut, on Friday, August 2nd, Mrs. Jeanette Louise Hodgson, wife of Dr. T. C. Hodgson.

LEWIS.—In Springfield, Missouri, on Thursday, August 1st, Dr. G. W. Lewis, aged fifty-six years.

SAPP.—In Cleveland, Ohio, on Sunday, August 4th, Dr. Leo W. Sapp.

TAYLOR.—In Elgin, Illinois, on Tuesday, August 6th, Dr. Leonard S. Taylor, aged forty years.

TOWNSEND.—In Billings, Montana, on Tuesday, July 30th, Dr. F. B. Townsend, of Camden, N. J., aged seventy-two years.

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THE QUESTIONABLE INFLUENCE OF SO CALLED DIATHETIC CONDITIONS IN DISEASES OF THROAT AND NOSE IN CHILDREN.*

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It will be observed that I have changed the title given me by the secretary, which reads Certain Diathetic Conditions in Their Relation to Diseases of the Throat and Nose. I take it that I was invited to read a paper before this body, in order to bring into discussion the views and observations of one engaged in another line of work than the members of the society and who possibly might see things from a different view point, so that my paper, to be of value, must be essentially a personal one.

In twenty years of work among children of all classes, in hospital, in dispensary, in private among the poor, among the well to do, and the wealthy, naturally certain impressions relating to diseased conditions must have been made. The most frequent disorder associated with the nose and throat is enlargement of the tonsils and the presence of adenoids in the nasopharyngeal vault. So great an etiological influence do these conditions exert, not only over other diseases of the nose and throat, but over the entire organism that I will devote my attention to them alone. This paper is as I mentioned before a record of personal observations.

Observation I.—The frequency with which these conditions are seen.

Observation II.—The distribution of the disorder geographically. The patients are found in large cities, small cities, country villages, in the open country, practically an equal number of children being affected to the proportion of the population regardless of their residence.

Observation III.—The distribution of the disorder socially. Hypertrophied tonsils and adenoids are found among all classes, among the very poor and the very rich and those occupying intermediate positions, among those who live well and those who live wretchedly.

Observation IV.—The distribution of the conditions among different physical types. The strong and robust, in the weakly and in those occupying intermediate position, in delicate and resistance show the growth with practically equal frequency.

An erroneous impression is to the effect that

strong, otherwise well, children do not have adenoids. Some of my patients whom I consider my best specimens of childhood have undergone operations for enlarged tonsils and adenoids. Such a distribution of a disorder as this, it would seem to me rather negatives the influence of any so called diathetic state as being a predisposing factor.

Diathesis I understand as meaning "a predisposition toward" a disease. It has not been my observation that any special type of constitutions shows any marked tendency toward the development of adenoids or enlarged tonsils. Instead of attributing diseased states of this and other kinds to the vague term of diathesis, it would seem best to try and discover a more rational explanation.

If these diseased conditions occur among all classes of people, among the poor and the rich, in the city, in the country, among the well and the delicate, would it not be wise to look for a causative agent in some error in the life of all children, for if it is not based upon a physical defect, it must be due to some error in the life of the individual. What is there then that nearly all infants, regardless of their social position, place of residence or manner of life, do that they should not do? A great majority of the human race, during the first years of their lives, and many for some time afterward, are habitual suckers, in the use of the thumb, the comfort, the pacifier and other objects less elegant. My attention was first called to this phase of the matter from noting that the early cases of adenoids, those that were pronounced under the first year, were habitual suckers of the thumb or pacifier. Certain it is that infants and children who indulge in the habit to a considerable extent, show more pharyngeal and faucial congestion than those who are free from the habit. It can be readily appreciated that the vacuum produced through the process of sucking on long objects which extend deeply into the mouth has a tendency to produce hyperemia and stases in the delicate bloodvessels of the mucous membrane of the parts. Further, the postpharyngeal space in an infant is a very narrow slit and in many, particularly with high arched palates, it may be readily understood how the soft palate rests against the posterior wall, and by friction, tends to produce an irritation, congestion, and consequent hypertrophy of the mucous glands and an enlargement of the third tonsil. Whether this attempt at an explanation is of value or not, it is certain that habitual suckers had adenoids more frequently and earlier in life than those that did not have the habit.

What other one condition is there which occurs in

* Read before the New York Academy of Medicine, Laryngological and Otolaryngeal Society, May 21, 1907.

influence on the development of the growths? It is the so called common cold, which means a localized congestion and inflammation. All children are subject to colds; those who suffer most are the ones who have adenoids most frequently. Not only are the colds found in those who have adenoids, but there is a history of colds preceding signs pointing to the development of the growth. The adenoids return with greater frequency in those who take cold easily, who develop the colds upon the slightest provocation.

What has more to do with the frequent taking of cold in children than any other one factor? Years ago I observed and continued observation has proved that the sugar eating children, those who partook daily of a great deal of sugar, were particularly subject to colds and that by removing sugar from the diet the tendency would be markedly relieved. If there is any error in the daily life of runabouts that is practised by all, regardless of social standing, place of residence, etc., it is the excessive sugar eating. This can readily be appreciated when it is realized how readily the appetite for sugar is acquired, how plentiful it is and in what varied ways it can be taken by the child. In a paper read before the American Paediatric Society at Washington recently I reported seventy-eight cases of illnesses in which there was an excess of sugar taking or in whom there was a proved sugar incapacity. In thirty of these there was an involvement of the respiratory tract. Cane sugar may be toxic to every child if it is given in sufficiently large amount. The capacity for taking care of sugar without harm varies a great deal in different individuals. It has been found that the sugar susceptibles, those who have but a small sugar capacity, are usually of gouty or rheumatic inheritance, and here the proposed so called diathesis may claim a part, as it is this type of child who takes cold most readily. By reducing or discarding the use of free sugar in this type and in others so predisposed we may after the second year do away with many of the colds and consequently do away with the tendency toward growth of adenoid vegetations.

In regard to the "scrofulous diathesis" and "the strumous diathesis," we hear little of them at the present time, the discovery of the tubercle bacillus having relegated them to their position, which they occupy with thousands of other medical misconceptions. So far as lymphatism or the so called lymphatic diathesis is concerned it is to be remembered that in all children there is a tendency to hyperplasia of the lymph glands throughout the body, both internal and external. The lymphatic system furnishes in children much less resistance to irritations and infections than is the case with adults, which explains the greater frequency and involvement of lymph structures in children as is expressed in the frequent adenitis, acute, suppurative and tuberculous, encountered in the young.

Some children show this lack of resistance more than others, as is to be expected, so that the condition resolves itself into one of degree. In comparison with adults all children have so called lymphatism. To say that a child suffers from lymphatism only when the condition is marked might be compared to calling only the severe cases of diph-

theria such, the mild cases being ignored or called by another name.

To my mind the three factors, the sucking habit, the free use of cane sugar, inducing colds, and the tendency to lymphoid tissue involvement, a condition peculiar to all children, contribute largely to the production of adenoids. The ætiological relation of these growths to other disorders of the upper respiratory tract it is not in my province to discuss before a body of rhinologists.

132 WEST EIGHTY-FIRST STREET.

THE FUTURE OF THE PROCTOLOGIST.*

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The regulations of our society require that the president shall deliver an address at the annual meeting following his election. As no time limit is prescribed, I shall take pity on you and make my remarks as brief as possible.

It is my intention to make out a few suggestions for the good of the order, because in the first place the American Proctological Society is already organized, and is running smoothly and in a thoroughly practical, satisfactory, and scientific manner; and, secondly, because the suggestions offered by the president are usually referred to the Committee on Interment, which promptly disposes of them.

I am fully convinced that our future depends mainly upon keeping our membership within its present limitations and insisting that each candidate be qualified by not less than five years' active work as a proctologist before he has the right to apply for membership. We assemble each year in order to obtain from reliable sources advanced knowledge on the various subjects pertaining to proctology; in other words, we come here to take a postgraduate course in this department of medicine.

Thus far the society has been preeminently successful, because the various members have not only read original and instructive papers at our meetings, but have also taken an active part in all the discussions; and as a result each one of us has gained a vast amount of otherwise unobtainable useful information.

We are busy men, live in different parts of the country, distances are great, travelling expenses heavy, and for these reasons the more active members will not attend the meetings, unless they continue to feel that they are amply repaid in knowledge for the outlay in time and money. We cannot afford, because of our varied duties to devote more time than two days to this, our favorite medical society. If we admit to our membership the general surgeon, who at best is but slightly interested in proctology, and the budding rectal specialist, who has but recently been made a teacher in some medical college, or who has received an appointment to some hospital, or has taken a few weeks' postgraduate course—it will not be long until we begin to go backwards instead of forwards.

The older and more busy members under such conditions will not give up their time and come to

* The president's address read before the American Proctological Society, Atlantic City, N. J., June 3, 1907.

the annual meetings, to listen to simple papers on rectal topics, which would impart information to a body of general practitioners, but which would greatly lengthen our programme, and add nothing to the knowledge of the experienced proctologist.

Again, every proctologist who desires to become a member of the American Proctological Society should be made to feel it is no easy matter to gain entrance to this body, but that he must first win his spurs in active service in this important field of medicine before his name will be considered.

I am fully aware of the value of these meetings to the inexperienced proctologist, and while I feel strongly about not admitting him to membership until he has proved his mettle, I am of the opinion that we should extend to him a cordial invitation to attend all meetings, and take part in the discussions, if he so desires.

Having finished with my suggestions pertaining to the Proctological Society, I cannot at this time refrain from expressing my views as to some of the requirements of the coming rectal specialist. The future proctologist must be a man of a much higher character than the so called rectal specialist of the past. He of the bygone days as a general rule was nothing more than an ignorant, irresponsible, itinerant pile doctor, having no professional standing in the community. His stock in trade as a rectal specialist consisted solely in the knowledge of a certain questionable method of treating piles by injection. He obtained by advertisement many victims whom he promptly injected; and also to other would be quacks he sold a knowledge of his secret method of treatment for large sums of money.

The proctologist of the future, in order to meet the necessary requirements, must be clever, industrious, and persistent; he must have a thorough literary and medical education, a hospital training, and a connection with some institution supplying sufficient clinical and hospital facilities to enable him to continually improve his technique and carry out his researches in a scientific and practical manner; for in this branch of medicine, as in any other, it is quite impossible for any physician to become an expert unless he has a reasonable amount of clinical material at his command.

The future proctologist must educate the profession and the laity also in order that the constantly increasing improvements in the methods of examination, diagnosis, and treatment of diseases of the rectum and anus may be more fully understood and appreciated.

It is his duty to point out that the older methods of examination are of little value, and should be discarded; that these methods are extremely painful and can be relied upon only to reveal disease in the lower three inches of the rectum; while by means of our more modern methods the diseases of the sigmoid flexure and rectum can be diagnosed quickly, positively, and with but little discomfort to the patient.

He should also call attention to the fact that chronic catarrh, chronic constipation, chronic diarrhoea, and many other affections formerly improperly diagnosed, are to-day easily recognized and successfully handled through our greater knowledge, improved technique, and by means of the in-

telligent use of the instruments now at our disposal.

Again, he should help to eradicate and correct the erroneous teachings of our medical forefathers, for generations past, in regard to the methods of dealing with certain rectal affections.

It was the custom of practically all of the older writers to teach that, if a fistula was cured and the discharge arrested, the consequence of this stoppage of what was considered a necessary drainage of effete matter would cause the patient to forthwith develop a serious lung affection, or some annoying skin disease. Even in our time, there are many general surgeons who refuse to operate upon persons suffering from tuberculous fistulæ, because they fear that lung complications might result from the healing of the local process. It devolves upon the proctologist to demonstrate by his work the absurdity of such teachings, and point out the fact that deaths following shortly after tuberculous fistulæ operations are, in most instances, due to the aggravation of the condition of an already much diseased lung; or to the onset of a tuberculous pneumonia induced by the administration of ether during the operation. Evidence in support of this view is found in the fact that such complications rarely follow operative procedures, when chloroform or local anæsthesia has been employed.

Again, it should be made plain that it is the patient's condition which should determine whether or not he shall submit to an operation; and not a consideration of the fact whether he be suffering from a tuberculous sinus, or a simple sinus complicated by phthisis; and, further, it should be emphasized that when the patient has sufficient vitality to enable his fistula to heal, his general condition will rapidly improve, for the reason that Nature has now but one destructive process to combat, while formerly she had two.

Nearly all of the old and many of the recent authorities on general surgery have laid so much stress upon the danger of incontinence following fistula operations that they have frightened the profession at large, and through them the laity, to such an extent that many persons have refused to be operated upon for fear of losing control of the sphincter. It is the duty of the proctologist to show that this fear is erroneous and that incontinence rarely or never occurs following these operations, when the muscle is cut at a right angle, the wound carefully dressed each day, and the skin and mucosa kept trimmed off and prevented from growing into the cut on either side, thus forming a sulcus, which would separate the ends of the divided muscle.

It also devolves upon the proctologist of the future to bring the masses and a considerable proportion of our profession to a realization of the fact that it is no longer necessary to go to the office of some quack in order to obtain relief from hæmorrhoids, fissures, small ulcers, polyps, diminutive fistulæ, and the other minor affections which constitute the majority of anorectal diseases, for the reason that they can now be successfully treated and operated upon in the office, home of the patient, or in the hospital, with but little discomfort or delay from business, and without general anæsthesia or the necessity of being confined for a considerable time in the hospital.

The fact should be emphasized that many of the discomforts, nervous phenomena, and reflex disturbances, not infrequently attributed to other causes are due solely or in part to such diseases as displacement of the coccyx, constipation, and fecal impaction, chronic catarrhal and ulcerative conditions of the colon and rectum, tumors, hæmorrhoids, fissures, and other affections which act as a constant source of irritation, interfere with the circulation, press upon the nerves, keep up a foul discharge, or continually subject the patient to copræmia or poisoning from the intestinal canal.

Notwithstanding the grand work that has already been accomplished by the members of this society, individually and collectively, in pointing out the great advances which have been made in our special field of medicine, there still remains an unmeasurable amount of work to be done by the proctologist of the future, before the profession and the public at large are made to realize the great benefits which are to be derived from the new school of proctology founded by the American Proctological Society.

In conclusion I wish to say that if those who follow in our footsteps are as energetic and as loyal to the cause as are the individual members of this society, I prophesy that the future of the proctologist will indeed be a most enviable one.

43 WEST FIFTY-SECOND STREET.

DIFFERENTIAL DIAGNOSIS OF IMBECILITY AND DEMENTIA PRÆCOX.*

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My part in this discussion is confined to the distinction between imbecility and certain types of dementia præcox. If we limit ourselves to the more exact definition of imbecility, *i. e.*, lighter grades of arrested mental development, the differential diagnosis can be summed up in a few words. In imbecility there is an arrested mental development either congenital or acquired. The child is unable to acquire school knowledge, judgment fails to develop and remains immature. The power of perception and comprehension is limited, and the patient is unable to get a good and comprehensive grasp of his surroundings. The content of thought remains narrow and limited. In the emotional life the growth of natural feelings is blunted, and the imbecile lacks the usual affection for parents and playmates and never acquires a permanent and lasting interest in things. Feelings, if present, are apt to be superficial and transient. Again will power is deficient and hence imbeciles are erratic in conduct. They vacillate easily from one purpose to another and are unfit for employment. Often the actions are characteristically simple, childish, and purposeless.

Suppose now you are brought in contact with such an originally defective individual who has passed puberty and reached the age of predilection for dementia præcox; *i. e.*, from fifteen to thirty years; in the absence of a reliable history of the case, the question arises, is this patient suffering from dementia præcox and now in a state of partial deterioration; will his

mental condition become progressively worse, or will he remain permanently in his present condition? In the event that the case is of some years standing and you are not aware of the history of the disease, it may not be easy to answer this question, because the end stages of deterioration of dementia præcox may not be unlike the original defects of imbecility. This difficulty becomes apparent particularly in those insidiously developing cases of dementia præcox that never present hallucinations or delusions, but from the onset exhibit only a simple progressive deterioration of the mental life. The following is a sample of this type of dementia præcox.

CASE I.—The patient was an industrious and careful housewife, and a thoughtful mother of three young children, also maintaining an active interest in social and church life. Without any evident cause, a gradual change of disposition came over her at the age of twenty-four. At first she lost interest in her church relations, ceased to attend religious services, and was indifferent to the religious welfare of her children. Next she began to neglect her friends. She refused to see callers, and then avoided her closest companions. Affairs at home became changed; the house, formerly a model of neatness, showed marks of neglect and untidiness; the children received less attention, garments went unattended, and the service suffered for the want of careful supervision. Affection for the husband and children began to wane, and the mother would not respond to caresses, but kept more and more alone and apart from the family. She would avoid conversation, ceased altogether to read, or employ her mind in any way. In the course of one year, the more striking signs of dementia had appeared; it became evident that the patient's memory had failed, and there was an increasing narrowness in her store of ideas, as well as a lack of energy for any sort of work.

In such cases the differentiation depends chiefly on the fact that in dementia præcox the patients have acquired and retained school knowledge, while the imbecile has been able to acquire to only a moderate degree and hence is not able to recite school knowledge. Examples in arithmetic, or an examination in geography and grammar, and also in history will readily settle this question. Furthermore, the imbecile does not present the mannerisms of the præcox case. He may be and often is incoördinate in his movements, but natural movements are not peculiarly modified, as in dementia præcox.

If all cases of imbecility were as simple as the description here given might indicate, the difficulty of distinctive diagnosis would rest here, but I find that from 5 to 7 per cent. of my cases of dementia præcox develop on an imbecile basis; that is, 5 to 7 per cent. of dementia præcox cases were imbeciles before they developed the disease of dementia præcox. In such cases the determination of where imbecility ends and dementia præcox begins is often difficult. The difficulty is still further complicated by the fact that imbeciles often present brief exacerbations, the symptoms of which are quite like those of dementia præcox.

Where dementia præcox develops on an imbecile basis the imbecile person begins to display the preliminary depression so common to dementia præcox. This is usually characterized by depreciatory hallucinations and delusions, and conduct in accord with such symptoms, but in addition to this there is present the underlying element of progressive mental

deterioration involving more especially the feelings. His narrow interests become still more limited and the slight affection for friends and relatives still more shallow. Although he may formerly have been somewhat interested in amusements or capable of employment, even this little interest and energy wanes. The store of ideas and the realm of thought also becomes impaired, and these patients have less to say than formerly. Although the hallucinations and delusions may vanish in a short period the fundamental symptoms of deterioration progress.

Now the mere exacerbations in imbecility are of a different nature. The imbecile without much warning begins to express hallucinations and illusions of hearing and sight. Although these sense deceptions may be of a pleasing nature, they are much more apt to be depressive and accompanied by despondency and particularly fear. At the same time in connection with these hallucinations and illusions the patients very often develop delusions of reference and persecution centered especially about their immediate environment. They overhear suspicious remarks, see members of the family whispering together. They begin to feel that they are not wanted at home, and that plans are being made to dispose of them. The policeman in their locality is acting suspiciously, and when out at night they observe strange circumstances which greatly trouble them. They also regularly become irritable, slam doors, throw things about, mutter aloud to themselves, suddenly jump up and leave the table, or stamp their feet on the floor. Acts of violence are not infrequent. These periods of exacerbation in imbecility are usually of short duration and do not leave the patient in a condition of greater mental impairment.

Such episodes occurring in imbecility may be exceedingly difficult to distinguish from dementia præcox. The distinction depends chiefly upon two factors: first, the comparatively brief duration of the active crazy symptoms, that is, rarely over a few days or weeks; and in the second place upon the fact that emotional deterioration, the characteristic symptom of dementia præcox is lacking. The imbecile patient comes out of the crazy episode no worse than when the symptoms developed.

If one uses the term imbecility in a broader sense and includes certain of the constitutional psychopathic states, and of the psychopathic personalities, there are several groups of cases which may appear like cases of dementia præcox. I refer to cases of constitutional despondency, constitutional excitement, and the so called unstable personalities.

In the first place among the constitutional psychopathic states, we encounter the cases of constitutional despondency. Such patients are known to most of you and need but a brief description. These persons about the time of puberty or a little later begin to develop a chronic state of despondency. All of the experiences of life become tinged with a feeling of sadness. Some call them "disgruntled cranks." They fatigue easily, and when set at work they are soon compelled to give up because of headache, backache, sleeplessness, or a general feeling of weariness. These symptoms render steady work impossible, although the patients are fully capable intellectually. Numerous

other hypochondriacal complaints occupy the mind and distract the attention from any consistent application. These individuals are always oppressed with a feeling of sadness and sorrow. There is nothing bright and cheerful in the world for them. They soon become wholly discouraged and belittle their position and usefulness in the world. They worry over all sorts of things; mishaps of the past, fears for the future, their increasing incapacity and impending death. Occasionally various sexual ideas occupy prominent positions in their daily lives.

This distressing picture, developing as it does early in life, may be mistaken for the few cases of dementia præcox that show a simple hypochondriacal dementia, a condition which is characterized by an increasing feeling of physical and mental incapacity, accompanied by all sorts of morbid sensations, which finally compel the patient to desist from any kind of activity. Accompanying this hypochondriacal state there develops an emotional deterioration in the form of emotional indifference and apathy. The other elements of deterioration common to dementia præcox do not occur until later; namely, the deterioration in volitional energy, in the store of ideas, and in judgment.

In distinguishing between these cases of dementia præcox and those of constitutional despondency one needs bear in mind but one important distinctive point; namely, the absence of deterioration of any sort in the cases of constitutional despondency. These patients do not become apathetic and indifferent.

Another group of cases in the constitutional psychopathic states, liable to be mistaken for dementia præcox, are those of constitutional excitement. These persons, quite often encountered at large, are known by their excessive busyness and lack of stability. Intellectually they are fairly well endowed and they have a fairly good memory, but are flighty and superficial. They are in a constant state of excessive activity; are always moving from place to place and changing employment without good reason, devising various schemes and taking up new ventures which are never carried out, but are soon laid aside for new ones. They are thoughtless, vacillate in their judgment, and are hasty and superficial. They are especially susceptible to their sexual impulses and often indulge in excesses, both venereal and alcoholic. They are also apt to be boastful and loquacious, talking much of their own capabilities and accomplishments. They are of a happy frame of mind, but also irritable, especially whenever interfered with or reprimanded.

Such tendencies appearing as they usually do in early manhood may be confounded with dementia præcox, especially those cases of dementia præcox that show at the onset moderate emotional elation, flightiness, and some pressure of activity. Here also the chief point of distinction is the absence of any evidence of genuine deterioration in constitutional excitement. This constitutional excitement instead becomes a permanent personal peculiarity which is maintained with as much fervor at thirty-five as it is at the onset, and there is lacking the increasing apathy so characteristic of dementia præcox. The præcox case in unfolding his schemes soon displays grave defects of judgment and gen-

ine delusions, which are not common to the constitutionally excited person.

Finally the third type of originally defective individuals, which may be misjudged as dementia præcox are the unstable. Every community is afflicted with some of these persons. They are particularly characterized by a weakness of will. While they often astonish one with their ability to comprehend rapidly, to memorize, and express themselves fluently, and are keen observers, they lack altogether energy for continuous and satisfactory work. They are vivacious and enthusiastic, but they tire quickly and, therefore, never finish anything consistently. Even at school they are often considered talented, but their instability is so great that they soon come to be regarded as bright pupils who could learn if they would only apply themselves. Their higher intellectual development may be immature or onesided. They are wholly unable to respond seriously to serious matters; on the other hand, their interests are apt to center in frivolous pleasures. They are never thorough and in earnest. The same instability exists in their emotional life; at times they are hopeful, elated, and confident, and at others pessimistic, dejected, and lifeless. They are quickly stirred to enthusiasm and just as quickly rendered spiritless. They are easily dissatisfied and upon slight provocation become embittered toward their environment. Selfishness dominates their impulses, so that their own welfare is their chief concern. Hence, in spite of the fact that they do little or nothing for their own support, they demand for themselves comforts and luxuries. They are not embarrassed at being supported by others, and believe their conduct justified, even though they are careless and lavish in the expenditure of other's money. If forced to employ themselves they are always changing from one place to another in hopes of finding something easier. They are apt to allow trivial affairs to interfere with their obligations; they invent excuses for tardiness and for leaving work early. These persons also are very apt to become hypochondriacal, complaining of headache, feelings of faintness, etc., which are especially liable to appear as soon as they begin to work. At such times they are apt to become concerned about their health. They are an easy prey to temptation, and in bad associations soon indulge in excesses. Not infrequently they commit criminal acts.

The gradual development of these symptoms of the unstable personality, particularly during youth when the more serious duties of life are undertaken, give reason for suspecting dementia præcox. Again here the essential distinctive point rests upon the appearance of signs of dementia. The instability of these weakminded persons does lead to a life of idleness and to the abandonment of productive employment, but it never results in dementia. Their condition does not become worse, but continues practically the same as during youth. They do not become apathetic and dull like the præcox patient, but are simply afraid of work. The præcox patient becomes apathetic and loses interest in pleasures as well as in the more serious affairs of life, but the unstable person enjoys and pursues pleasure to the exclusion of profitable employment. Although their judgment is superficial, they never develop delusions or hallucinations as the præcox patient. Fur-

thermore, these unstable patients may be weak willed, yet they are always natural in manner and never show the manneristic conduct of the dementia præcox patients, such as grimacing, winking, walking, or talking peculiarly, or performing other movements in an unnatural manner.

THE TWO FORMS OF GASTRODUODENAL DILATATION.

The Transverse Stomach and the Oblique Stomach.

BY BYRON ROBINSON, B. S., M. D.,
Chicago.

For a dozen years I have endeavored to demonstrate that the chief gastric dilatation is *gastroduodenal dilatation*. In hundreds of autopsies I have demonstrated that there are two forms of gastroduodenal dilatation, viz., one, that of the transverse stomach and the other that of the oblique stomach. The two forms which the stomach assumes in gastroduodenal dilatation depend on the relative dimensions of the pylorus. The oblique form of the stomach in gastroduodenal dilatation is the one with

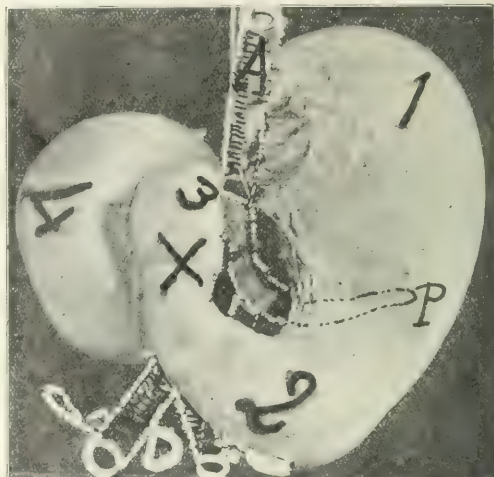


FIG. 1.—*Oblique Stomach.* This illustration is from a specimen removed from the body with adjacent structures, distended with air and allowed to dry. A, aorta; P, tail of pancreas, the hook draws the aorta to one side. D presents the duodenum, (4) where it should pass between the aorta and superior mesenteric artery, dorsal to the distal end of the stomach. 1, gastric functions. 2, distal end of stomach. The cross X is the dilated pylorus. 3, presents a marked dilatation immediately distal to the pylorus. 4, is the excessively dilated duodenum.

proportional dilatation of the pyloric ring. Gastropia is practically equivalent to the terms atonia gastrica, gastric ptosis, gastric motor insufficiency, and dilatation. Gastroduodenal dilatation is due to the compression of the superior mesenteric artery vein and nerve on the transverse duodenum, and is a secondary process, or rather, coincident of splanchnoptosis.

I began the systematic study of gastroduodenal dilatation in 1893, and published my main views in 1900. However, Dr. Albrecht published his views in 1899, preceding me by a few months.

Gastroduodenal dilatation is of paramount im-

portance to physicians, as its existence is frequent in daily practice. In the embryo the stomach is vertical and the child is practically born with a vertical stomach, which may persist in adult life. The rotation of the stomach with hepatic atrophy may induce the stomach to lie in a more horizontal position. Gastroduodenal dilatation is due to compression of the superior mesenteric vessels on the duodenum; however, the resulting form of the stomach depends on the condition, resistance, or patency of the pyloric ring.

I. Gastroduodenal Dilatation with Limited Pyloric Dilatation and Horizontal Position of the Stomach.

—In subjects in whom the pylorus dilates to a limited degree, in fact may present less lumen than usual, the stomach suffers the chief dilatation (see Fig. 1). The cause of this gastroduodenal dilatation is the compression of the mesenteric vessel on the duodenum. The reason that the stomach persists in an oblique position is due to the fact that the pylorus dilates in proportion to the stomach. Hence this form of stomach, practically amply draining itself, generally requires no surgery. If surgery be applied it should be duodenoenterostomy, not gastroenterostomy. However, the duodenum shares in the dilatation from physical necessity, since all such subjects suffer from splanchnoptosia, and gastroduodenal dilatation is secondary to splanchnoptosia. The stomach gradually dilates, moves distalward, and assumes a horizontal position (see Fig. 2). It is evident that in the progress of the splanchnoptosia—i. e., progressive gastroduodenal dilatation, the horizontal stomach will pass more and more distalward, increasing the difficulty of evacuating the stomach because the pylorus does not dilate in proportion to the stomach. The horizontal stomach offers the most defective gastroduodenal drainage. This condition may be remedied by duodenoenterostomy and gastric plication, all in order to secure gastric drainage. It must be remembered that gastroduodenal dilatation is absolutely secondary, coincident with splanchnoptosia. Gastroenterostomy in such a condition would probably be attended by immediate relief, but by remote gastrointestinal and neurotic disturbance, indigestion, malnutrition. The dilating stomach gradually becomes evacuated with greater difficulty, because in the gradual progress of the splanchnoptosia the mesenteric vessels clamp firmer and firmer the transverse duodenum.

Gastroduodenal dilatation with limited or no dilatation of the pylorus frequently requires medical, mechanical, or surgical aid, a duodenoenterostomy, which would exclude from faecal circulation the segment of the duodenum only clamped by the mesenteric vessels.

II. Gastroduodenal Dilatation with Proportionate Dilatation of the Pyloric Ring and Vertical or Oblique Position of the Stomach.

—In subjects in whom the pylorus dilates in proportion to the stomach and duodenum, the stomach may remain in the vertical or oblique position (see Fig. 3), since the stomach contents are drained or evacuated with facility into the duodenum and the main obstruction exists in the duodenum, not at the pylorus, where the mesenteric vessels cross, and operative procedure is not generally demanded.

Subjects with gastroduodenal dilatation with proportionate pylorus dilatation may possess an oblique or vertical stomach (see Fig. 3). As a general proposition it may be asserted that the pylorus is practically a fixed organ. It may be said to lie about one inch to the right of the median line and on a level with the first lumbar vertebra. It is fixed by the hepatogastroduodenal ligaments, hence is influenced by hepatic position.

However, in splanchnoptosia with pronounced

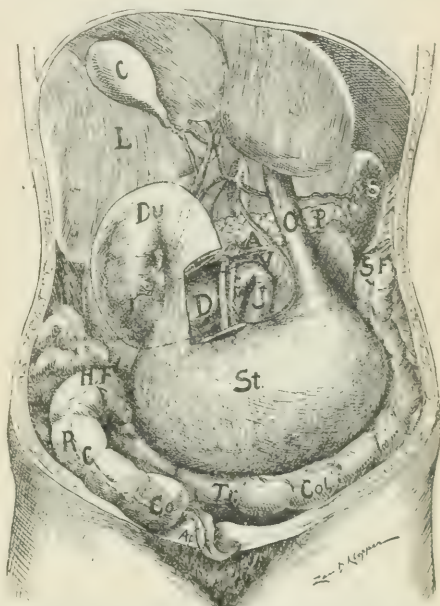


FIG. 2.—Transverse Stomach. Gastroduodenal dilatation—splanchnoptosia. This illustration is drawn from the subject. This subject was sixty-seven years old, dying of carcinoma of the ductus bilis et ductus pancreatis. It is a so called transverse stomach, and as the stomach dilates it extends more distalward until in this case it extended to the pelvis. Du and D presents the enormously dilated duodenum, obstructed by the superior mesenteric artery A and vein V. Observe the difference in dimension between the duodenum immediately to the right of the mesenteric vessels and that immediately to the left of them. The jejunum, J, is normal in dimension, while the duodenum is as large as a man's arm. A segment of the stomach and duodenum is resected at B to show the dimensions of the distal duodenum. I is a resected section of the ventral surface of the duodenum in order to expose Vater's papilla. O, elongated esophagus. In this subject the pylorus was not dilated in proportion to the duodenum and gastrum.

hepatoptosia the pylorus passes considerably distalward. The liver is the main factor in distalward displacement of the pylorus. The aetiology of either form of gastroduodenal dilatation is pressure of the superior mesenteric vessels and nerves on the transverse duodenum during progressive splanchnoptosia. The aetiology of the two distinct forms of the stomach depends on the conditions, dimensions, resistance of the pyloric sphincter.

A definition of the subject is instructive, but a picture does it a thousand times as well, hence the reader is referred to the illustrations.

Treatment of the two forms of gastroduodenal dilatation should be medical, mechanical, and surgical.

I. Medical Treatment of Gastroduodenal Dilatation.

tion.—The treatment of both forms requires medical treatment for sufficient gastric drainage by (A) ample fluids administered at regular intervals, and by (B) appropriate foods consumed at frequent and regular periods. Normal physiological drainage must be instituted and maintained. The administration of ample fluids, eight ounces every two hours,

and practical. These three mechanical apparatus afford vast comfort and relief in gastroduodenal dilatation by forcing viscera proximalward in their normal physiological position, by aiding the stomach in evacuation, by forcing the enteron proximalward, the mesenteric aortic angle is increased, allowing more free evacuation for the duodenum.

2. Position is important in gastroduodenal dilatation or gastropnoia. I have experienced on the cadaver which demonstrates that: (a) the mesenteric vessels clamp the duodenum the firmer when the subject is in the dorsal position, because the enteronic coils lying in the pelvis tensionize the mesenteric vessels passing over the sacral promontory; (b) if the subject lies on the abdomen the mesenteric vessels release the duodenum from clamping pressure; (c) if the subject be placed on the side the duodenum clamping is limited. Hence the most favorable position for a patient with gastroduodenal dilatation is on the abdomen or on the side. The dorsal or erect position increases the clamping of the duodenum by the mesenteric vessels.

III. *Surgical Treatment of Gastroduodenal Dilatation.*—The surgical treatment comprises several methods based on different principles which involve: (a) gastric drainage directly into the enteron; (b) gastric drainage through the duodenum by enlarging the pylorus (Heinike-Mikulicz, Finney), or by exclusion of the portion of the duodenum from fecal circulation which is clamped by the mesenteric vessels (duodenoenterostomy); (c) by diminishing the abdominal cavity (superposition or overlapping of the abdominal walls). This method forces the abdominal viscera proximalward, increasing the mesenteric aortic angle and decreasing the duodenal clamping by the mesenteric vessels. The operations may be classified as follows: 1. Visceral anastomosis, (a) gastroenterostomy; (b) duodenoenterostomy.

2. Pyloroplasty. Since subjects with gastroduodenal dilatation with ample or proportionate pyloric dilatation generally require no surgery to drain the stomach, it would be surmised that pyloroplasty would be amply sufficient to drain the stomach in subjects with horizontal stomach. Pyloroplasty is not accompanied with such immediate and remote pathological physiology, indigestion, malnutrition, and neurosis, as gastroenterostomy.

3. Superposition of abdominal walls is an excellent method of treatment in many subjects with gastroduodenal dilatation (splanchnoptosis). The abdomen is incised from xiphoid appendix to 3 inches proximal to the symphysis pubis whence the incised margins of the wound are superimposed (minus the dissected skin) for from 1 to 4 inches (according to the conditions), and maintained in situ by means of buried silver sutures. This method forces the viscera proximalward, increasing the mesenteric aortic angle, relieving the duodenum from the clamp or pressure of the mesenteric vessels, also the kidneys are forcibly reposed in the normal physiological position.

4. Gastroenterostomy—a grave and unphysiological operation. I wish here to protest against the excessive performance of gastroenterostomy for light and transient causes. Within the space of six weeks I know of six patients in Chicago who, having experienced gastroenterostomy, each wished to

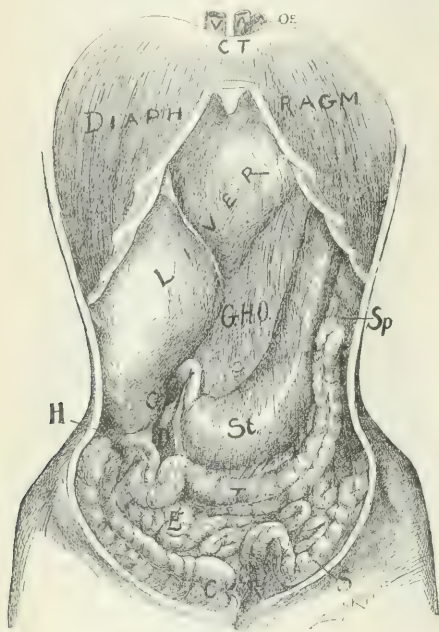


FIG. 3. *Oblique Stomach, Modified by Pylorus Being Forced Distalward through Pyloroplasty.* A female splanchnoplex with the ventral abdominal walls tensioned, presenting the viscera in an advanced state of splanchnoptosis. The diaphragm is exposed, showing the vena cava (ve), the aorta (a), and the esophagus (oe) projecting through it. A typical splanchnoptotic relation appears with the liver and the stomach (st). In this subject the stomach is practically vertical. Because the liver through its falciform lobe has forced the pylorus distalward, allowing the stomach to drain itself with facility, this condition requires no surgery. G, gallbladder; D, duodenum. (The artist neglected to represent its dilatation.)

with appropriate kinds of food, maintains and stimulates the normal functions of the stomach (and other viscera), viz., (a) sensation; (b) peristalsis; (c) absorption; and (d) secretion. As a rule in gastroduodenal dilatation (which is part and parcel of splanchnoptosis) I administer eight ounces of 0.25 normal salt solution (with sufficient quantity of aloes alkaline laxative to secure a daily free evacuation of the tractus intestinalis) immediately before meals and between meals. This maintains ample "visceral drainage."

II. *Mechanical Treatment of Gastroduodenal Dilatation.*—1. Abdominal supporters generally afford comfort and relief in gastroduodenal dilatation (especially if the pylorus be proportionately dilated). The kinds employed are: (a) Byron Robinson's pneumatic rubber pad placed within an abdominal binder and distended to suit the patient's comfort (it should be removed at night). (b) E. Gallant's corset. (c) Achilles Rose's adhesive strapping, which is especially useful, convenient, rational, eco-

be relieved from the effects of the operation. Two of the subjects applied to me personally to have the gastroenterostomy undone, or, as I will term it, they wished to be "deoperated."

For normal digestion intact gastroenteric apparatus is requisite. Experiments demonstrate that food stimulus on the duodenal mucosa is a requisite to initiate pancreatic and associated secretion.

It is unjustifiably criminal to perform a gastroenterostomy without reliable, defensible, indications. Gastroenterostomy is advised and performed by some for gastropnoia, gastric catarrh, dyspepsia, hysterical emesis, gastric neuroses. Some operators perform gastroenterostomy without findings in the stomach, for functional gastric disturbance. One operator recently reported a peritonotomy for gastric disturbances, however, the stomach presented no pathological condition, yet he promptly performed gastroenterostomy. This is irrational surgery, or surgery gone mad. Rational surgery insists on recognizable indications.

Advantages of a gastroenterostomy. In advanced conditions of gastroduodenal dilatation, especially with the horizontal stomach (exacerbated by lordosis), gastroenterostomy offers the main hope. Gastroenterostomy is of inestimable advantage to lessen suffering and prolong life in inoperable malignancy of the pylorus or certain localities of the stomach. In certain cases of pyloric stenosis gastroenterostomy may be of advantage. The main advantages of gastroenterostomy are gastric drainage and diminishing periodic physiological blood to certain segments. However, frequently the stomach may be amply drained by pyloroplasty.

Duodenoenterostomy. Since the chief gastric dilatation is gastroduodenal dilatation, and since the main obstruction is where the mesenteric vessels cross ventral to the transverse duodenum, the rational plan is to remove the obstruction with as limited immediate and remote physiological damage as possible. Hence the operation should consist of: 1. Anastomosing the enteron to the duodenum, excluding from faecal circulation of the duodenal segment clamped by the mesenteric vessels. The faecal current would subsequently pass ventral to the mesenteric vessels. 2. The duodenum may be severed dorsal to the mesenteric vessels and its two ends reunited by a circular enterhaphy ventral to the mesenteric vessels. Duodenoenterostomy will be more frequently practised in the future, as it practically removes the original actual obstruction in gastroduodenal dilatation without extensive immediate or remote physiological effects.

The damaging effects and contraindications of gastroenterostomy may be considered (1) anatomical, (2) physiological, and (3) pathological.

1. Anatomical contraindications to gastroenterostomy. Gastroenterostomy distorts the anatomy of the stomach and duodenum in form and location. The gastric and duodenal gland, the myogastrum, and nerves atrophy, the circulation is compromised.

2. Physiological contraindications to gastroenterostomy. Since physiology considers the source of energy and the utilization of energy in the economy the chief basis for indication and contraindication of an operative procedure both immediate or remote will rest on the solid ground of physiology. It is

true physiology precedes anatomy, function antedates structure, however, the sudden distortion of structure will compromise function. The functions of the stomach (sensation, secretion, peristalsis, absorption) are compromised by gastroenterostomy.

The route of normal digestion is changed, which robs the food from mingling with bile and pancreatic fluid in its natural channel, the duodenum. The resulting method of abnormal digestion forces the food to be mixed with bile and pancreatic fluids

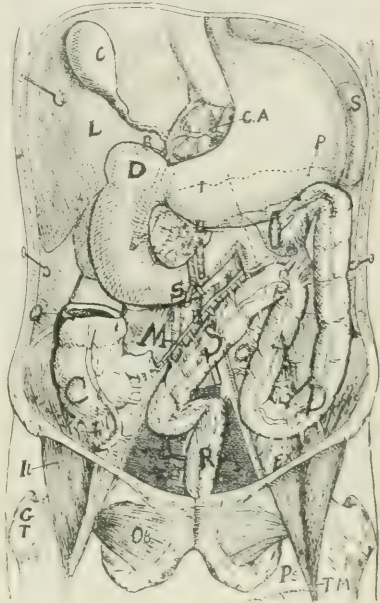


FIG. 4.—*oblique stomach in gastroduodenal dilatation.* This illustration presents gastroduodenal dilatation with oblique stomach from constriction of the mesenteric vessels. The pylorus dilates in proportion to the stomach and hence affords ample gastric drainage. Drawn from subject with gross duodenal distention by air. No surgery is probably required in this subject, however, if it were required it would be duodenoenterostomy.

in abnormal or foreign locality, the enteron. Food is required to be in contact with the duodenal mucosa to induce a flow of normal quantity of bile, and especially pancreatic fluid, to produce hormones, secretin. Secretin (a ferment messenger in the blood, a hormone to the pancreas from the duodenal mucosa) is called into existence by the passing of food over the duodenal mucosa, which gastroenterostomy forbids.

Normally the pylorus does not allow coarse food to pass, however, in gastrojejunostomy, the coarse food passes directly on the enteric mucosa which will damage it. The gastric acid medium with its pepsin (disproportionate in gastroenterostomy) is necessary for the digestion of proteid food.

The envelopes and protoplasm of cells (adipose tissue, starch granules) must first be digested in the stomach if complete digestion of fats and starch is to occur in the enteron. Gastroenterostomy allows practically no time for gastric digestion. The contractions and relaxations of the myogastrum are requisite not only for gastric glandular secretion

and absorption but for disintegration and mixture of food with gastric secretions. In other words,

atrophy of the endogastrium and myogastrium as well as the endoduodenum and myoduodenum.

Gastroenterostomy compromises the circulation of the liver and pancreas as the presence of food in the gastric and duodenal mucosa stimulates normal physiological circulation in adjacent organs connected and related by a balanced nervous apparatus.

The stomach, duodenum, and liver (also pancreas) with their common visceral functions (sensation, peristalsis, absorption, secretion) are under a delicately balanced nervous system (abdominal brain located at the foot of the coeliac axis) which controls the intricate but balanced and related blood circulation.

In gastroenterostomy the utility of the vast gastro-duodenal mucosa is practically lost by abnormal route and gastric contraction. In other words, the numerous gastric and duodenal glands, for absorption and secretion, are practically excluded from physiological activity by insufficient stimulation from fluid and food on the gastroduodenal mucosa.

Exclusion of the gastroduodenal glands from the economy must necessarily be a detriment to digestion, nourishment, and internal secretion. Gastroenterostomy practically excludes food from the gastrium and duodenum, retiring them from the economy except the limited office of gastric transportation of food and fluid to the enteron and the conveyance of bile and pancreatic fluids to the enteron.

Physiological experiments demonstrate that the introduction of acid fluids into the stomach or foods into the duodenum cause the pylorus to contract, opposing the evacuation of the gastric contents, so that further action may occur on the food by gastric influences. However, in gastroenterostomy, all these physiological factors are suppressed or reversed, and the influence of the stomach and duodenum in digestion is diminished with vicarious physiological assumptions of the enteron.

Every segment of the tractus intestinalis possesses four functions, viz., sensation, peristalsis, absorption, and secretion. Each segment may possess several digerent elementary functions, such as the gastrium (fundus, hydrochloric acid secretion), pylorus (pepsin secretion), duodenum (biliary or pancreatic secretion), enteron (succus entericus), colon (colonic secretion); and in discussing functions the segments must be designated. Each of the four functions of the tractus intestinalis (sensation, peristalsis, absorption, secretion) may differ in degree of activity in the various segments, e. g., absorption predominates in the proximal segment (stomach, enteron), while secretion dominates in the distal segment (colon). The stomach is an automatic digester, as the mechanism of the pylorus obstructs coarse food, automatically retaining it in the stomach until mechanically and chemically prepared for other intestinal segments. Gastroenterostomy destroys the automatism of the stomach.

The acid chyme as it passes over the mucosa of the duodenum calls into existence secretin, a ferment messenger, which passing into the blood excites the hepatic and pancreatic apparatus to exacerbated activity. The anatomical and physiological conditions accompanying gastroenterostomy disorders such matters.

Gastroenterostomy distorts the anatomy and form. Change of food route disorders the physi-

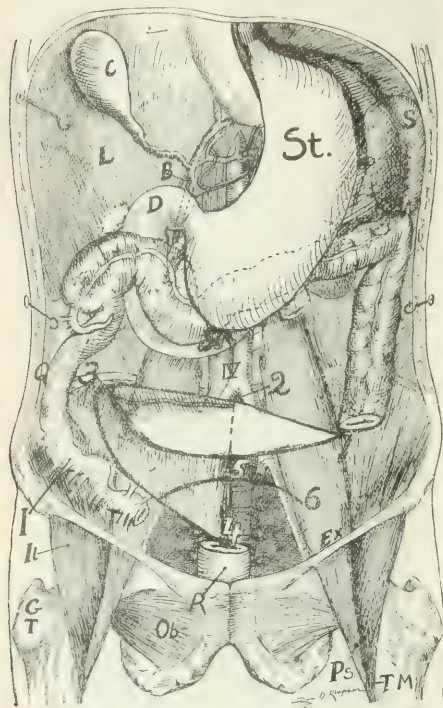


FIG. 5.—The Oblique Stomach in Gastroenterostomy. This represents a vertical stomach. During gastroenterostomy, gastropexia, the chief gastric dilatation occurs at the distal end of the stomach. The superior mesenteric artery, S, compressing the transverse duodenum, causes the gastroenterostomy dilatation. This figure presents a nondescended cecum, and an ileum, 1, adherent to the ileopsoas muscle. 2, 3, 4, representing the dorsal insertion line of the mesosigmoid.¹

finely disintegrated, fluidized food only may pass the pylorus, the coarse nondisintegrated food is reforced toward the gastric fundus for further dissolution.

In gastroenterostomy continuous gastric rhythm, the peristaltic unrest which ever occurs while food lies in the stomach, is lost, as the stomach exists mainly in a contracted spastic state.

Gastroenterostomy ruins the physiological blood circulation of the stomach and duodenum. Any segment of tractus intestinalis, over which food does not travel, will rapidly atrophy.

The normal blood circulation in the stomach and duodenum depends on the presence of food. If food rapidly passes through the stomach and scarcely any through duodenum, as is the case in gastroenterostomy, the normal blood circulation will not rise to its physiologic maximum and will result in

¹ This figure represents the vertical stomach—the gastro-duodenal dilatation due to compression of the duodenum by the superior mesenteric artery. In the oblique or vertical stomach due to gastroenterostomy the chief gastric dilatation is in the distal end. In this subject the distal dilated end of the stomach projects distalward to the colon transversum. It also presents a nondescended cecum and appendix, with an ileum adherent to the ileopsoas muscle. The ileum becomes adherent to the ileopsoas if it comes within its traumatic range.

ogy of the gastrum and duodenum. For effective digestion the original normal nerve balanced physiology of the gastroduodenal apparatus must remain unimpaired, e. g., digestion is doubled in power when the bile and pancreatic fluids become mixed in Vater's diverticulum, i. e., the biliary and pancreatic fluids normally secrete simultaneously cooperative. Disordered anatomy (malformation, dislocation, atrophy, hypertrophy) initiates disordered physiology (excessive, deficient, disproportionate

with constipation, indigestion. The neurasthenic subject experiencing gastroenterostomy becomes exacerbated in his disorders.

Gastric ulcer or gastric perforation is insufficient indication for gastroenterostomy. It is an indication for resection with suture. In hæmorrhage from gastric ulcer the indication is extirpation of the ulcer. Extensive perigastric adhesion is not an indication for gastroenterostomy. Subjects may

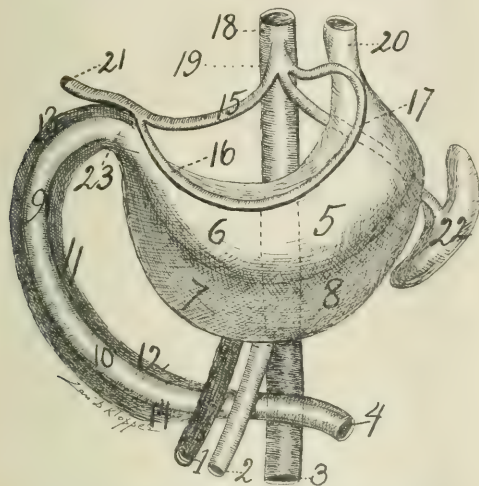


FIG. 6.—Gastroduodenal Dilatation with Relatively Limited Disturbance of Form or Position. This is a cut to illustrate the final growing gastroduodenal dilatation due to obstructing the duodenum by the superior mesenteric artery, vein, and nerve. The white portion of the stomach (5 and 6) and duodenum (9 and 10) represent the normal size, the adjacent dark portion (7 and 8, 11 and 12) is the dilated part. 1 and 2, the superior mesenteric vein and artery; 3, aorta; 4, the nondilated portions of the duodenum, distal to the constricting vessels; 5 and 6, original, normal stomach; 9 and 10, the nondilated duodenum; 11 and 12, 13 and 14, the dilated portions of the duodenum; 15, the hepatic and 16 and 17, the gastric arteries forming the gastrohepatic circle; 18, aorta; 19, coeliac artery; 20, œsophagus; 21, hepatic artery; 22, spleen; 23, pylorus. In this cut the acute mesentericovertebral angle shows plainly how it strangles or obstructs the transverse duodenal segment in visceral ptosis.

functions—sensation, peristalsis, absorption, secretion), inducing the glands (gastric, duodenal, hepatic, pancreatic) to secrete irregularly. The result is malnutrition.

3. Pathological contraindications of gastroenterostomy. In the autopsies of fifteen dogs at different periods of time, subsequent to gastroenterostomy, as well as autopsies in the human, I am able to report that the gastrum with adjacent viscera were abnormally deranged. The anatomical structures were distorted. Gastric, duodenal, and enteronic adhesions were firm and extensive. The food travelled in a direct line from the œsophageal orifice to the enteron. The stomach was altered in shape from that of the usual gastric form to that of a cylindrical tube. It remained in a contracted, spastic state.

Reported cases of jejunal ulceration following gastroenterostomy herald the advice to limit gastroenterostomy to its legitimate field. Subsequent to gastroenterostomy functional disturbances of the tractus intestinalis arise, viz., fermentation and formation of gases (eructations), diarrhœa alternating

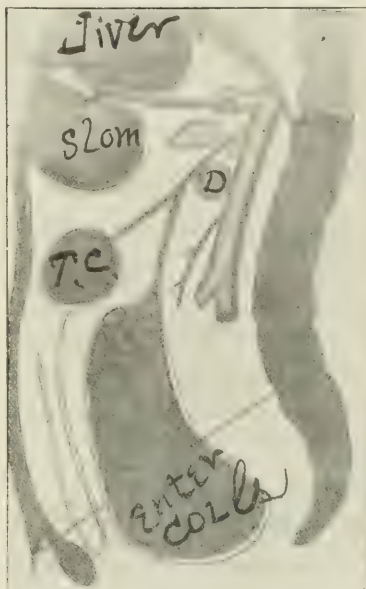


FIG. 7.—Profile View of Mesenteric Clamping. An illustration of compression of the duodenum by the proximal mesenteric artery, vein, and nerve. D is the duodenum lying in the mesenteric aortic angle between the abdominal aorta and proximal mesenteric artery. Note the relation of the enteronic ducts located distal to the line representing the pelvic brim. The more the enteronic coils pass distalward into the pelvis the more firm the proximal mesenteric artery clamps the duodenum, which cannot pass distalward from anatomical fixation. T.C., transverse colon. This illustration demonstrates the unfavorable dorsal position of the splanchnopleptic.

complain of pain, distress, gaseous distension subsequent to the gastroenterostomy.

Conclusion.

In general gastroenterostomy, a grave and unphysiological operation is performed with excessive frequency for unjustifiable causes and nonacceptable clinical data. Gastroenterostomy damages the physiology of digestion, especially the remote. The motor, sensory, absorption, and secretive functions of the gastrum (as well as those of the duodenum) are disordered.

Gastroenterostomy excludes from dietetic circulation unnecessary segments and excessive lengths of the gastroenteron, which will remotely interfere with nutrition. In gastroenterostomy the prevention of rapid evacuation of the stomach conveys immediately to the jejunum acid foods nonneutralized by the biliary and pancreas fluids. Also the hydrochloric acid in the duodenum, which stimulates and enhances biliary and pancreatic secretions, is diminished or absent. Gastroenterostomy does not cor-

respond with the clinical data, which in general point to the clamping of the duodenum by the mesenteric vessels and, if necessary, should be relieved by a limited and definitely localized operation, duodenojejunostomy. Gastroenterostomy may be a justifiable operation for a limited field to-day, but to-morrow it will occupy a still more limited field with established, recognizable, clinical data.

In this connection I wish to call attention to an excellent and valuable article by Dr. M. Portis, on the harmfulness of gastroenterostomy, published in the *Annals of Surgery* for December, 1906. Dr. Portis' views are timely and will aid to check the excessive performance of the harmful and unphysiological gastroenterostomy. The article will call attention to much irrational surgery or surgery gone mad.

100 STATE STREET.

ABSENCE AND MARKED DIMINUTION OF THE HYDROCHLORIC ACID OF THE GASTRIC CONTENTS IN CANCER INVOLVING ORGANS OTHER THAN THE STOMACH.*

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In a series of examinations as far back as 1842 Golding Bird determined the relation of hydrochloric and organic acids in the vomit of a case of cancer of the pylorus with dilatation; from his investigations he concluded that "during the most irritable stages of the disease free hydrochloric acid is present in the vomit in considerable quantities, but gradually diminishes in proportion to the patient's loss of strength, and that the organic acids increase proportionally as the free hydrochloric acid diminishes." It was Van den Velden (1) in 1879 who first announced the absence of hydrochloric acid as a diagnostic sign of gastric cancer. Since this time many observers have pointed out the fact that free hydrochloric acid is occasionally present in cancer of the stomach. Boas found it in five out of forty cases, while Einhorn (2) noted it in six, Osler (3) in ten cases out of ninety-four, and thus while the absence of free hydrochloric acid is not a diagnostic sign of gastric carcinoma, it is absent so frequently that taken in connection with other symptoms it is a valuable aid in the diagnosis of this disease.

While hydrochloric acid is so frequently absent in cases of gastric carcinoma, it is likewise often absent, too, in those cases in which carcinoma is present in organs remote from the stomach. It was Fenwick (4) who first noted certain changes in the gastric mucous membrane in carcinoma of organs distant from the stomach. In sixteen cases of cancer of the breast, atrophic changes were observed at autopsy in the gastric mucous membrane; similar changes occurred in the gastric mucosa in three cases of cancer of the tongue, in two cases of cancer of the rectum, one case of cancer of the groin, penis, and bladder. A case of carcinomatous ulcer of the duodenum was observed by Ewald (5) with

atrophic changes and connective tissue proliferation and glandular degeneration in certain portions of the stomach. Examinations of the gastric secretion during life always revealed and absence of free hydrochloric acid. Riegel (6) also pointed out that in cancer of the œsophagus the digestion in the stomach is sometimes much reduced. This loss of acid, as Riegel remarks, cannot be due entirely to the disturbance in the general nutrition caused by the carcinoma, inasmuch as in those cases in which there are small circumscribed carcinomata and in which the general nutrition is still good, the digestive powers occasionally become much impaired in the earlier stages even before a gastritis is set up. Complete suppression of the secretion of acid usually occurs when only a small patch of mucous membrane is involved in the disease and while the disease is limited to the pylorus, where normally no acid is secreted.

That this absence of acid cannot be due to its neutralization by the alkali poured out by the cancerous mass is shown by the fact that the acid is usually absent even before the surface of the cancer becomes ulcerated. In order to investigate this subject more thoroughly Moore (7), Alexander, Kelly, and Roaf performed a series of very elaborate examinations as to the gastric acidity upon seventeen patients suffering with malignant disease at situations distant from the stomach. The idea presented itself to these investigators that the suppression of the acid is probably "due to a general condition in the body, to alterations in the circulatory fluid in some way, either by products thrown out by the cancer cells, or as a result of change in the blood which might lead both to abnormal growth and atypical mitosis of the cancer cells, and to such changes in the nutrient medium of the oxyntic cells that these could no longer separate hydrochloric acid from the inorganic constituents of the plasma." As a result of this investigation the following conclusions were arrived at:

The free hydrochloric acid of the stomach contents as determined in seventeen cases of malignant disease in different situations, such as the uterus, mamma, prostate, rectum, tongue, cheek, mouth, was absent in about two thirds of the cases, while in the remaining cases the amount found was much below the normal, being reduced to a mere trace in all except one case where it reached about one fifth of the average amount. Of the seventeen cases the total acidity was above 0.1 per cent. in only four cases, and reached the normal amount (0.28 per cent.) in only one case; there was an entire absence of free hydrochloric acid in eleven of the seventeen cases. After the removal of the growth, there was no reappearance of the acid. "The probable cause of the absence of the hydrochloric acid from the gastric secretion is due, according to these investigators, to the alteration of the degree of the alkalinity of the blood plasma in malignant disease, i. e., in cancer the basic reactivity, the power to neutralize acids is constantly increased apparently depending on an increased power of the blood proteins to bind acids with a simultaneous reduction of the quantity of available hydrogen ions. It is not the total alkalinity of the blood which is the determining factor in the power of the oxyntic cells to separate a fluid of acid reaction from the blood plasma, but rather effective concentration in hydroxyl ions and hydrogen ions, respectively. . . . The reaction to indicators of the plasma shows that it is a fluid which is both alkaline and acid, i. e., it con-

the sense of resistance appreciated by the pleximeter finger. Remembering that art is knowledge acquired by skill and comparing the facility with which some physicians elicit physical signs with the difficulty found by other men of equal theoretical knowledge of the subject, we readily see that percussion is a true art, and that the skill necessary to make it such is only acquired by long and constant practice with infinite pains both as to the mechanical part of the act and also in the mental training necessary to interpret both the sounds heard and the varying amount of resistance felt as this method is used. That percussion as an art is practised but by few clinicians cannot be doubted and men of large experience in consultation practice often state that there is no method of diagnosis which requires so much practice and no branch so seldom learned with thoroughness as percussion. Percussion is a detail of diagnosis where correct results depend upon practice rather than upon intuition. Certainly it is true that many physicians never acquire sufficient skill in percussion to enable them to depend upon their own findings, unless the signs are such that it would be difficult to overlook them.

When we turn to the historical side lights upon percussion, we cannot but wonder that so simple a method of inquiry had not been used long before the nineteenth century. Among the prominent causes for the retardation of scientific research in medicine, we find the prevailing mystic conception of disease and perhaps, more important still, the attitude of the Greek clergy toward the study of anatomy and toward the performing of autopsies. These studies were considered in the light of sacrilegious mutilations. The same prejudices existed among the Arabian clergy, and as their physicians copied all the habits and followed the methods of the Greeks and as the knowledge of anatomy for several centuries was based upon the dissections done by Galen upon the lower animals, it is not strange that errors of teaching should have been made. So great was the feeling of veneration for Galen that long after his death men hesitated to correct his writings even when they were sure that his teaching was incorrect, and so it was that mistakes were perpetuated until a more general knowledge of the subject became known. From this knowledge of normal anatomy it was but a little step to the study of morbid anatomy upon the study of which the discovery of percussion was based.

This method of examination was discovered and adopted by a young Austrian physician named Auenbrugger who, in his twenty-ninth year, was given medical charge of a Spanish prison, and who, during the examination of one of his patients noticed a change of sound as he tapped different portions of the chest with his examining finger. Auenbrugger was content to practise this method of examination for seven years before he published in 1761, his discovery in a pamphlet of twenty-two pages, under the title of the *Novum inventum*.

As is true of many of the important discoveries in the world of science, the man who discovered this valuable aid to diagnosis, and who gave the scientific study of medicine such an impetus forward, did not live to see his work appreciated. Indeed, it is said of Auenbrugger that he anticipated criticisms and the envy and jealousy of his col-

leagues, but he was totally unprepared to see his discovery treated with contempt and neglect and derision. It was not until the year of Auenbrugger's death that his little pamphlet fell into the hands of Corvisart, who at once practised the method and, seeing its worth, translated it into French, in 1803. In his translation he added a few thoughts and observations of his own, but gave the entire credit of the work to its author, so giving to the medical world not only a valuable discovery, but also an example of true nobility and unselfishness in disclaiming any of the credit which he might readily have taken as his own for his part of the work.

This little pamphlet gave very completely the signs of disease of the lungs, pleura, pericardium, and the heart. Its author had applied percussion by tapping the chest wall with the finger while applying the ear to a distant portion of the chest. This method was improved by Piorry in 1810, who introduced mediate percussion, which is the method in common use to-day.

When we recall that in this era of medical history Laennec was a pupil and an ardent admirer of Corvisart, we cannot doubt that the publication of this work on percussion had much to do with the discovery of perhaps a more valuable means of diagnosis, namely, auscultation, which method of research Laennec gave to the medical world in 1815. Thus we find that progress in medicine has been brought about by what has been called "an anatomical way of thinking," which was greatly popularized by these new methods of study. This combined with the more frequent examinations of the bodies after death soon revealed the great value of the new discoveries in its relation to diagnosis, prognosis and treatment. The theory of percussion is so simple and its application so easy that it seems almost incredible that it should have been overlooked during the days of ancient medicine.

As to the theory of percussion, if any portion of the body be struck by the finger the part tapped either resounds to the blow or a nonresonant sound is produced. Resonance upon percussion means that the part percussed is so constituted that it is able to vibrate with some regularity, whereas a dull sound shows an impairment of such power. The structures of the body which resound when percussed are chiefly the air containing organs and to a minor extent the bones. Practically, percussion is used to determine whether there is more or less air than normal in an air containing part, and to delimit its borders as well as to map out airless organs lying in close contact with each other. Before considering the different forms of percussion, it may be profitable to review the essentials necessary to render free from error deductions from such percussion findings. The first, and a very important consideration, is a relaxed condition of the patient's muscles, this being brought about by a correct posture of the patient. It is desirable that the patient should sit or lie in a symmetrical position with the back supported in order that when the pleximeter finger is pressed firmly against the chest the patient will not be compelled to contract his muscles to retain his balance, as the setting of his muscles cannot but modify the percussion sound. The examiner should press the middle finger of the left

hand firmly against the part to be percussed, the other fingers being raised so as not to deaden the vibrations. With the terminal phalanx of the right middle finger crooked at a right angle and used as a plexor, a quick, perpendicular, rebounding stroke from the wrist is delivered upon the dorsum of the second or third pleximeter phalanx. The more quickly the plexor finger is removed the more accurate will be one's conclusions from the sounds. In comparing the percussion sounds of the two halves of the chest, it is necessary that care be used in making the strokes of equal strength, and that they should be delivered at the same time in the respiratory cycle. Whether light or heavy percussion is to be used is determined by the conditions found, and one variety or the other is used as is found best qualified to bring out the sounds in an individual case.

The several varieties of percussion, grouped according to their relative clinical value, are as follows: Finger percussion; instrumental percussion; auscultatory percussion; coin percussion; slapping percussion; palpatory percussion; tuning fork percussion, and rod percussion.

It has been suggested that an improvement in the technique of percussion could be made by using less finger surface as a pleximeter, as the more surface covered by the pleximeter finger the greater the impairment of resonance. Instead of placing the finger flat on the chest, the middle finger of the right hand is flexed at a right angle at the joint between the first and second phalanges, only the pulp of the finger resting against the surface of the body, and the forcibly extended second phalanx being used as a pleximeter. It is stated for this method that clearer resonance is elicited and it also has the advantage of enabling the examiner to limit his investigations to smaller areas of the lung.

The value of finger percussion depends, as do all the other forms, more upon the training necessary to interpret the results obtained than it does upon the technique employed to bring out the sounds. That the physician who possesses a musical ear is better able to judge the percussion sounds than is one who has no ear for music, cannot be doubted; but in its absence much can be done by constant practice to acquire the training necessary correctly to estimate the sounds heard. The attributes of the percussion sound necessary to consider are the pitch, the duration, the volume and the quality.

Concerning the technique of percussion little can be written that is helpful. Each physician must practise the act of percussion faithfully, completely, and often in order to be able to judge of the quality of the sounds elicited. It is not to be forgotten that percussion is an art, the correct interpretation depending in great measure upon comparison. There is no standard or normal sound; each chest is a law to itself in this regard and, any conclusion reached must not be based on a narrow view of the case in question, but must be based upon evidence deducted from an observation of all the physical signs as well as the symptoms.

The use of instrumental percussion is almost as old as the employment of percussion itself. It was introduced by Piorry in 1828, as a substitute for the immediate method of Auenbrugger. Piorry used a small ivory chest piece or pleximeter and a

small hammer with a rubber tip for a plexor. In Germany and in other countries on the continent these instruments are quite often made use of, but in this country they are looked upon as curiosities, rather than for every day use. The idea has often occurred to the lay mind and not infrequently to the medical student that some shield should be worn upon the pleximeter finger to protect it from the blows of the plexor, and at the Patent Bureau several patents have been taken out for different devices to facilitate the art of percussion. Not infrequently these bulky pleximeters may be seen tucked away as unsalable in the instrument shops.

If, instead of listening to the percussion sound as transmitted through the air, we use the binaural stethoscope to convey the vibrations to our ear, this is called auscultatory percussion. This means of diagnosis is particularly useful in outlining either air containing or solid organs. The technique is simple, and consists in having the patient or an assistant hold the bell of the stethoscope over the organ to be outlined. Beginning at some distance from where the border of the organ normally lies, we percuss in the usual way, gradually approaching the bell of the scope; as the outer border of the organ is reached, there is a change in the quality and intensity of the sound. Similar lines are carried from different directions. If the spot where the sound changes is marked and these points are joined together, this line will outline the organ. This aid in diagnosis is much relied upon by those who have become familiar with it, and all teachers of physical diagnosis state that it is a helpful method which should be in common use instead of its present insignificant place in the minds of the general practitioner.

Coin percussion is used to determine the presence or absence of pneumothorax and is said to be found not infrequently in large empty, superficial cavities. Palpatory percussion was originally the form used by Auenbrugger. It is still in vogue in Europe, particularly in Germany, but is seldom used here. This method consists either in the old technique of using the pulps of three fingers and giving little pushes against the chest wall, or in the more modern way of using the middle finger of the left hand as a pleximeter and striking gently with the pulps of the three fingers of the right hand to determine the resistance.

A foreign observer, whose name and the notes of whose article I have mistaid, has noted that a very useful method in determining consolidated areas of lung, and particularly small areas lying adjacent to the spinal column, which under ordinary methods of percussion is difficult, if not impossible, is that of percussion over the vertebrae. If consolidation is present in the neighborhood of a vertebra, a dull sound will replace the usual osteal resonance, and this sound will be that of the osteal resonance impaired or destroyed in proportion to the pulmonary involvement. This interesting phenomenon was pointed out to the writer by Dr. W. B. Stanton, of the Phipps Institute staff, who has used this method for some time and has found it most useful.

Tuning fork percussion and rod percussion are seldom used here, though they are reputed to be practised by some German clinicians.

ease? What questions did we hope to solve? There were many questions, and as to how successful and how unsuccessful we were shall be seen.

Considering how important a part the cardiovascular system plays in this disease, that, in fact, it bears much of the very brunt of the disease, the possibilities seemed therefore many of a clearer understanding of its pathological physiology of the diagnosis, of the prognosis, and treatment.

As the temperature, pulse, and general condition of the patient varies with almost each week of the disease, so did we expect the blood pressure might vary, and therefore in summing up our findings divided them into the various weeks of the disease. The first week of the blood pressure records represent the first week of the fastigium of the disease and so on, because our patients, as a rule, enter the

tutes the relative normal blood pressure. To represent the normal with this instrument I personally made five examinations in individuals of normal health, at the ages of eleven to twenty-one, twenty-one to thirty, and thirty to forty in the male; eleven to twenty-one and twenty-one to thirty-three in the female. The results are as shown in Table I. To make this as nearly normal as possible, I picked individuals whose age, weight, and height were within limit of the recognized normal standard, Table II. These adult normals were mostly in professional people, doctors, and nurses. If the normals were taken from the class of individuals that enter our hospital wards I believe the figures would be higher than our present table shows. You will see that in the female, from eleven to twenty-one, the pressure is higher than in the male; I do not know at pres-

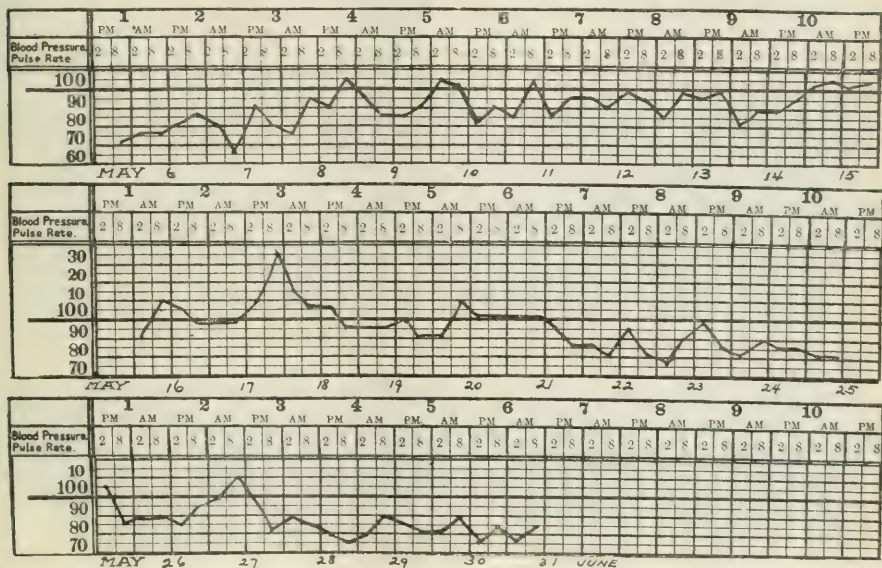


CHART II.—J. T., male, aged twenty-eight years. Pneumonia complicating typhoid fever.

hospital at about the tenth day of their illness. In recording the pressure for each week we give the figures at which level the pressure was maintained during that week, thus eliminating the extremes which are nearly always due to some accident, some temporary occurrence.

Our cases varied in the male sex from the ages eleven to forty-three, in the female from eleven to thirty-two. It is only to be expected that the blood pressure varies with the different ages and the sexes. So we give in table form the blood pressure as it occurs in the disease at the ages of eleven to twenty-one, twenty-one to thirty, and thirty to forty-three in the male; from eleven to twenty-one and twenty-one to thirty-two in the female. We also give tables of the total male and female average, showing that there is a distinct difference between them.

But before considering numerically what the relative abnormal is, let us consider, first, what consti-

ent whether these figures would or would not be borne out in a large number of cases. The table, however, does show distinctly that the blood pressure is higher as age advances, and that it is higher in the male than in the female, with possibly the noted exception.

In summing up and averaging all the cases, we find that the average is considerably higher in the male than in the female, and that in both sexes, in this disease, the pressure falls, stays down, and rises again as convalescence is established. This is shown in Tables III and IV. In graphic form, although only in a very general way, the blood pressure curve is inverse to the temperature curve.

In summing up and averaging the male cases according to their age, i. e., from eleven to twenty-one, twenty-one to thirty, and thirty-one to forty-three, we find that the pressure is higher as age advances. This is shown in Table V for the males and Table VI for the female sex. Comparing this with Table

If we see the difference between the blood pressure in typhoid fever and in health.

What is the cause of this? Why is it that in typhoid fever the blood pressure is lower than normal? This condition of lowered blood pressure must be brought about by effect upon (1) the heart force, (2) the vascular resistance, or (3) the amount of fluid in the vessels, these being the factors which maintain blood pressure.

1. Amount of Fluid in the Vessels.—Such conditions as polyuria or profuse diarrhoea may cause a great loss of fluid from the body, but in this disease these are by far exceptional. We have observed that the blood pressure is no higher in patients who drink plenty of water than in those who do not take sufficient amounts, and from this we are led to believe that the amount of fluid in the vessels does not influence the blood pressure. In a disease like cholera, in which the loss of fluid is great, and if the vascular system did not accommodate to the lessened amount of liquid, low blood

ness manifests itself in any way, it would seem that its part in the low pressure would be in the latter stages of the disease; although it could be the cause of low pressure from the beginning, in what we consider the extremely toxic cases, and in patients whose hearts had been weakened by former disease.

This, then, is the manner in which low blood pressure is brought about. But what is the cause? That is a question we do not attempt to answer, any more than to say, the cause is either in the action of the typhoid poison, or the rest in bed and restricted diet, or the combined effect of both.

So much for the cause. What are its effects? How does it show itself? With the falling of the blood pressure there naturally comes gravitation of blood from the surface to the interior of the body to the larger vessels. With this gravitation of blood from the surface, from the extremities of the body, there comes the chilliness, the dizziness, and other manifestations of the beginning of the disease,

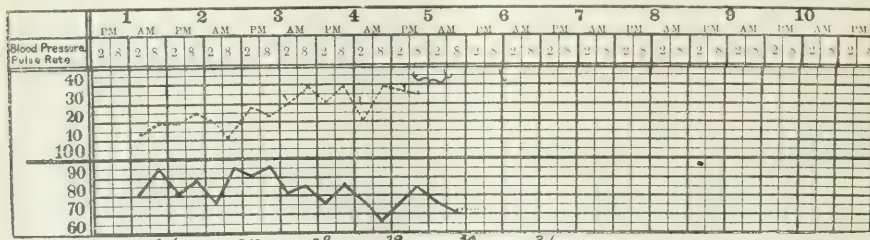


CHART III.—S. S., female. Typhoid fever with pneumonia. Dotted line is pulse curve.

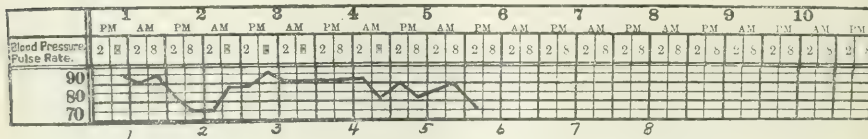


CHART IV.—W. M., male, aged thirty-two years. Typhoid fever with perforation.

pressure would likely follow, but in typhoid fever this does not exist.

2. Lowered Vascular Resistance.—The second factor, which undoubtedly plays the most important part. We have evidence in the anatomical changes frequently found that the muscle fibres and elastic tissues of the bloodvessels may be in such a state as to cause lowered vascular force and resiliency. As functional manifestations we have such common occurrences as hypostatic congestion, which is evidence of the highest order of lowered vascular tone. As said before, we have observed that even in those cases in which the vessels contain a larger amount of fluid, the pressure is no higher than in others, showing that there exists a low vascular tone and lessened peripheral resistance. All these facts point to how much of the low pressure is due to lowered vascular resistance.

3. Diminished Heart Force.—This factor is closely associated with the lessened vascular resistance. Reasoning, however, that the low blood pressure comes early in the disease, long before heart weak-

ness may be accounted for not only by the actual lowered blood pressure, but by the disturbance from the normal level. And, even though the pressure is lower after the patient has been in bed for several days, that these symptoms have disappeared is because the circulation, so to speak, has gained its equilibrium.

There are many effects of the low blood pressure in this disease, too numerous to consider here.

In this work we have taken up the systolic pressure alone, our reason being that with our present instruments which are not too delicate and can be readily carried in the wards from patient to patient there is not one that can be relied upon for the diastolic pressure, in the hands of any one but an expert, even then considerable personal equation exists as to the results obtained; and while the systolic pressure represents only part of the pressure cycle, yet the result obtained by its study is of sufficient significance to make it of the greatest clinical value.

We have thus far considered the relation of blood

pressure to the general course of the disease. Let us now consider what relation it bears toward the various conditions; the accidents, complications, and the reaction of blood pressure to therapeutical measures.

Relation of Pressure and Temperature.—It might at first seem that patients with high temperature would have low pressure, but this does not bear out. In looking over our tables, in which we have recorded, side by side, the temperature, pulse, and pressure, we find that there is no constancy of relations between the two in any way. A high temperature is not regularly accompanied by high or low pressure; nor is a sudden rise or fall in temperature usually accompanied by like behavior of the blood pressure.

Relation of Pressure and Pulse Rate.—In the uncomplicated typhoid we find that these bear no constant relation to each other. We may find the pres-

sure set in and then rising toward the normal. In four the pressure began to ascend at what would have been the expected time for it to go up had there been no relapse; but as the relapse developed the pressure fell again to about the level of the first infection, continuing thus until the true convalescence set in. In one case, which, however, may not have been a true relapse, the pressure followed the temperature curve; it rose, stayed up, and fell with the subsidence of the fever.

Pneumonia (Chart II).—With pneumonia complicating typhoid, the pressure is higher during the activity of the pneumonia. In some of the cases the pressure distinctly rose with the onset of this complication, stayed up, and fell after the crisis or lysis.

Hæmorrhage (Chart III).—We had five cases of hæmorrhage, and in each of these there was a moderate fall in pressure. Four had a fall of 20 mm. and one had a fall of 30 mm. Such falls in pres-

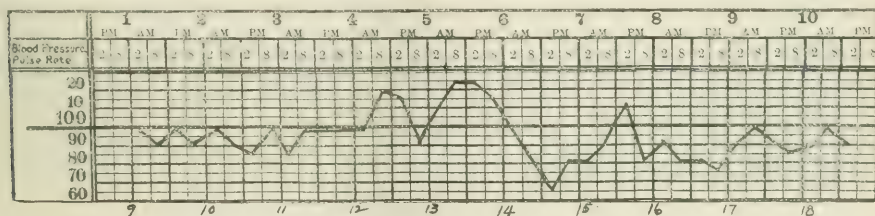


CHART V.—P. M., male, aged twenty-one years. Typhoid fever with leucocytes.

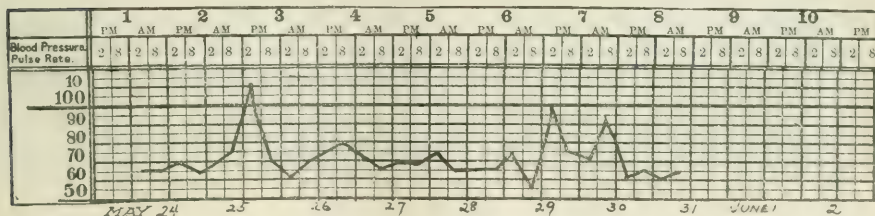


CHART VI.—J. S., female, aged eleven years. Typhoid fever with gallbladder infection and peritonitis.

sure at the same level in one case which has a pulse of 130 during the second week of the disease, and in another which has a pulse of 84. So far as pulse rate in relation to pressure is concerned, this asynchronism is really to be expected, when we recall that the blood pressure and pulse rate are governed by distinctly different factors. Nor can we by radial palpation distinguish within moderate degrees a higher pressure from a lower one. We have tried on various occasions in typhoid patients to distinguish between two pulses as to which was of higher pressure, and we were often disappointed. In pneumonia and cerebral hæmorrhage, in which the pressure may reach a very high point, the palpating finger can easily detect that the pressure is high, but in typhoid the only accurate means is the instrument.

Relapse.—The behavior of blood pressure in the relapse of typhoid fever is variable. In ten cases of relapse five showed no disturbance at all, the pressure keeping at about the same level until conva-

lescence set in and then rising toward the normal. In four the pressure began to ascend at what would have been the expected time for it to go up had there been no relapse; but as the relapse developed the pressure fell again to about the level of the first infection, continuing thus until the true convalescence set in. In one case, which, however, may not have been a true relapse, the pressure followed the temperature curve; it rose, stayed up, and fell with the subsidence of the fever.

Perforation (Chart IV).—We had but one case of perforation, and I saw the patient within two hours of the time it must have occurred. The patient, after using the bed pan before the nurse could come, took it from under him and stretching himself placed it on the lower shelf of the stand, which stood by the head of his bed. It was while in that strained position that he was seized with the sudden pain which must have been the exact time of the perforation. He was operated upon, the per-

foration found and closed, but he died on the following day. At 8 a. m., when the perforation occurred, the pressure was 80; at 2 p. m. it was 90. At 8 p. m. it was again 80—after operation, at 8 a. m., it was 90; at 2 p. m., 75, when he died. This case, therefore, showed no effect whatever on the blood pressure.

Edema of the Larynx (Chart V).—In the one case of this complication, as the edema progressed and as the asphyxia increased, the pressure steadily rose in twelve hours from 95 to 125. Tracheotomy was performed as a life saving expedient; and with the relief of the asphyxia and dyspnea the pressure fell within the following twenty-four hours from 125 to 65.

Infection of the Gallbladder, Peritonitis (Chart VI).—This case, a girl of eleven years, suffered an acute attack of pain in the region of the gallbladder on the third day of her entrance to the hospital;

from which she died, with symptoms of peritonitis.

Pain (Chart VII).—One case had a severe attack of abdominal pain, of which we could not find the cause. Although this happened late in the disease, the resident physician diagnosed the condition perforation. The pressure had risen from 75 to 110. When I reached the hospital to confirm the diagnosis, the pain had partially subsided, and other signs of perforation were not present. Nothing further developed in this case.

Psychic Effect (Chart VIII).—This may cause a temporary rise in pressure; we had several demonstrations of this. In one case, as a result of having five visitors the patient's temperature rose from 98° to 104½° F., his pulse 78 to 120, and the pressure from 55 to 80. All of this subsided within twelve hours.

Hydrotherapy.—The cold sponge and the cold

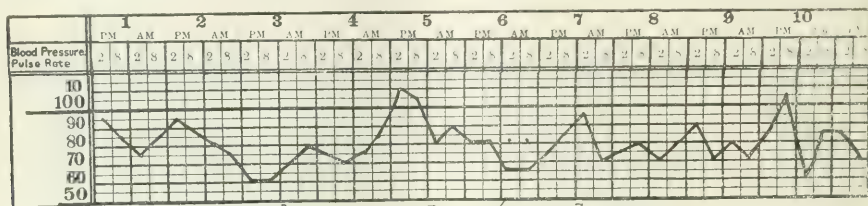


CHART VII. T. G. male, aged twenty-eight years. Typhoid fever.

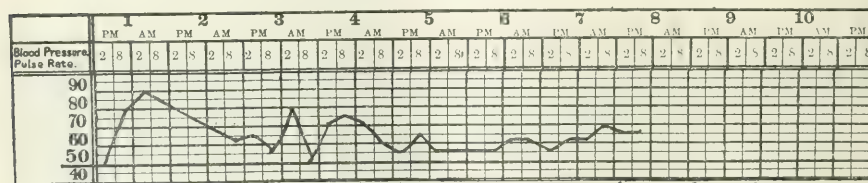


CHART VIII. F. D., male, aged twenty-seven years. Typhoid fever with pneumonia.

her temperature at that time was ranging between 102° F. and 104° F., and showed no disturbance, but her pulse did rise from 120 to 128. The blood pressure, which had been running between 60 and 70, went up with the attack of pain to 110, and fell quickly as the acute pain subsided. She was restless and her abdomen was tender. Four days later she had another such attack and the pressure jumped, this time from 55 to 100; again without any marked change in temperature, her pulse went up from 116 to 124. During the following week the temperature reached normal, and there were no further disturbances. But at the end of the week abdominal symptoms were again prominent, the temperature began to ascend and continued so for the next six days, when it reached 104° F., and she died. Unfortunately, we have no pressure record of the last week, as our service had ended, and the records were not continued.

We believe that with each attack of pain there was a leakage of pus and peritonitis, and at the time of her death the gallbladder ruptured, and its contents were expelled into the peritoneal cavity,

pack cause a rise in blood pressure in all the cases where their influence is for the good. The usual rise is 10 to 15 mm. In those cases in which the patients become blue and livid from the cold, and the pressure does not rise, the reaction which should come after the bath does not come. Here the blood pressure record may be of value in indicating the use of the cold bath.

Raising the Foot of the Bed.—We have taken the systolic pressure in a number of cases before and after the foot of the bed had been raised for periods of five minutes to twenty-four hours, and saw no change.

Rest in Bed and Light Feeding (Chart IX).—We had occasion to observe the behavior of blood pressure in seven patients who had but minor ailments. These patients were put to bed, given a purgative, and were kept on liquid diet for a time. In all but one of these did the pressure fall within the first three days, stayed down and rose toward the normal, as the diet was increased and as they were allowed up and about. How much of this element, rest in bed and liquid diet, is responsible for the

low blood pressure in typhoid, it is difficult to estimate.

Feeding (Chart X).—During convalescence as the pressure is rising, seemingly because the disease is overcome, when the first soft diet is given, there is a quick rise and fall, due undoubtedly to the mental stimulus that comes to the hungry typhoid; and as the diet is increased and convalescence goes on, the pressure makes rapid strides towards its normal level.

Medication.—The effect of the various drugs on the blood pressure in this disease we studied in but a limited number of cases, intending to take it up systematically and more extensively in the future.

Whiskey given in $\frac{5}{8}$ ss doses, every third hour for three days, had no effect on the level of the pressure, while in two of the cases the pulse became slower during the time that it was given.

Strychnine sulphate given in doses of gr. $\frac{1}{300}$

As a diagnostic method of the disease itself, it has little value, because by the time that the pressure has gained its level we will have already made the diagnosis by our other methods. As an aid to diagnosis of the complications of the disease, it seems that it can be of value, especially in hæmorrhage and peritonitis, but as to whether we are dependent sufficiently upon this as a means of diagnosis, with our present experience, is to our minds doubtful.

Value of Blood Pressure Studies in Prognosis.—As an aid in the prognosis of the disease we must say that we have observed nothing that will aid us on this difficult question. The rise and fall in pressure comes with the occurrences in the disease. Yet, there is a time when the blood pressure chart is of value in prognosis. We have a record of ten cases in which at some time during the course of the disease the pulse, though it could be felt, could not be distinctly counted. In those cases of the ten in

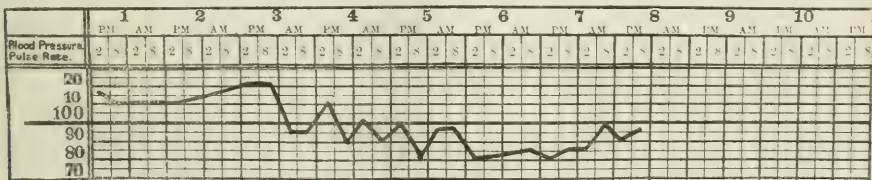


CHART IX.—J. S., male. (This was not a case of typhoid fever.) Gastric disturbance.

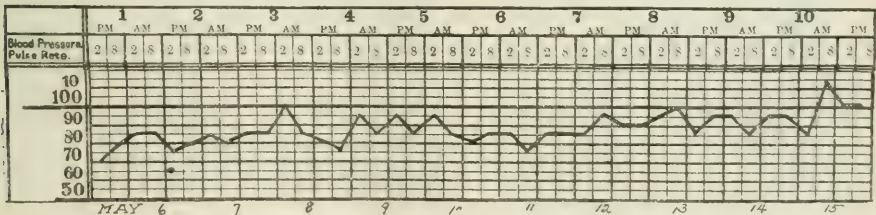


CHART X.—M. J., male, aged twenty-three years. Typhoid fever.

every third hour for four days, seemed to regulate the blood pressure so that it was more even than before and after the drug was given, but it did not change the level, nor distinctly benefit the pulse.

We gave infusion of digitalis in doses $\frac{5}{8}$ ss, every fourth hour, to five patients for a period of four days each. In one case in which the temperature ranged between 100° F. and 99° F., there was some slowing of the pulse, but the pressure was not affected. In another case, the patient was very wakeful while he was given the drug, but it had no effect upon the pressure. In the third case there was a slight rise in pressure; and in the remaining cases no effect of any kind was noticed. It seems that if digitalis had a power for good in this disease, it would have shown itself more markedly here. We feel positive about the preparation used, because we were giving it at the time to two cardiac cases, of lost compensation, with the most distinct raise in the pressure of such true Chart XI.

Nitroglycerin in gr. $\frac{1}{100}$ every fourth hour, for nine doses caused a slight fall in several cases.

Value of Blood Pressure Studies in Diagnosis.

which the pressure fell progressively, the patient died. But in the others in which the pressure did not fall to a marked degree, or in which, after having fallen, the pressure began to rise again, even though the pulse was not yet much improved, the patient recovered.

Value of the Blood Pressure Studies in Treatment.—As to the value of our knowledge of the blood pressure toward the treatment of the disease we feel that the experience we have yet had with drugs aiming at the pressure does not warrant any opinion. It seems, however, that what we should desire is not drugs which will maintain the pressure at a higher level so much as drugs which will raise the pressure in an emergency. While we cannot hope to have drugs which will impart power to the cardiovascular system, we very much need such drugs as will utilize to good advantage what power the heart and bloodvessels do possess.

We believe that with a more systematic and extensive study of drugs we may be able to accomplish much toward treating arising conditions along well defined paths as scientific procedures.

Conclusions.—From what has been said, let us consider of what value has been the study of blood pressure in typhoid fever.

1. It has shown us that the blood pressure falls from the normal after the patient has taken to bed, stays down until convalescence is established, and then returns toward the normal.

2. That typhoid fever is a disease with a blood pressure below 100 (accepting at present the Stanton instrument as a standard).

3. That the blood pressure is governed by factors of its own, and bears no constant relation to pulse rate or temperature.

4. That in diagnosis, blood pressure studies may be of value in differentiating this disease from others, after we know the behavior of other diseases in this respect. In the diagnosis of the complications it has a value.

5. That in prognosis the blood pressure chart is of value; a steadily falling pressure means grave danger; so long as the blood pressure keeps up at a reasonable level, we may feel that there is reserve power to work with.

6. That in the treatment of the disease, study of

POLICE METHODS FOR THE SANITARY CONTROL OF PROSTITUTION in Some of the Cities of Germany.

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(Continued from page 305.)

II.—Regulations for the prevention of infectious sexual diseases:

1. Intercourse is to be denied to men from whose urethral canal mucus or pus flows upon pressure, or upon whose organ reddened or ulcerated places are noticeable. Sexual intercourse with such men is always followed by infection.

2. After every intercourse the genitals are to be washed with water of warm temperature and the vagina is to be syringed out with warm water by means of a rubber syringe, or an irrigator. For this purpose a litre of water is to be used. The vaginal tip is inserted about three inches into the vagina. The same cleansing must take place in the morning, after arising; and in the evening, before going out.

3. In addition, in order to keep the entire body clean, frequent river baths must be taken during the summer

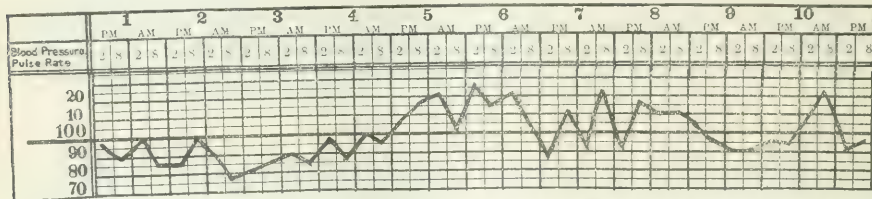


FIGURE XI.—J. E., male, aged sixty-two years. Cardiac dilatation shows effect from the administration of digitalis.

blood pressure will probably be found of the greatest actual value. It may teach us that the way to combat circulatory failure in typhoid fever is to increase peripheral resistance; or, when to direct our efforts at the heart, and when at the bloodvessels, when it is well to increase, and when it is well to diminish the amount of fluid in the vessels.

Thus you see how fruitful has been the study of blood pressure in this disease. It explains numerous occurrences, giving us a deeper insight and a broader view of the disease process. To the student of disease it is a wealth of knowledge which will lead to greater understanding of the pathological physiology and to better therapy of the disease.

511 WYLLIE AVENUE.

Male.			Female.		
Age.	Pressure.		Age.	Pressure.	
11-21.....	86.2		11-21.....	96.0	
21-30.....	110.8		21-30.....	103.6	
30-43.....	118.0		30-43.....	104.6	

TABLE II.—STANDARD.			Pounds.		
Feet.	Inches.		Feet.	Inches.	
5	0	115	5	7	150
5	1	120	5	8	155
5	2	125	5	9	160
5	3	130	5	10	165
5	4	135	5	11	170
5	5	140	6	1	180

TABLE III.—AVERAGE.			Average.		
Male.	Female.		Male.	Female.	
11-21.....	86.2	87.68	82.44	85.60	86.69
21-30.....	87.70	85.70	85.68	82.76	89.72

TABLE IV.—AVERAGE.			Average.		
Male.	Female.		Male.	Female.	
11-21.....	86.2	87.68	82.44	85.60	86.69
21-30.....	87.70	85.70	85.68	82.76	89.72

months, and in the winter at least one tub bath a week.

4. The most careful cleanliness of the entire body is an important safeguard against sexual disease.

It may be noted that, in so far as regards paragraphs 5, 6, and 15, they are, to a great extent, dead letters.

For instance, the Friedrichstrasse, from the Oranienburger Tor to the Besselstrasse, as also the Potsdamerplatz, Behrenstrasse, and Leipzigerstrasse, all of which are forbidden ground to the prostitutes, are their favorite promenades. In fact, these streets are so notorious in this respect that a decent woman would never dream of using them after dark, except when in male company. The prostitutes promenade along them in the most brazen manner and in the most conspicuous dress, and do not hesitate to make their trade known to the male passer-by, that is, they may not directly accost the males, but they find it very easy, nevertheless, to communicate their intentions to the men, and when they think themselves unnoticed by the police they do not hesitate to accost the men. In numerous instances, furthermore, in defiance of paragraph 15, they share their dwelling with another female, or live with their lover. In some of the districts which are preferred by the prostitutes one landlady will rent rooms in the same apartment to a number of prostitutes.

Should an inscribed prostitute express a desire to give up her immoral mode of life she needs only to make known her desire to the police authorities, whereupon her desire is entered upon the records of her case. She receives, thereupon, a temporary

dispensation for three months from police control. She is, however, expected to conduct herself in a decent manner, and to avoid falling under suspicion of still following her trade of prostitution. The document employed in this transaction is as follows:

X.—PRELIMINARY DISPENSATION FROM CONTROL EXAMINATIONS.

(1) For..... it is to be recorded that she is temporarily to be freed from the regulations of the sanitary police of the date of June 28, 1902. This, however, is only to be done with the privilege of revocation, under the express condition that she shall not give any occasion for any interference, or any interposition by the morals police. Otherwise, particularly if she again make herself suspected of engaging in public prostitution, the above mentioned concession is to be retracted, and she is again to be subjected to the control regulations. Concerning her definite release from control is to be decided later on.

(2) For the district, for the observation of and for her production as soon as she again makes herself suspected of public prostitution.

(3) To the other districts for information and notification, in the sense of the orders, with regard to.....

(4) precinct similarly.

(5) For the control book, with the report of the district and the statement of the other districts, as to whether has given occasion for any interference by the morals police.

Any breach of these orders is to be followed by her being brought before the district court, for the purpose of bringing about her punishment for the breach of paragraph 361-B of the National Code of Laws.

Should the woman in question during a period of three months not lead a moral life, and should she arouse the suspicions of the police that she is still secretly following her trade of prostitution, and should the secret police find that these suspicions are based upon facts, then the temporary dispensation is withdrawn and the woman is again placed under control. The following document is then employed:

XI.—WITHDRAWAL OF THE DISPENSATION.

(1) In the case of..... it is to be recorded that the temporary release from obedience to the morals police control regulations, granted to her upon..... is hereby retracted, since she has again aroused suspicion of engaging in public prostitution. She is from now on again to be subjected to the control regulations, and must particularly present herself regularly for medical examination on the dates of which she has been notified.

TRANSACTION.

Berlin, 1902.
(1) To..... it was to-day disclosed, in conformity with the adjoining order, that she is to be temporarily released from the observance of the morals police regulations of June 28, 1902. This may, however, be recalled, and is done under the express condition that she is not to give any occasion for any interference by the morals police. Otherwise, namely, if she again brings suspicion of public prostitution upon herself, then the above mentioned concession is to be recalled, and she is again to be subjected to the control regulations. Concerning her definite release from control will be decided later.

(2) For districts
(3) For the precinct for information.
(4) Upon the control book.
(5) Upon the records.

(6) Upon the records.

(7) Upon the records.

(8) Upon the records.

(9) Upon the records.

XII.—WITHDRAWAL OF THE DISPENSATION.

(1) In the case of..... it is to be recorded that the temporary release from obedience to the morals police control regulations, granted to her upon..... is hereby retracted, since she has again aroused suspicion of engaging in public prostitution. She is from now on again to be subjected to the control regulations, and is particularly to present herself for a medical examination upon the dates of which she has been informed.

Any contravention shall be followed by her production before the district court for the purpose of bringing about her punishment for transgression according to paragraph 361-B of the National Code of Laws.

Should she, however, for a period of three months lead a decent life, and not fall under the suspicion

of the police, then she is definitely released from the control and her name is removed from the rolls of the public prostitutes.

XII.—This document reads as follows:

1. is definitely released from control.
2. is, at her next visit, to be detained, and to be informed hereof.
3. To the district for information.
4. To the attention of the other districts.
5. To the precinct similarly.
6. Book to be added.
7. Release to be noted.
8. Records to be filed.

Should syphilis appear in the person of a prostitute belonging to either the second or third subdivision, she is at once transferred to the first subdivision, to which all syphilitics are referred for the period of three years, and the following memoranda are entered upon the records of her case:

XIII.—In the person of the prostitute, book number, previously belonging to the danger class, syphilis has appeared. The above named might, therefore, be referred to the first danger class for three years.

Signed Physician of the Morals Police.

To the Royal Morals Police.
1. It is to be noted upon the records of that she has, by reason of the foregoing medical certificate, the present day been referred to the first danger class.

2. Upon the control book.
3. For the information of the districts.
4. To the records.

At the completion of the twenty-fourth year, the prostitute, unless syphilitically infected, is referred to the second class. At the completion of her thirty-fourth year she is referred to the third class. Here the facts are also entered upon the records of her case, as in the following document:

XIV.—The prostitute heretofore belonging to the first second danger class, book number, completes upon the day of of this year her 24th 34 year of age (has upon the day of

That which is not referred to is to be crossed out.
..... of this year, been one year under the supervision of the morals police), and might, therefore, be referred to the second or third danger class.

In addition, I would remark that more than three years have elapsed since the outbreak of syphilis in her person (1), that she had previously not been diseased with syphilis.

Signed Physician of the Morals Police.
To the Royal Morals Police.

(1) To the control book.
(2) To the records.
(3) To the records.
(4) To the records.
(5) To the records.
(6) To the records.
(7) To the records.
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(95) To the records.
(96) To the records.
(97) To the records.
(98) To the records.
(99) To the records.
(100) To the records.

Should infections or contagious disease (including scabies) break out in the person of the prostitute, she is at once, upon its discovery, referred for treatment to the hospital of the city almshouse, or she is, as follows:

Should she, however, for a period of three months lead a decent life, and not fall under the suspicion

transported to the hospital division, in the city almshouse.

The hospital division is hereby respectfully requested to admit her for treatment, and to carry out the medical measures necessary for a cure, by force, should she offer resistance, and not to release her from the hospital station before a cure has resulted.

This document, after having been filled out, is sent to the authorities of the city shelter at the time that the patient is transferred to the institution.

Should a prostitute absent herself from the control examinations and state that she is sick and cannot appear for examination, then she is expected to present a medical certificate, made out by a reputable physician.

It may be stated here that if she be found to be suffering with a venereal disease in the presence of any other disease, she is, if her condition is such that she may be moved, transported to the above named hospital. The certificate is as follows:

XVI.—Costs are not to be paid by the morals police.

MEDICAL CERTIFICATE FOR THE USE OF THE MORALS POLICE IN BERLIN.

The certificate misses its purpose if all questions, in particular the questions included under No. 6, are not answered beyond any doubt, upon the basis of an examination with regard thereto.

1. Name and dwelling of the patient.
2. Since when under the treatment of the undersigned.
3. Technical name of the disease.
4. Is it of a venereal nature?
5. Is it contagious at the present time?
6. Are any other symptoms of syphilis, chancre, or gonorrhoea present? What are they? Do they cause danger of infection?
7. Is the patient confined to bed, or only to her room?
8. When, approximately, will she again be able to appear before the morals police?

.....19..

Physician.

Residence of the physician

In order that the physician who is treating the person in question may be released from his pledge of professional secrecy, he receives the following document, which is filled out and signed by the prostitute in question:

XVII.—TO BE GIVEN TO THE PHYSICIAN.

I hereby declare that I agree that the physician, Mr., living at, is, at my expense, under the employment of the accompanying formula, to fill out a certificate concerning my state of health, for the use of the morals police in Berlin, and to give the same to a police official, who shall identify himself, for its transmission to the proper authorities. For the above mentioned sole purpose, I release the physician, Mr., from the pledge of secrecy.

..... the 19..

Signature

Residence

In those cases where a prostitute has absented herself from the medical inspection, a police officer is sent to her dwelling, who is to fill out a report concerning her appearance and condition. The officer making such a visit is pledged to use all possible consideration. He may not attempt any examinations, and must report only upon the findings which would appear to a layman as signifying real illness,

or simply an attempt at deception. This is done because, as I have been informed, upon credible authority, the prostitutes at times attempt to evade the examinations at police headquarters, when because of a venereal disease, they fear that they will be transported to the hospital, and attempt, by reporting sick and even by the presentation of medical certificates, obtained from dishonest medical practitioners, to lead to the belief that they are really ill. The report which must be made to police headquarters by the officer of the criminal police entrusted with this duty is as follows:

XVIII.—REPORT.

Upon the supposedly sick, who stands under morals police supervision.

The official must avoid every examination, particularly the inspection of covered parts of the body.

In the following form the fitting sentence is to be undelivered:

1. Date and hour of the inspection.
2. Where, and how, did the official find the supposed patient? (For instance—in bed; out of bed; in the room; in the kitchen; upon the stairs; sitting; lying; how employed; unemployed).
3. What appearances of disease were externally noticeable? (For instance—reddening; swelling; suppurations; hæmorrhages; eruptions; ulcerations; wounds. Upon what parts of the body? Fever, pallor, emaciation, snuffing, coughing, hoarseness, difficulty in breathing, vomiting, stiffness of the joints, altered gait, limping).
4. Does the patient wear compresses, packings, bandages, plasters upon the body? Where?
5. Are articles for the care of the sick present? Are they visibly in use? (For instance—medicine bottles, powder boxes, paper bags, salve pots, ice box, ice, irrigators, inhalation apparatus, syringes, bath pans, invalid chairs, fever thermometers).
6. About what does the patient complain? (For instance—chills, fever, headache, dizziness, pains in the throat, cough, expectorating, spitting of blood, pains in the chest, nausea, loss of appetite, pains in the stomach, vomiting, vomiting of blood, diarrhoea, pains in the abdomen, bleeding from the abdomen, pain and burning upon urination, upon stool, upon intercourse; pains in the limbs, attacks of unconsciousness, twitching in the arms, in the legs).
7. Is the patient under medical treatment? By whom? What did the physician state the sickness to be, to her, or to those about her? What has he ordered?
8. Or is the patient without medical treatment? Why? Why does she not apply to the charity physician? The methods of doing so are to be explained to her by the officer. Has that been done?
9. Are recipes present, or, in the absence of such, directions upon the labels of medicine bottles, salve pots? These are to be added to the report, with the consent of the patient.
10. Can a medical certificate upon the form used by the police be obtained? Why not?
11. Can the patient produce witnesses to her illness? What do these say?
12. Has the patient been seen upon the street during the time in question? Under what circumstances?
13. What do the personal records state concerning the condition of health of the patient? Does she frequently report sick? Has she already been in the hospital station of the city shelter? Are there any circumstances present to suspect that the statements of the pretended patient concerning her illness are not based upon truth?
14. The patient is to be notified to present herself, outside of the regular term, to the morals police, at

once upon feeling herself in condition to do so. When does she believe that this will be the case?

Noted by

Criminal patrolman.

Criminal sergeant.

Should a woman be seized for public prostitution and found to be suffering with venereal disease, and found to be without trade, without means of subsistence, without a fixed dwelling place, or to be living in some prostitutes' quarter, she is transferred to the hospital of the city almshouse for treatment, and the following noted upon the records of her case:

XIX.—1. The venereally diseased is convicted, upon her confession, of public prostitution. She is without dwelling, in a dwelling not reported. The justifiable suspicion exists, therefore, that she will continue to follow the trade of public prostitution, in spite of her disease. Her compulsory treatment in the hospital of the city shelter seems necessary, for the effective prevention of the spread of the disease, therefore:

2. Record of warning.

3. To the hospital.

4. Parents guardian.

5. Court of guardianship is to be informed.

6. A copy of the notification of delivery of the, and of the transactions of the is to be made, and to be sent to the first district attorney of the Royal District Court, No. 1, here, with the information that has to-day been referred to the hospital station of the city almshouse here, Fröbelstrasse 15.

7. To be again presented. (F. M.)

The corps of physicians employed in the examinations at police headquarters consists of twelve male and one female physicians. The female physician has no prescribed hours of duty, seeing that she has only to make the first examination of prostitutes brought to headquarters, or of those charged with prostitution. Whenever a female is brought to police headquarters, charged with having given rise to the suspicion that she is a public prostitute, or who has admitted to follow public prostitution as the means of a livelihood, or who presents herself with the request to be placed upon the rolls of the police, the female in question is placed in charge of the matron on duty, and the female physician is notified. She, thereupon, goes to headquarters and makes the examination. Her salary is 1,200 marks (\$288) per annum.

The corps of twelve male physicians is divided into three batches of four men each, each batch being on duty two hours daily. The hours for examination are from nine a. m. to three p. m. For this service they receive a salary of 2,400 marks per annum (\$576).

The examinations are made in large, light, and airy rooms, set aside for this purpose, at police headquarters. These rooms open upon the corridor, which serves as a waiting room for the prostitutes. These enter police headquarters by a special entrance from a comparatively little traversed street, adjoining the city elevated railway, pass up a separate stairway, which leads to the corridor before mentioned. Here they receive their control books from the police official on duty in the corridor, a messenger calling for the books at the bureau of the division in which they are kept.

The women pass, in their turn, into one of the rooms of the examining physician on duty, loosen

the clothing, and take their place in turn upon the examining table. The external genitals, as well as the inguinal glands, are examined. The urethra is inspected for evidences of inflammation, or for the presence of profuse or purulent discharge. A cylindrical speculum is inserted and the portio and cervical canal examined for erosions, ulcerations, and profuse discharge. As the speculum is withdrawn, the vaginal walls are inspected for ulcerations. Following this, the palms of the hands, the mouth, face, pharynx, cervical glands, breast, axillary glands, and cubital glands are examined. Should the prostitute be found to be healthy the book is countersigned by the examining physician and given to the woman, who leaves the room and presents the book to the official on duty at the exit, who, thereupon, unlocks the door of exit and permits her to go. Should she be found diseased, the fact is noted upon the control book, which is thereupon laid aside until the necessary papers have been made out for the woman's transmission to the hospital; the woman, meanwhile, waiting in an anteroom. All examinations are made in the presence of a middle aged or elderly female attendant, who is supposed at the same time, to assist the women in dressing, or undressing, and to assist the physician by cleansing and handing instruments, etc. No microscopical examinations are, at the present time, made at police headquarters. Where a suspicion exists that a discharge is of a gonorrhoeal character, the examination is made in the hospital station of the city almshouse. Formerly, at the time of my last previous visit, in the year 1899, these examinations were at once made in police headquarters. The regulations governing the examinations by the medical officials of the morals police are as follows:

XX.—SERVICE REGULATIONS FOR THE PHYSICIANS EMPLOYED WITH THE MORALS POLICE.

1.

The medical examination of those female prostitutes standing under police control, as well as those who are arrested upon the suspicion of prostitution, takes place daily, in the rooms at police headquarters set aside for that purpose, between the hours of nine a. m. to about three p. m.

2.

The examinations are to be made by the twelve physicians entrusted therewith in such a manner that, in batches of four, one in each of the four rooms set aside for that purpose, they are to be on duty from nine until eleven, eleven to one, or one to three o'clock, or until complete attention has been given to all those present for examination upon any date (which, as a rule, may be effected by three o'clock). On Sundays and holidays the examination takes place in only one room, from ten until twelve o'clock, at which the physicians must serve in rotation.

3.

The purpose of the examination is to determine whether any of the persons to be examined suffers from any infectious disease, so that she must be placed in a hospital for the purpose of compulsory treatment. In the first place, the venereal diseases (gonorrhoea, soft chancre, and syphilis) come under consideration, and all diseased conditions which arouse the justified suspicion that they are of a venereal nature; after that, scabies, and possibly smallpox, and other contagious and acute infectious diseases.

4.

In the category of these diseases which are to be referred to the hospital in the Fröbelstrasse belong those noted in detail, which present the following symptoms:

a. Vaginal and uterine blennorrhœas, is so far as those are combined with erosions, or are very copious, or have a decidedly purulent character.

b. Urethral blennorrhœas.

c. Chancres, at whatever portion of the body they may be present, and all other pus secreting areas, or such as arouse the suspicion of an infectious character, occurring within or in the neighborhood of the genitals.

d. Condylomata.

e. Buboës of a specific nature.

f. Syphilitic eruptions, or such skin eruptions as arouse the suspicion that they may be of a syphilitic nature.

5.

At the examination there must be examined at least the following, according to the ministerial regulations of the 11th of July, 1898:

1. The face, the oral cavity and pharynx (spatula to depress the tongue), lips, cervical glands, breast, arms (roseola), axillary glands, cubital glands.

2. Upon the examining table; anus (condylomata, ulcerations), skin of the abdomen, thighs, inguinal glands, labia majora and minora, particularly the posterior commissure and urethral orifice. The urethra and ducts of the Bartholinian glands, by means of pressure with the finger.

3. With the speculum; the vagina, uterine orifice, and cervix of the uterus. In the presence of marked secretion, irrigation of the vagina by means of an injection of water, or cleansing by means of a cotton sponge.

The instruments used, which may consist only of glass, porcelain, or metal, are to be cleaned by a female attendant after each use, in warm water, by means of green soap and a brush, or in warm two per cent. soda solution, or in one per cent. watery solution of holzin.

The examining physicians are required to furnish the necessary instruments themselves in sufficient number. Disinfecting solutions, cotton, and towels are furnished them. After each use the instruments (spatula and specula) are to be cleansed and afterward dried by the female attendant. In case too profuse mucous secretion makes the examination of the inner genitals more difficult, they are to be cleansed by means of the injection of water or with cotton sponges.

In the persons of prostitutes who are menstruating, the examination of the inner genital organs only is to be omitted. The other examination is to be completely carried out.

6.

Should it be discovered at the examination of one of the arrested individuals that she is not yet deflorated, then the examination with the speculum is to be omitted.

7.

Should it be found that a previously examined person has been venereally diseased, then the respective instruments are to be separately disinfected, and to remain at least twenty minutes in the disinfecting fluid.

8.

At once after the examination of every individual, there is to be entered in the control book presented by her, or (in the case of the arrested) at the margin of the document presented, the result, briefly, in addition to the name (initials) of the examining physician and the date. It is sufficient to note that the individual is healthy—that is, free from those contagious diseases mentioned in paragraphs 3 and 4, or that she must be placed in the hospital.

In all cases there is to be added "because of syphilis," or "because of suspicion of syphilis," or "because of scabies," and similarly. In the same manner it is to be noted if the individual is still a virgin. With those who have just menstruated, as a result not completely examined prostitutes, there is, in case no disease is recognizable, the notice "healthy; menstruating," to be made—that is, free of infectious disease, in so far as this may be recognized during menstruation. In the journal, which is to be found in each of the four examination rooms, are to be newly entered the names of those who are diseased and those who are suspected of disease, with an exact report of the findings.

9.

Should the examining physician record the transference of a prostitute to another danger class to that to which she has been referred in conformity with Paragraph 1 of the Morals Police Regulations of the 28th of June, 1902, then he must give notice thereof to the morals police upon the form specified for this purpose, and with the addition of her control book.

10.

In case they are prevented from attending to their duty the physicians must at once furnish a substitute for themselves, but must also at once give information thereof to the governmental medical council and director of the morals police for approval.

The diseased prostitutes are, as stated before, sent to the hospital at the city almshouse, a large building situated in the northeasterly part of the city, toward the suburbs. The hospital for the prostitutes is in one large wing of the building, while the venereally diseased males occupy wards in the opposite wing. The wards for the infectious prostitutes form a "lock hospital," while those for the male venereal patients are not locked off. In other words, the diseased prostitute is a prisoner while an inmate of the institution, whereas the male patients are treated as ordinary hospital inmates.

She can only leave the institution upon the certificate of cure by the attending physician in charge, or his medical representative, while the male patients may leave at any time, and are in nowise looked upon as prisoners. The hospital wards themselves are plainly and simply furnished, the furniture being the same for both male and female patients. I forbear to describe the furnishings more closely.

The treatment of both males and females occurs in separate operating rooms, one in each wing of the building; thus the patients of different sexes do not in any way come into contact. These operating rooms are large, light, and airy apartments, furnished with all modern appliances for the examination and treatment of venereal or genitourinary diseases.

A staff of physicians, more or less specially versed in the recognition and treatment of these diseases, is on duty, the entire hospital being under the charge of a chief physician. At this hospital the examinations for gonococci are made at intervals of about a week, and it seemed to me, from the statement of the attending physician on duty at the time of my visit, that there is no definite rule concerning the length of time during which gonococci must be absent, in order that an inmate may be discharged as cured. The general opinion seemed to be that the presence or absence of gonococci was not of so great weight in the determination of the infectious or non-infectious character of a prostitute, as was the pres-

ence or absence of profuse discharge of a purulent character, with evidences of an acute inflammatory process. With these views of course I cannot coincide, since it has been my experience, in every instance, that gonococci present in either the urethral or cervical secretion, even in the absence of purulent discharge, are fully capable of infecting the male urethra. In other words, the shortcomings of the system as applied in the city of Berlin are, to my mind:

First.—The complete ignoring of the male source of infection and the impossibility of applying compulsory treatment to the infected male, as is done in Hamburg.

Second.—The absence of any examination for gonococci in the prostitutes at police headquarters. The need for such examinations to determine the condition of health or disease in the prostitute becomes apparent to those who have had much experience with females suspected of being infected with gonorrhoea. And any one acquainted with the tricks employed by the prostitutes to escape detection knows that, unless there be a pronounced discharge in the presence of acute inflammatory reaction, the woman very easily disposes of the slight urethral discharge by urinating just before the examination. And while the absence of discharge is not of itself positive proof of the absence of gonorrhoeal infection, so conversely, the presence of discharge is not necessarily proof of gonorrhoeal infection.

Third.—The absence of any definite rules governing the frequency of microscopical examinations of the secretions of prostitutes at the hospital.

Fourth.—A shortcoming to my mind existed in the rather lax rule governing the syphilitically infected prostitute. In Berlin, as in all the other cities, she is compelled to undergo a course of inunctions of mercurial ointment, usually thirty in number. When this course of inunctions has been completed, she is, if there are no further visible syphilitic lesions, permitted to leave the institution and resume her trade and carry this on until some further visible syphilitic lesion shows itself. Any one acquainted with the course of a syphilitic infection will at once realize that this offers no real safeguard against the transmission of the disease to others. During the period which elapses between her release and the time when she is again found, upon examination, to have visible syphilitic lesions, she may have infected any number of people, either directly or indirectly.

Fifth.—Under the present laws but a small part of the prostitutes may be reached by the police and subjected to examinations. By far the largest number, the so called "secret" prostitutes, escape the provisions of the law. In this regard the following table, containing the source of infection in 134 cases of gonorrhoea, taken by me during my assistantship at the Berliner Allgemeine Poliklinik, may not be uninteresting. They were the cases of gonorrhoea occurring during a given period, as they presented themselves for treatment:

Prostitutes "under control"	5
Prostitutes, "street walkers," not under "control"	82
Shoe girls and factory girls	17
Seamstresses	9
"Kellnerinnen" (waitresses in restaurants, etc.)	9
"Respectable" (maids, widows, married women)	10
Unknown source	2

Objection has been made, by sentimentalists, to the manner of arresting the women suspected of prostitution, on the ground that innocent women might be unjustly accused. It is barely possible that women have, at some time, been arrested in whom the suspicion was not justified; but those acquainted with life in European cities know how easy it is for the prostitute to get any number of her male and female "pals" to swear to anything she may desire. Those who have lived in Europe also know that no respectable woman loiters on the streets after dark. It has been shown that no woman may be approached by the officers unless she has repeatedly conducted herself upon the streets in such a way as to arouse the suspicion that she is soliciting men. Even when she does so, she is at first warned, and only after repeating the offense may she be arrested. No physical examinations may be forcibly made, and the suspect has the right to examination by a physician of her own choice if she desires. Denunciation, too, on the grounds of prostitution is not a thing to be lightly risked, for if the charge cannot be proved, the woman accused has the right to claim damages from her accuser. Usually, therefore, when denunciations are made, the charges come from one who has been infected, or robbed, or from neighbors who have been scandalized, and they are usually true. (To be continued.)

Therapeutical Notes.

Successful Treatment of Tetanus.—Galliard reported to the Société médicale des Hôpitaux (*La Tribune médicale*, June 1, 1907) the following unusual case: A woman of imtemperate habits had an attack of morbilliform erythema distributed over the body, which was succeeded by free desquamation of very large scales. There were multiple ulcers upon the lower limbs, which had existed previous to the eruption. Two weeks after admission (November 4th) into the hospital, she had some trismus, but without fever or severe pain. She was ordered six grammes of chloral hydrate. Five days later there was retraction of the head, with contractions of muscles of the nucha, the shoulders, and the limbs. At this time, antitetanic serum was given in doses of 20 c.c., and the daily quantity of chloral was increased to 10 grammes. In spite of this treatment, the symptoms gradually grew worse. The temperature went up every evening to 40° C. (104° F.), the pulse was accelerated, and got up to 150 at times; the respiration was interrupted by distressing attacks of suffocation. At this time (November 16th), in addition to the antitetanic serum, the reporter gave sixty centigrammes of phenic acid, subcutaneously, during the day. These injections were continued for six days, the total quantity of phenol amounting to 3.60 grammes; but she gave no evidence at any time of toxic action. On the 19th of November she first showed decided improvement, and subsequently steadily progressed to recovery. She was discharged on December 20th, when the cure was complete. Pancof (*Le Nouv. médical*, June 1, 1907) reported a case of an Arab chief, thirty-five years of age, whose left hand was lacerated by a gunshot wound. It was dressed with hydrogen dioxide. The wounds had nearly cic-

trized and had ceased to suppurate, when on the twenty-ninth day after the injury he had trismus, and this was followed by opisthotonus and muscular contraction. He was purged with castor oil and given chloral hydrate (15.0 grammes daily) and a little morphine. Subsequently the chloral was increased to 20.0 grammes and potassium bromide 10.0 grammes was added. On the third day antitetanic serum was obtained and 40 c.c. were injected. The next day it was noted that the constrictive pains around the thorax had disappeared. Chloral was continued 15.0 grammes daily. Another serum injection (20 c.c.) was given the next day, and also the chloral. This treatment was continued for a week, when on account of a return of slight convulsions in the muscles of the legs, a single dose of the serum was given, of 50 c.c. The next morning all the convulsive movements had disappeared, the stiffness of the neck had also gone, and the patient could open his mouth easily. No more serum was given, and only one more dose of chloral (10.0 grammes). On the twenty-first day the patient was able to walk; and on the fortieth day all traces of stiffness had disappeared. 170 c.c. of serum were used within thirteen days. 225 grammes of chloral hydrate appear to have been administered in eighteen days. Hypodermic injections of morphine (gr. $\frac{1}{6}$) were given as required, about once a day.

Persistent Vomiting During Pregnancy.—

Piena, in the *Revue pratique de gynécologie, d'obstétrique, et de pédiatrie* (No. 1, 1907), reviews the expedients which are most useful in the treatment of persistent vomiting during pregnancy. The diet should be carefully supervised, generally allowing the patient as far as possible to make the selection of the food that is most acceptable to her. Cold articles are better than hot, such as cold meat, cold bouillon, or iced drinks. A liquid diet will be best suited to certain cases. To prevent denutrition from insufficient food, nutritive enemata may be given, or injections of normal salt solution, or of sterilized oil; or even transfusion of blood may be practised. Ovarian opotherapy has been recommended for the control of the vomiting, but it can only be exceptionally useful (if at all). Two or three procedures are of special value, and may be mentioned. One is the direction of the ether spray to the epigastrium; another, the electrization of the pneumogastric by the continuous current; and, finally, the evacuation of the intestine, the most important of all. This can be accomplished either by lavage of the intestine or by catharsis. The lavage is preceded by an injection of a pint of warm sterilized olive oil introduced slowly into the intestine, and at the expiration of three or four hours, a large soap and water or evacuant injection is given. Catharsis, in the hands of Forgues, gave a successful result in eighteen out of nineteen cases. He administered Scidlitz water (which is rich in magnesium sulphate) persistently until it was retained and freely purged the patient. Massage, and especially the kneading of the flexure of the colon, has been recommended by Geoffroy. If these medical measures fail, and the pulse remains above 100, and there is progressive emaciation (loss of one third of the bodily weight has been reported by Charpentier).

or there is a progressive loss at least of 800 grammes a day, and finally cerebral disorder occurs, then obstetrical intervention becomes necessary. If the patient has reached the sixth month of pregnancy, the indication is for the induction of premature labor. If the pregnancy is less advanced, the evacuation of the uterus is a radical expedient, which may be resorted to only in case of absolute necessity. Before resorting to this final measure, digital dilation of the neck of the uterus, with slight separation of the membranes in the neighborhood, may be sufficient to check the vomiting. But the medical treatment proper, that is to say, the ether spray to the epigastric region, the oil enemata, and especially superpurgation, will make the cases exceptional in which it is necessary to resort to intervention of this character.—*La Quinzaine thérapeutique*, May 10, 1907.

Mixture for Producing Local Anæsthesia for Operations on the Ear, Nose, and Larynx.—

Bonain, of Brest, in 1898, recommended a combination for producing anæsthesia of the membrana tympani, consisting of equal parts of crystallized menthol, cocaine hydrochloride, and pure, white carbolic acid. This produces a syrupy solution by simple mixture of the ingredients, when they are triturated together in a mortar. Consteau and Lafay (*La Clinique*, July 5, 1907) have found this combination to be very useful; but recommend that adrenalin hydrochloride be added in the proportion of 1 to 1,000. The addition of adrenalin makes the preparation hæmostatic, and increases the anæsthetic effect, while at the same time it reduces the danger from absorption of the cocaine (it is said to be nine or ten times less toxic than cocaine solutions alone). For the ear, from five to ten drops of this solution are used upon a small piece of absorbent cotton, about the size of a pea. This is placed in contact with the drum membrane, and should be removed in about five minutes. The drum should then be of a milky white color, which indicates insensibility. The carbolic acid exercises a caustic action on the external surface of the membrane, and softens it so that the cocaine may be absorbed and produce the anæsthesia. The drum may now be incised without pain; it is advised to make another application after the operation, to check hæmorrhage. In operations upon the nose and throat, the application is made with some cotton. It is advisable to spray the parts with a little cocaine solution (one per cent.) so as to make the application of the stronger solution less disagreeable, where the mucous membrane is sensitive. If the cotton be kept in contact for a few moments, the mucosa turns white, looking like a mucous patch. This is especially noticeable in the pharynx. As this whiteness indicates the full degree of insensibility there should be no delay in operating, the anæsthesia being as fleeting as that of cocaine of ten per cent. strength. This combination has been used during the last fifteen months in hundreds of cases with complete satisfaction. Among the operations which have been performed with its aid are galvanocauterization of the turbinals, removal of hypertrophies, excision of turbinals with cutting forceps, resections of the septum; operations on the tonsils, tonsillotomy with the cold wire snare; opening abscesses, and removal of adenoids, as well as paracentesis of the ear drum.

The solution does not cause the stuffy feeling of the pharynx and the difficulty in swallowing which follow the application of the ordinary solutions of cocaine to the throat.

Biliary Opothrapy in Dyspeptic Infants.—Barbier and Cruet, in a recent essay (*Bulletin général de thérapeutique*, July 8, 1907), call attention to the fact that among certain infants, with a tuberculous heredity, or subjects of congenital syphilis, especially when overfed with cows' milk, gastrointestinal disorders are frequently observed. The babies are poorly nourished, and are pale and lymphatic. There are also indications of insufficiency of the liver function. The muscles are soft and rachitic, tuberculous, or syphilitic manifestations may be seen. The little patients are asthenic, cry very little, and are not restless, they often refuse the nursing bottle, and have the appearance of being intoxicated by the contents of the digestive tract. Constipation is frequent, especially at the beginning. The characteristic feature of these cases is the peculiar abnormal condition of the stools, as regards color, consistence, and odor. In color they are white or slightly yellow, or *café au lait*; at other times, they are streaked, mixed with mucus, and more or less green (showing an intestinal lesion). Their consistence is pasty and homogeneous, except when masses of casein or of fatty acids are present. Their odor is that of putrefaction; sometimes more, sometimes less fetid. The liver is generally found to be increased in volume. This syndrome, consisting of (1) signs of intoxication (pallor, asthenia, loss of appetite, etc.); (2) constipation; (3) imperfectly digested, large, white, fetid stools; and (4) enlargement of the liver (beginning fatty degeneration), lead to the conclusion that there is insufficient excretion of bile, due to overfunction of the liver; and that this is frequently accompanied by overfunction of the intestine and pancreas. Acting upon this, Barbier and Cruet gave powdered extract of bile, in some cases combining it with pancreatine, with excellent result. The stools regained a normal color, and consistence, and lost their fetid odor. The patients were relieved of constipation, and commenced again to put on flesh. The importance of limiting the quantity of milk to that which a child of equal weight should take, was emphasized in the discussion following this paper, as Barbier had already pointed out that an increased ration of milk in these cases aggravates the digestive troubles, and their consequences.

Serum Treatment of Essential Anæmia.—Sonnevile and Minet (*La Semaine médicale*, April 24, 1907) have in three cases utilized the observation of Carnot and Deflandre, that the serum of a rabbit, obtained twenty hours after a preliminary bleeding of 20 to 30 c.c., is capable, when injected into the veins of another animal, of the same species, of producing a hyperactivity of bone marrow and a marked increase of blood globules. When injected into man, this same serum causes a considerable increase of the number of blood cells, and thus persists for several weeks. At the end of this period another injection will again raise the proportion of the blood globules. In the three young patients referred to, the injections caused a rapid improvement in the general condition, increased the proportion of

red blood cells, and increased the hæmoglobin. In two other cases, in which there was leucæmia with splenomegaly, the method was employed, but without effect. [The frequent occurrence of internal psorospermiosis in rabbits would suggest a grave danger, which threatens the use of rabbit serum in therapeutics, and which must not be lost sight of by clinicians.]

Ophthalmia of the Newly Born.—Edgar, in the *Medical Record*, observes that: 1. Silver nitrate solution of 0.5 per cent. strength when applied to the gonococcus for fifteen seconds or longer is germicidal to the organism. Therefore, any solution of equal strength or stronger would fill the requirements as far as germicidal power is concerned. 2. The technique of administration consists simply of instilling the solution into the eye, requiring no after neutralization. 3. Solutions of silver nitrate of 0.5 per cent. and 1.0 per cent. strength do not produce a silver catarrh, even though no neutralizing solution is used afterward. Solutions of 2 per cent. nitrate produce a silver catarrh in about 25 per cent. of cases, whether or not a neutralizing solution is used. Therefore a 1.0 per cent. solution, being germicidal and at the same time producing no silver catarrh, is recommended.

Chronic Cough Cured by Removal of Nasal Polypi.—A young woman, who had been annoyed by a persistent cough for eleven years, was found by Lermoyez (*La Tribune médicale*, June 8, 1907) to have several small mucous polypi, with long pedicles, situated in the left nasal fossa. She had been treated for several years for pharyngeal cough, and five years later it was supposed to be a rheumatismal cough, but all treatment was unsuccessful. The cough increased in severity, especially at night, and the paroxysms sometimes caused vomiting. Immediately upon removal of the polypi, all symptoms were relieved, and did not return. When no lesions can be detected in the lower air passages or throat, in a case of dry, persistent cough, the nasal chambers should be examined.

Dietetic Management of Gout.—Ebstein (*Deutsche medizinische Wochenschrift*, April 18, 1907) holds that among gouty patients the alimentary regimen should be essentially the same as in other diseases of impaired nutrition, such as diabetes and obesity. He prescribes a mixed ration, of which meals and green vegetables are the basis. Starchy vegetables and bread should be only moderately used. Sugar and sweet desserts are forbidden, and also every kind of alcoholic drink. English physicians also incline, at the present time, to allow a generous mixed diet in chronic gout.

Tan and Freckle Remover.—The following solution, applied cautiously to the freckles with a tuft of absorbent cotton, will remove the offending spots. The application should be made after the face and arms have been washed and all traces of soap removed:

R	Corrosive chloride of mercury,	5i.
	Diluted hydrochloric acid,	5i.
	Water,	5ss.
	Alcohol,	5ij.
	Rose water,	5ij.
	Glycerin,	5i.

M.

American Druggist and Pharmaceutical Record,
August 12, 1907.

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YELLOW FEVER IN CUBA.

It seems that there are a few cases of yellow fever in Cuba at the present time. We think there need be little fear of a widespread epidemic, though the fact must never be lost sight of that a little spark may kindle a conflagration. It is idle to expect that any infectious disease can ever be utterly stamped out, annihilated. A hundred years ago there were those who fondly imagined that small-pox would soon be definitively done away with by vaccination. It would have been if the ideal conditions could have been fulfilled, but they could not be, and it is doubtful if they ever will be. Pathogenic germs have their lurking places, and their total eradication appears to be a superhuman task. We must always be on guard against epidemics—of yellow fever as well as of any other disease—for we cannot say that we have slain the dragon once and for all. Our own territory is constantly menaced, in the warm months, from Mexico and from South America, and it is idle to hope that the West Indies will always escape the danger.

One of our military posts is involved in the little Cuban outbreak. That fact ought not to be viewed as reflecting on the sanitary vigilance of the medical officers of the army, for we do not doubt that, when all the features of the occurrence are ascertained, it will be found that circumstances were at work which thwarted ordinary prophylactic measures. Indeed, the existence of the disease in one of our posts will probably prove a special incentive to the adoption of measures calculated to restrict the

spread of the malady, because it must be a matter of particular pride with the army to carry to the utmost the means originated by itself for disputing the sway of the pestilence. The United States army cannot afford to let yellow fever get the better of it. Its reputation is at stake. The "combatant" officers must realize by this time that obstructive interference on their part with measures recommended by the medical officers will not be condoned by the country, as it so often has been in the past. The facts of sanitary science have come to be too widely known to allow of anything of the sort.

Cuba is not now a dependency of the United States in the full sense of the word, but it is so nearly a dependency of ours that we are in duty bound, especially during our present partial occupation of Cuban territory, to protect the island from disastrous visitations of pestilential disease. Moreover, there is a motive of self interest in our doing so; the prevalence of a yellow fever epidemic in Cuba is a direct menace to our own people. It makes no difference whether an epidemic invades New Orleans from Mexico or Florida from Cuba; or, rather, we are all the more under compulsion of taking active measures to repel an irruption from Cuba inasmuch as we have in that country a virtual domination. If yellow fever reaches us from Cuba during the present season, it ought to go hard with those of our representatives on the island who turn out to be responsible for the disaster.

DENGUE.

The work of the Army Board for the Study of Tropical Diseases as They Occur in the Philippines, composed of Dr. P. M. Ashburn and Dr. Charles F. Craig, is of the first order. We have recently called attention in these columns to the description of the embryos of *Filaria philippinensis* (June 15th) and we now have to note an excellent paper on dengue, which appeared in the *Philippine Journal of Science* for May. A preliminary note concerning the new facts worked out by this board appeared in one or two other journals earlier in the year; but the paper under review deals with the entire dengue question from the point of view of an epidemic which occurred at Fort William McKinley, Province of Rizal, Luzon, Philippine Islands, in which 492 cases were observed. The authors review the symptomatology and diagnosis of the disease, which, as usual, has presented some slight differences in its manifestations from those of previously reported epidemics.

The most important part of their work, however, has been their experiments to discover the cause of the disease and its method of transmission. The ætiological factor has so far escaped detection. Ash-

burn and Craig have, however, been able to show that it is not a blood parasite that is detectable by our present methods of blood staining and blood examination. Further, it is not a bacterium. More important is the establishment of the fact that the ætiological factor is contained in the blood, because they have been able to infect susceptible patients by the intravenous inoculation of blood taken from the veins of a patient sick with the disease. They injected the unfiltered blood from dengue patients into eleven of fourteen volunteers, with the result that seven of the eleven were attacked with typical attacks of dengue in from two days and twelve hours to seven days. In three of the eleven persons there was absolute immunity to the disease.

Having proved that the inoculation of the blood of a dengue patient was able to produce dengue in a susceptible individual, the authors injected the filtered blood of dengue patients into persons who had not had the disease. A bacteria-proof Lilliput diatomaceous filter was used, and the process was accomplished under 730 mm. pressure. In two cases the intravenous injection of filtered blood produced an attack of dengue; in one case in three days and eleven hours and in the other case in two days and twelve hours. The authors, therefore, conclude that the organism causing dengue is ultramicroscopic in size.

They then turned their attention to the theory advanced by Graham, in 1903, that the disease is transmitted by mosquitoes. Graham accused *Culex fatigans* of being the offending insect, and the authors first studied this insect. Furthermore, the geographical distribution of *Culex fatigans* and dengue is identical. They used mosquitoes reared in captivity and insects caught in natural surroundings. The raising of mosquitoes and their use for the experimental transmission of disease is not the easy matter that it appears from reading of it. However, Ashburn and Craig were able to infect one patient with dengue after he had been bitten by mosquitoes raised from the eggs in their laboratory. The patient was a private in the Hospital Corps of the army, who had volunteered for the purpose. On September 12th he was placed under a mosquito bar with mosquitoes that had bitten a patient with dengue on the night previous. The mosquitoes placed under the bar did not bite the man until the night of the 13th of September. In about three days and sixteen hours the patient had fever (100.2° F.), twenty-four hours later he began to complain of symptoms and went through a typical attack of dengue. The authors believe from this experiment that the parasite of dengue does not undergo any cycle of development in the body of the mosquito; but that it lives in the stomach of the

insect for an unknown period, retaining its virulence. They believe that the parasite is introduced into man by regurgitation through the œsophagus and proboscis during the act of biting. We should criticise the last statement. It seems to us, from the anatomy of the alimentary tract, that there is no regurgitation from the stomach of the mosquito during the act of biting. The valve arrangement of the pumping organ would appear to be provided to prevent that occurrence. We know that such an eminent authority as Schaudinn believed that regurgitation was possible. It appears to us, however, that if the parasite undergoes no cycle of development in the body of the insect it is more likely to be transmitted by the soiling of the proboscis, as has been shown to be the case in trypanosome transmission by the studies of Minchin, Tulloch, and Gray (see editorial, November 24, 1906).

THE PATHOLOGY OF DROPSY DUE TO VENOUS OBSTRUCTION.

In a paper, published in 1903, Charles Bolton described the occurrence of dropsy after the diminution of the size of the pericardial sac by sutures (*Journal of Pathology and Bacteriology*, August, 1903). In the studies made at that time it was found that after the partial occlusion of the pericardial sac and the consequent obstruction to the filling of the auricles of the heart during diastole, there was a rise of pressure in the entire venous system, followed by a return to normal in about an hour, but there was very slight reduction, if any, in the arterial pressure, so that the capillary pressure was not raised. Starling's theory of the production of hydræmic plethora assumed that the venous pressure primarily fell below normal in the limbs and the splanchnic area, although it rose in the great veins near the heart. The low pressure in the peripheral veins initiates the absorption of lymph, which continues until the capillary pressure in the limbs as well as in the trunk is raised above normal by the hydræmic plethora so produced. Dropsy is then brought about by the raised capillary pressure.

In order to confirm his previous findings, Bolton (*Proceedings of the Royal Society*, lxxix, No. B, p. 532) has tied off the inferior vena cava, the superior vena cava, and the portal vein of cats under anæsthesia. In some cases these veins were merely obstructed for a time by a metal loop of varying calibre. The arterial pressure was taken in the carotid or the femoral artery, and recorded by means of a mercurial manometer; the venous pressure was taken in various large and small veins and recorded by a venous manometer.

As a result of his studies, Bolton concludes that whatever the nature of the impediment by which

the free flow of blood into the heart during diastole is prevented, there is a general rise of venous pressure in all the veins of the body, extending as far back as the capillaries, accompanied by a fall of the mean arterial pressure. These phenomena are due to the accumulation of blood in the veins. The venous pressure soon falls to normal, and, if the animal lives, the arterial pressure returns more or less completely to its former level, owing to vasoconstriction. Dropsy occurs several hours later, while the capillary pressure is normal or even below normal. The return of the venous pressure to normal is accounted for by passive distention of the veins and the capillaries. The dropsy is produced in the situation where the veins and the capillaries are distended and where the blood flows with a diminished velocity, and, in the opinion of the author, depends entirely upon an altered condition of the vessel walls, and not upon an altered condition of nutrition of the tissues themselves, as held by Lazarus Barlow. High capillary pressure plays no part in the production of this oedema, and the arterial pressure may be normal or below normal. The earliest dropsy in uncompensated heart disease is strictly local in origin, and the capillaries of the district become a temporary excretory organ. In the remaining parts of the body absorption must occur coincidentally with this output of fluid in order to keep up the normal amount of blood. As the disease becomes more extensive the area of production of the dropsy extends. If the venous territory in which the obstruction is situated is not too large in proportion to the remainder of the vascular territories of the body, and if the anastomoses are not too free, dropsy may occur during a high capillary pressure; but the actual cause of the oedema is an alteration in the capillary wall, the high pressure being merely a concomitant circumstance or at most a contributory factor.

COAGGLUTINATION OF TYPHOID AND PARATYPHOID SERA.

Following the application of the agglutination phenomenon of Gruber and Durham to the diagnosis of typhoid fever by Widal, in 1896, it was hoped for a time that a positive and unailing method had at last been discovered for the diagnosis of the disease. Further studies soon showed that in some cases the agglutination reaction developed late, and that in other cases it apparently did not appear at all during the disease, although the clinical course of the complaint was typical of typhoid fever. A review of the results of many reported cases from all parts of the world indicated that about two per cent. failed to show the reaction. Then in 1896 Achard and Bensaude succeeded in isolating an organism from the pus of a posttyphoid

arthritis which was in many ways different from the *Bacillus typhosus*, and still later Schottmüller showed that this so called paratyphoid organism exhibited characters which would warrant its division into at least two groups. Further studies have been made with the object of distinguishing typhoid fever and paratyphoid fever clinically by agglutination reactions and by blood cultures. It was soon found that in some cases there was a mixed infection, as indicated by the fact that the serum of the patient would agglutinate both the *Bacillus typhosus* and at least one strain of the *Bacillus paratyphosus*.

The study of sera which will agglutinate both organisms is of considerable interest. A recent communication on the subject, from Lucien Beco (*Bulletin de l'Académie royale de médecine de Belgique*, xxi, No. 5), based on the study of forty-eight cases and the results of seven animal experiments, calls attention to the frequency with which this phenomenon is seen, even in high dilutions. He finds that the coagglutination of both typhoid and paratyphoid bacilli by human serum is quite frequent, as well as the coagglutination by experimental sera. The secondary agglutination of the beta paratyphoid bacillus by typhoid serum is the most common; but the agglutination of the *Bacillus typhosus* by the serum from a case of paratyphoid fever must also be taken into serious consideration. He believes that, as a rule, the secondary agglutinins arise and develop parallel with the primary agglutinins, under the influence of the same infectious element. This last statement will bear some serious consideration. It is quite generally believed that the agglutinins have a high degree of specificity, if they are not absolutely specific, and that when a serum will agglutinate more than one organism it is customary to conclude that there is a multiple infection. It seems that in the light of our present knowledge of bacteria and agglutinins it is safer to adhere to this interpretation. The author, however, bases his opinion on the fact that in the cases in which he has succeeded in obtaining coagglutinations blood cultures have always given a single organism and that sera obtained after animal inoculations with a single organism have been coagglutinating.

A practical result from the studies reported by Beco is the indication given for the examination of the serum of all persons suspected of having typhoid fever for agglutination with paratyphoid organism, as well as with *Bacillus typhosus*. We are able to add that in many hospitals in this country this procedure has been followed for several years. Stock cultures of *Bacillus typhosus*, often of numerous strains, and alpha and beta paratyphoid organisms are always kept on hand.

News Items.

Whooping cough will be placarded in Pittsburgh, so it is reported in the newspapers.

Change of Address.—Dr. John V. Shoemaker, to 1805 Walnut Street, Philadelphia.

Marine Hospital for Pittsburgh, Pa.—Dr. A. C. Smith, physician in charge of the United States Public Health and Marine Hospital Service in Pittsburgh, has received the plans for a hospital building to accommodate forty patients.

The Pennsylvania State Hospital for Epileptics, to be erected at Spring City, will accommodate 600 patients. Contracts have recently been let for five dormitory buildings, in addition to the eight already completed.

Personals.—Dr. E. Guy Hopkins, City Bacteriologist of Richmond, Va., has resigned, and Dr. A. W. Freeman, medical examiner for the board of health, has been designated to act until a successor to Dr. Hopkins is chosen.

The New Jersey State Hospital for the Insane, at Trenton, N. J., will have Mr. Samuel T. Atchley, of Mercer County, for its new superintendent.

Nuisances in Pittsburgh, Pa.—In January 1, 1907, twenty-five sanitary policemen were appointed by the city government of Pittsburgh. It is reported that up to the first of August, 11,000 nuisances had been abated by these officials.

The New Jersey Tuberculosis Sanitarium Commission has elected Dr. Samuel English medical superintendent. Dr. English was graduated from Jefferson Medical College in the class of 1905, and served a term as resident physician in the Cooper Hospital, Camden, N. J.

Physicians' Fees in Williamsport, Pa.—The physicians of Williamsport announced that they would raise their fees 50 per cent., beginning August 1st. The citizens instituted a boycott by organizing clubs to employ out of town physicians. The result is stated to be a victory for the boycotters, physicians charging the old fees.

Anthrax Among Cows.—It is reported that several cases of anthrax have been discovered among the cows in dairies in Orange County, N. Y., and that a number of cows have died of the disease. The State veterinarian has ordered the isolation of all cattle exposed, and is making great efforts to stamp out the disease.

A Noncommunicable Disease.—The transit permit issued at the Bureau of Vital Statistics, Buffalo, for the removal to that city from Auburn, of the body of the murderer who was electrocuted at Auburn prison on July 31st, gave as the cause of death "legal execution, which is a noncommunicable disease."

The Pennsylvania State Sanitarium for Consumptives, at Mont Alto, Pa., is to be enlarged. The sanitarium was formerly under the supervision of the State Forestry Commission, but was recently transferred to the State Department of Health. The original capacity was for thirty-seven patients, but by the addition of 500 acres of land and the building of model cottages and the erection of tents 100 patients can be accommodated.

The Sixth International Dermatological Congress will be held at the New York Academy of Medicine, from September 9 to 14, 1907, under the presidency of Dr. James C. Wright, of London. The congress will be held at 10 o'clock, a. m., on Monday, September 9th, and there will be a special display of all the new drugs, throughout the congress.

The Mortality of Connecticut.—According to the State Board of Health's Monthly Bulletin for July, 1907, there were 1,508 deaths during the month of July. This was 281 more than in June, and 20 less than in the month of July, 1906, and 26 less than the average number of deaths during July for the five years preceding. The death rate was 18.7 for the large towns, for the small towns 14.4, and for the whole State 17.8. The deaths occurred from infectious diseases were the largest proportion of the total mortality.

Yellow Fever in Cuba.—According to press dispatches at the 11th inst. the third time from a Cuban doctor to the American soldiers in Cuba was reported to the War Department, and said to be a yellow fever, caused by a chief surgeon with the army of pacification. The victim was a private in the 11th United States Cavalry. One new case had also been reported to the American army.

treatment. With the exception of two men all were doing well, five having virtually recovered.

Municipal Medical Matters in Pittsburgh, Pa.—The Director of Public Charities of Pittsburgh has asked the charities committee of the Pittsburgh Council to appropriate \$550,000 for the erection of new buildings and the purchase of additional land at the city poor farm, Marshalsea. Twenty thousand dollars of this sum will be required to repair the damage done by the recent fire. The remainder of the appropriation is to be used for improvements and extensions, including a new male hospital and the purchase of 100 acres of land.

A Scientific Investigation Interrupted.—Passed Assistant Surgeons Joseph Goldberger and George McCoy, attached to the Hygienic Laboratory of the Public Health and Marine Hospital Service, were, upon the outbreak of dengue at Brownsville, Texas, detailed by the Surgeon General to make a thorough investigation into the nature of this disease. They have established an efficient working laboratory and begun work, but just at present the investigation is temporarily interrupted, both officers having contracted dengue.

Charitable Bequests.—By the will of Mrs. Lydia Hickman, the Chester County, West Chester, Pa., Hospital and the Wentworth Home receive \$500 each.

By the will of Martha A. Stewart, the Rush Hospital for Consumptives, of Philadelphia, receives \$2,000.

By the will of Lydia Stoddard Johnson, \$20,000 will be divided equally between the Home for Aged Women, the House of Industry, the Odd Fellows' Home, the Rosine Home, and the Children's Homeopathic Hospital, Philadelphia.

The Texas State Board of Medical Examiners.—On August 6, the Governor of Texas announced his appointments of physicians to compose the board of medical examiners as follows: *Regular*, Dr. Edwin P. Ecton, Greenville; Dr. James D. Osborn, Cleburne; Dr. W. B. Collins, Lovelady; Dr. G. B. Foscoe, Waco; Dr. J. J. Dial, Sulphur Springs. *Homeopathic*, Dr. J. D. Mitchell, Fort Worth; Dr. T. J. Crowe, Dallas. *Eclectic*, Dr. M. E. Daniels, Honey Grove; Dr. J. P. Rice, Fredericksburg. *Physio-Medical*, Dr. R. O. Braswell, Mineral Wells; *Osteopathic*, Dr. W. R. Collins, El Paso.

Donations to the Worcester, Mass., Memorial Hospital.—The trustees of this hospital have announced that gifts amounting to \$80,000 have been bestowed upon the institution. Charles H. Morgan, president of the Morgan Spring Company and the Morgan Construction Company, and George L. Newton, formerly a Worcester wholesale grocer, have each contributed to the trustees \$40,000 for the erection of new wards. Mr. Morgan's gift is a building to cost not over \$20,000, for a maternity ward, to be known as the Rebecca Morgan Memorial Ward. Mr. Newton's gift is for a building to be used for private patients.

The Chicago Eye, Ear, Nose, and Throat College has purchased the property known as 204 East Washington Street. This property adjoins the present site of the college and will give a total frontage on Washington Street of 404 feet and a depth of 80½ feet on Franklin Street. It is proposed in the near future to build a new building occupying both the old and new sites. The building will be an eight story, fireproof structure, with a forced ventilating system, and will be up to date in every respect for the accommodation of the teaching and hospital departments of the college. During the erection of the new building there will be no interruption of the business of the institution, as one half will be erected and occupied while the other half is being made ready.

The Number of Medical Students in Philadelphia.—Last year the number of students in the regular medical schools of Philadelphia was 1,100.

The number of students in the postgraduate schools of Philadelphia was 1,100. The number of students in the spring course of 1906. The Jefferson Medical College had 620 matriculates, including 100 students in the postgraduate schools. The University of Pennsylvania had 100 students in the postgraduate schools. The number of students at the Temple Medical College nor

uates in Medicine. The latter institution does not publish a list of its student body, although those registered are recorded in these columns from week to week; we suppose that about 100 different men register at this school during a year.

The Mortality of Baltimore.—According to the report of the health department for the week ending August 17th, there were 50 cases, as compared with 73 for the corresponding week in 1906. The report showed a total of 241 deaths, as compared with 197 the corresponding week of last year, 101 in 1905, and 201 in 1904. The annual death rate in a thousand of population was: Whole, 21.26; white, 19.81; colored, 28.89. The principal causes of deaths were:

Typhoid fever.....	2	Pneumonia.....	4
Whooping cough.....	1	Diarrhoea, under 2 years of age.....	47
Diphtheria.....	29	Bright's disease.....	15
Consumption.....	2	Congenital debility.....	27
Cancer.....	6	Old age.....	10
Apoplexy.....	5	Accidents, etc.....	18
Organic heart disease.....	7		
Bronchitis.....	3		

The following number of cases of infectious diseases were reported, as compared with the corresponding week of last year:

	1906.	1907.		1906.	1907.
Diphtheria.....	14	3	Mumps.....	3	2
Scarlet fever.....	6	3	Whooping cough.....	2	1
Typhoid fever.....	73	50	Chick-pox.....	1	1
Measles.....	5	8	Consumption.....	12	16

The Cumberland Valley Medical Association.—The fifth annual meeting of this association will be held at Pen-Mar, Md., on Thursday, September 5, 1907. The programme arranged for the occasion includes the following titles: The Use of Antitoxine in Pneumonia, Report of Cases, Dr. John W. Croft, Waynesboro, Pa.; Ectopic Pregnancy, Dr. W. Frank Skinner, Chambersburg, Pa.; The Radical Cure of Hernia, Dr. A. R. Allen, Carlisle, Pa.; Medical Legislation, Dr. John W. Bowman, Lemoyne, Pa.; Title to be selected, Dr. J. McPherson Scott, Hagerstown, Md.; Proprietary Medicine in Therapeutics, Dr. D. C. R. Miller, Mason and Dixon, Pa.; Symposium on La Grippe. The officers of the association are: President, Dr. Charles F. Palmer, Chambersburg, Pa.; vice-presidents, Dr. D. A. Watkins, Hagerstown, Md.; Dr. J. C. Davis, Carlisle, Pa.; Dr. C. M. McLaughlin, Greencastle, Pa.; secretary, Dr. John J. Coffman, Scotland, Pa.; assistant secretaries, Dr. H. A. Smith, Mechanicsburg, Pa.; Dr. H. C. Devilbiss, Chambersburg, Pa.; Dr. D. C. R. Miller, Mason and Dixon, Pa.; treasurer, Dr. John J. Koser, Shippensburg, Pa.

The Quarterly Report of the Bureau of Health for the Philippine Islands. First Quarter, 1907.—The report of the Bureau of Health of the Philippine Islands for the first quarter of 1907 is issued under the date of April 25th. The report contains the usual statistical tables; but in the letter of transmittal that accompanies the more technical portion of the report, which is printed both in Spanish and in English, the Director of Health, Dr. Victor G. Heiser, calls attention to the more important matters that have transpired during the period. The new Bureau of Health census of Manila was completed in January, and shows that the city has a population of 223,542, an increase of 16.37 in a thousand. The record of dangerous communicable diseases is very satisfactory. The last case of plague occurred on April 20, 1906. Two hundred and thirty-five cases of cholera have been reported from the provinces, where it is impossible to get bacteriological studies. But on account of the small number of the cases and the fact that the disease has not spread the diagnosis of some of these may be doubted, in the opinion of the director. It is quite possible that the disease reported as cholera was some form of ptomaine poisoning, caused by eating decomposed fish or other food, in which violent poisons are frequently generated. A number of cases of smallpox was reported from the Province of Pangasinan. Prophylactic measures were at once instituted and revaccination has been begun in Manila and the outlying provinces. There have been no epidemics of dangerous communicable diseases. Typhoid fever seems to be gaining a firmer foothold. The disease, so far, seems to be the result of direct importation. Filipinos being infected only as they have come in contact with foreigners, principally Americans and Japanese, afflicted with the disease. The death rate in Manila, all nationalities, for the quarter, was 28.48 in 1,000; among the Filipinos, 27.71 in 1,000, while among the

Americans it was 5.40 in 1,000. The bureau has several special sanitary improvements under consideration, but in such a country it is impossible to introduce all the accepted hygienic measures at once; a gradual evolution is necessary. A rigid system of inspection of all places where food and drink are sold or offered for sale has been instituted, and every precaution is taken to protect the public health.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending August 17, 1907:

	August 17.		August 10.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	68	13	82	18
Smallpox.....	0	0	1	0
Varicella.....	8	0	14	0
Measles.....	175	11	221	20
Scarlet fever.....	97	5	117	6
Whooping cough.....	13	18	39	17
Diphtheria.....	201	21	211	22
Tuberculosis pulmonalis.....	354	147	398	148
Cerebrospinal meningitis.....	5	9	7	14
Totals.....	926	224	1,090	245

The Health of Philadelphia.—During the week ending August 10, 1907, the following cases of transmissible diseases were reported to the Bureau of Health:

	Cases.	Deaths.
Typhoid fever.....	71	9
Scarlet fever.....	18	1
Chick-pox.....	7	0
Diphtheria.....	37	8
Cerebrospinal meningitis.....	5	1
Measles.....	10	5
Whooping cough.....	21	3
Tuberculosis of the lungs.....	81	63
Pneumonia.....	22	25
Erysipelas.....	4	0
Cancer.....	11	22
Mumps.....	1	0
Syphilis.....	1	1
Tetanus.....	1	1

The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 14; cholera morbus, 1; diarrhoea and enteritis, under two years of age, 114; puerperal fever, 1. The total deaths numbered 537, in an estimated population of 1,500,595, corresponding to an annual deathrate of 18.60 in a thousand population. The total infant mortality was 202; under one year of age, 167; between one and two years of age, 35. There were 43 still births, 22 males and 21 females. The temperature reached 90 degrees, on the 7th and 8th. The humidity was high. The total precipitation was 1.11 inches. There were two deaths from heat and sunstroke.

Statement of Mortality of Chicago for the Week Ending August 10, 1907, compared with the preceding week, and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of mid-year populations, 2,107,620 for 1907; 2,049,185 for 1906:

	Aug. 10, 1907.	Aug. 3, 1907.	Aug. 11, 1906.
Total deaths, all causes.....	648	503	603
Annual death rate in 1,000.....	15.98	12.44	15.34
Sexes.			
Males.....	283	290	385
Females.....	265	213	239
Ages.			
Under 1 year of age.....	211	161	192
Between 1 and 5 years of age.....	78	42	56
Between 5 and 20 years of age.....	32	47	43
Between 20 and 60 years of age.....	236	171	209
Over 60 years of age.....	89	82	108
Important causes of death—			
Apoplexy.....	10	3	9
Bright's disease.....	47	31	48
Brain-tumors.....	9	4	3
Consumption.....	63	47	63
Cancer.....	30	17	26
Cardiac diseases.....	13	3	5
Diphtheria.....	39	37	24
Heart diseases.....	39	37	24
Influenza.....	1	1	0
Ischaemic diseases, acute.....	176	129	150
Measles.....	27	31	23
Nervous diseases.....	38	31	29
Pneumonia.....	13	7	5
Scarlet fever.....	6	1	7
Suicide.....	1	1	6
Sunstroke.....	0	2	0
Tetanus.....	0	5	6
Typhoid fever.....	10	5	6
Violence other than suicide.....	33	41	44
Whooping cough.....	3	7	3
All other causes.....	120	106	141

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

August 15, 1907.

1. The Psychic Factor in Disease,
By GEORGE CARROLL SMITH.
2. The Blood Pressure as a Guide in the Treatment of
Hæmoptysis, By EDWARD O. OTIS.
3. A Soluble Bobbin for Intestinal Anastomosis,
By JOHN H. CUNNINGHAM, JR., and HAROLD W.
BAKER.

2. **The Blood Pressure as a Guide in the Treatment of Hæmoptysis.**—Otis, of Boston, reports eighteen cases of hæmoptysis, mostly recurrent, in which the blood tension was taken at or as soon as possible after the hæmorrhage began. In most of these, besides the immediate routine treatment, consisting of cracked ice, a small or large dose of morphine and atropine hypodermically, according to the urgency of the case, and the inhalation of amyl nitrate, if it seemed to be indicated; if that did not suffice, either the nitrites or ergot were employed, depending upon the blood pressure; if this, was comparatively high, the former was given, and if low the latter, the physiological action of which is an increase of blood pressure in the aortic system by a contraction of the arterioles through stimulation of the vasomotor nerves. Hence, if ergot is of value, it would seem to be obviously so in a condition of lowered blood pressure when the hæmorrhage might be considered to be more of a passive than an active one. In the eighteen cases of hæmoptysis, the majority of them were below the average blood tension—some of them markedly so. The highest was 145 and the lowest 74; the average was from 109 to 119. On the recurrence or persistence of the bleeding, either ergot or the nitrites, in the form of sodium nitrite or nitroglycerin, were then tried, depending upon the blood pressure. The author therefore concludes that a knowledge of the blood pressure of the patient from previous observations is necessary. On the occurrence of the hæmorrhage, ice, morphine, and atropine subcutaneously, and, depending upon the amount and rapidity of the hæmorrhage, the inhalation of amyl nitrite should be the treatment. A laxative dose of magnesium sulphate, and, if the bleeding persists, or is recurrent, sodium nitrite or nitroglycerin if blood pressure is high for the individual, or, if low, ergotine subcutaneously should be given.

3. **A Soluble Bobbin for Intestinal Anastomosis.**—Cunningham and Baker have used a macaroni bobbin for intestinal anastomosis. Macaroni recommends itself because it is easily digested in the intestine, is cheap, and may be made sterile in its preparation. During the past four years it was employed experimentally with success, but no detailed observations recorded. A few months ago the writers, aided by Dr. W. E. Ladd, undertook a series of experiments to determine how long the bobbin remained undigested in the intestine. The macaroni used was a large size commercial macaroni, cut into cylinders 3 inches long by $\frac{3}{4}$ of an inch in diameter and bobbins of special design. These were sterilized by dry heat. The experiments were performed upon cats, dogs, and sheep, and tend to show that in the macaroni bobbin we have a device which, besides facilitating intestinal suturing and holding the sutured ends in position until firmly adherent, serves as a conduit for the intestinal contents and at a period of time not under twelve hours or later than thirty-six hours, is digested and absorbed.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

August 17, 1907.

1. The Relation of the Hospital to Medical Education and Research, By WILLIAM H. WELCH.
2. The Old Jefferson Hospital, By J. CHALMERS DA COSTA.
3. The Preparation of the Specialist, a Problem in Medical Education, By GEORGE E. SCHAMBAUGH.
4. The Present Status of Phototherapy, By J. FRANK SCHAMBERG.
5. Blastomycosis in an Infant, By J. B. KESSLER.
6. Intestinal Perforation in Typhoid Fever; Its Diagnosis and Surgical Treatment, By J. E. ALLABEN.
7. A Case of Infantile Myxœdema, By JAMES FREDERICK CLARKE.
8. Bier's Treatment ("Stauungshyperæmia") in Chronic and Acute Surgical Infectious Diseases, By WILLY MEYER.
9. The Principles of Vaccine Therapy, By SIR ALMROTH E. WRIGHT.
10. Evolution of Medical Education in the Army, By PHILIP F. HARVEY.

4. **The Present Status of Phototherapy.**—Schamberg gives an account of the present status of phototherapy. Since the epoch making researches of Finsen, light therapy has been accorded an established place in the treatment of disease, and the treatment of lupus vulgaris represents the dominant field of usefulness of light therapy. Nevertheless, there are other diseases in which light may be employed with advantage, even thought it does not supplant other methods, including lupus erythematosus, alopecia areata, acne, acne rosacea, flat vascular nevi, certain forms of eczema, leg ulcers, etc. The histological changes effected in the skin by the action of light have been carefully studied by a number of observers. The findings are in general agreed on. There is a pronounced dilatation of the superficial and deep cutaneous bloodvessels with exudation of leucocytes. Sack believes the first change to be a proliferation of the endothelial lining of the bloodvessels. Meirowsky, working in Unna's laboratory, states that the light stimulates the epithelial cells and leads to nuclear division. After intense exposures degenerative changes in the epidermis may take place and the dead cells may be cast off through the formation of blebs. The light also causes an increase in the number of connective tissue cells and a swelling of the collagen. At the height of the process the rete mucosum is thickened. Unna says that light makes the skin dense and harder, in that under the influence of the light the protoplasm is reduced to keratin. Moeller demonstrated the fact that light caused a hyperplasia of the epidermis and an abnormal cornification. In 1892 and 1896 Dr. Leo Aarons demonstrated that a continuous electrical current passed through a vacuum tube containing a certain quantity of mercury is capable of creating an arc and of generating an intensely bright light emitted by the incandescent mercury vapor. Peter Cooper Hewitt, of New York, improved this lamp and made it commercially practical. This light contains few or no red rays and is extremely rich in blue, violet, and ultraviolet rays. The latter, however, are largely absorbed by the glass of the tube itself. To obviate this absorption of the most chemically active rays Dr. E. Zehimmer, working in Schott's glass works, produced a glass (said to be a barium phosphate chrome glass) which is pervious to the ultraviolet frequencies and which, according to Schott, permits by far the greater portion of the short waves originated in the glass tube to emerge. These tubes, which are made of varying lengths, must be tilted to make the arc and to start the light. The lamp made by Schott is called the uvial lamp, the name being a convenient contraction of the term ultraviolet. Another mercury vapor lamp made of quartz with a water-cooling jacket is made by Heraeus, of Hamburg. In summing up his

impressions as to the value of the mercury vapor lamp the author says that it appears most capable of accomplishing good in alopecia areata, leg ulcers, and certain forms of eczema. The light is rich in chemical rays, but lacks deep penetration. These lamps have the advantage over others that a broad volume of light is emitted which can be conveniently applied over large areas. Another very pronounced advantage is that the grade of light erythema desired may be produced and even predetermined by the distance and duration of the exposure. The dilatation of blood vessels with exudation of fluid and corpuscles and regressive changes in pathologically altered cells occurs after the production of a distinct light erythema is evidence that in properly selected cases such treatment may prove beneficial. Such phototherapeutical measures are not to be regarded as panaceas but as aids to other approved agents in the treatment of certain cutaneous diseases.

6. Intestinal Perforation in Typhoid Fever; Its Diagnosis and Surgical Treatment.—Allaben says that treatment should consist in lateral incision through right rectus or linea semilunaris as for appendectomy; systematic search for, and suture of, the perforation; placing of drainage tubes; partial closure of wound without irrigation or mopping in the peritoneal cavity; treatment by posture to confine bacteria and septic material to lower abdomen (Fowler's position); treatment calculated to destroy or impede the growth of bacteria already in the blood and tissues, antistreptococci serum, unguentum Cr  d  ; supportive treatment, nourishment, strychnine and digitaline hypodermatically; and elimination, physiological salt subcutaneously (temporarily) when indicated for failing heart; proctoclysis continually, until sepsis is overcome.

8. Bier's Treatment ("Stauungshyper  mie") in Chronic and Acute Surgical Infectious Diseases.—Willy Meyer, of New York, gives a review of the history and development of Bier's treatment. He says that the idea of making use of an increased volume of blood in and around the diseased focus was conceived by Bier during his studies of the observations of the late Professor von Rokitsansky, who found that patients who had suffered from stasis in the pulmonary circulation, due to heart disease or curvatures of the spine, never showed an active tuberculous lung affection on post mortem examination. On the other hand, it had been often seen that patients suffering from diseases of the heart, that produce a certain amount of anemia of the lungs (stenosis of pulmonary artery) are especially subject to tuberculous disease of the lungs. Bier's first attempts at the surgical clinic in Kiel, Germany, with active (arterial) hyper  mia, by means of prolonged hot baths, or, locally, by means of the application of glass cups (suction method, cupping) proved unsatisfactory. He, therefore, tried the elastic rubber bandage, which his chief, Professor von Esmarch, had so successfully made use of for producing artificial anemia in cases of amputation and other operations on the extremities. Winding the elastic bandage gently around the limb above the seat of the disease, the thinly walled veins were naturally much more readily compressed than the firmer arteries, and while the latter continued to pump blood into the parts below the constriction, the return of the blood thus became interfered with; a partial stasis of venous blood was produced and could be maintained at will. This is the nucleus of the so called Bier's treatment by means of the elastic bandage. Fully appreciating the significance of the principle discovered, an original worker of the stamp of Bier was not to be baffled by difficulties. He clung to the further elaboration of his idea, practically applying it on the extensive material offered by the surgical clinics at Kiel and later Greifswald, to which latter place he was soon called as chief of clinic. In spite of all his excellent work, it is, however, quite

possible that the method would never have attained to its present general recognition had not Bier, especially since his call to Bonn to succeed Schede as chief of the surgical clinic, with wonderful tenacity and ability extended the use of artificial hyper  mia to inflammatory surgical infections of acute character, thus overthrowing, as it were, all time honored views as to inflammatory processes and their surgical treatment by ice, elevation and rest. Since then the interest in Bier's work has been steadily and rapidly growing.

9. The Principles of Vaccine Therapy.—Sir Almroth E. Wright, of London, says that the only methods, other than vaccine therapy, which we have to-day at disposal for the treatment of bacterial disease are: 1, Treatment by chemical antiseptics; 2, treatment by the extirpation of the obtrusive focus of infection; 3, treatment by the determination of lymph to the focus of infection; 4, serotherapy; and 5, expectant treatment. He then turns to vaccine therapy. Two elements come into consideration in the protection of the organism against invading microorganisms: The leucocytes with their digestive ferments constitute one of these elements; the antibacterial substances in the blood fluids constitute the other, the bactericidins, the bacteriolysins, the agglutinins, and, the most important, the opsonins. We may ascribe to the opsonins a predominating importance, first, because it can be shown that the opsonic effect is exerted by either the normal or immune blood on every species of bacteria, whereas the agglutinating effect is exerted only on special varieties of bacteria, and the bactericidal and bacteriolytic effects are exerted among pathogenic microorganisms apparently only on the typhoid bacillus and the cholera vibrio. The opsonins derive further practical importance from the fact that they can be accurately measured (the error of estimation in the case of normal bloods and in the hands of a good worker being rarely greater than plus or minus 5 per cent.) and that it is possible, seeing that the opsonic effect of the normal blood fluids is very marked, to register not only (as in the case of the agglutinating power) an increase but also a reduction in the opsonic power of the blood. Such increase and reduction in the opsonic power is, of course, measured by comparing the amount of purely induced phagocytosis which is obtained with a normal blood with the amount of purely induced phagocytosis which is obtained with the blood of the patient under examination. The success of an immunization process must depend, in the first place, on the power of immunizing response which the organism may happen to possess with respect to the particular bacterial infection or intoxication process which is in question, and, in the second place, on the composition of the vaccine and the dosage and method of administration. Autoinoculation is then treated by the author, and he shows that it is a method by which Nature achieves curative effects in bacterial infections.

MEDICAL RECORD.

August 17, 1907.

1. The Treatment of Surgical Tuberculosis by Hyper  mia (Bier). By V. S. DUBNIK.
2. The Ophthalmological Phase of Diseases of the Accessory Sinuses of the Nose. By WILLIAM CAMPBELL POSEY.
3. Relations of Eye to Nose, with Certain General Considerations. By COLMAN W. CUTLER.
4. Extension of Life from the Lifeless. By JONATHAN WRIGHT.
5. The Manifestations of Paranoia. By ALBERT WARREN FERRIS.
6. Acute Intussusception. With a Report of a Case of Successful Resection of a Portion of the Ileum for Gangrenous Intussusception. By JOHN HAMMOND BRADSHAW.
7. Reflection on Methods of Teaching Medicine. By O. E. MASON.

2. The Ophthalmological Phase of Diseases of the Accessory Sinuses of the Nose.—Posey believes that while there may be a tendency upon the part of some to exaggerate the connection of ocular conditions with sinusitis, and while there is the temptation for all to discover causes which they are interested in finding, in agencies which may not be implicated in any way with the disease within the eye, careful rhinological examinations should be made in all suspected cases, and the possibility of the ocular affection being occasioned by the nasal only dismissed when repeated examinations have failed to discover any disease within the cells.

3. Relations of Eye to Nose, with Certain General Considerations.—Cutler observes that it is our duty to correct every fault in sight when the symptoms demand it, but a conscientious specialist who is not an egotist must feel at times that, although his glasses have relieved the symptoms or the breathing is freer after nasal treatment and the patient's head is clearer, he has not struck at the root of the question. The patient should not have been susceptible to such small faults, and at times it comes home to the physician—not always to the one who flattered himself that he relieved the symptoms—that the underlying trouble, the failure in adaptation, is cropping out in some other way quite as serious, and that the remedy is to be sought in a broader and more fundamental regulation of the mode of life. The specialist, without sacrificing in the least his concentration or the confidence in his ability to help those who belong properly in his category, may increase his usefulness, and will certainly add to his own intellectual satisfaction, if he accepts the broader point of view. Many of our patients who are distressed by small errors of refraction, or who complain of asthenopia without discoverable cause, or who have a too ready reflex irritability, may be called neuropathic, and these words of Dubois seem most appropriate at the present time: "Whoever wishes to treat neuropaths must first of all be a good clinician, in order to recognize the numerous organic troubles and to assign them their place; but he must also be a psychologist and moralist, in order to completely modify the mentality of his patient."

5. The Manifestations of Paranoia.—Ferris states that in his experience in every case of paranoia which he has treated, or whose history he has read, there has been an anamnesis of peculiarity in taste, habits, and conduct during the youth of the patient, whenever any reliable or complete history of that period in the patient's life has been obtainable. A satisfactory early history is a difficult thing to obtain. It is rarely the duty of the school teacher to examine into the eccentricities of young pupils. Unfortunately, the majority of parents are negligent or are not intelligently observant. For example, they fail to see a difference between the boastfulness of youth and the mingled arrogance and suspicion of an anomalous mind, and fail to be concerned with marked eccentricity. The early manifestations of paranoia include irritability with excitement, studied disobedience, outward hostility, moodiness, desire for seclusion, perverted sexual instincts, dreamy indolence, a belief by the patient that he is misunderstood or slighted or not treated with as much consideration as the other children of the family, inordinate satisfaction with his own opinion, and a habit of demonstrating others' inferiority; periods of depression, possibly precocity. Such a syndrome of symptoms occurring in a youth should arouse the parents or tutor to a feeling of alarm, and open their eyes to the fact that, if not already present, there is a possibility of the development of mental disorder. It is clearly evident that excessive stimulation of the cortical cells of the brain should be avoided in such a child. He should be protected from the fatigue incident to long school hours, study at night, compari-

tive examinations, children's parties, and exhausting games, as well as from improper food and indigestion. The reports of recovery from paranoia must be viewed with extreme suspicion. The disciplinary routine and the regularity of life as to eating, sleeping, exercise, and recreat on incidental to custodial care in a proper hospital exercise a very beneficial effect on the disease, and one of great value in modifying it. But the affection is incurable. The few cases that are reported as cured, and that have even been legally rehabilitated as sane people because of the absence of former delusions, should be under constant observation until their delusions return or dementia supervenes. The medicolegal importance of paranoia is undeniable. With a perfect memory and an intellect unimpaired for many years (except in so far as to be unable to see the force of valid argument, and to perceive the absurdity of his fixed idea), the average paranoiac is plausible and convincing to the layman. He is lucid on all points unconnected with or unrelated to the central idea or the delusional system. He can carry on a business or practise a profession. If wealthy, and without occupation, he can travel, engage in sports, take part in social activities, and order his daily life much as any sane person, unless his delusions involve some of these avocations. The irritability and suspicion that such a person may betray, and the unreasonableness of some acts, are attributed to the ordinary eccentricity of a selfish person. He of all insane persons illustrates the fallacy of the legal dictum that everyone is sane who knows the nature and quality of his acts, and knows if they are right or wrong. Believing his standard is higher than the statute, and that the law forbidding him to do what he is prompted to do is an unjust law, and therefore may be disobeyed, he reacts promptly to impulse and even calmly commits crime.

6. Acute Intussusception.—Bradshaw, from his experience, emphasizes the following points: 1. The great importance of supplying heat to an infant under one year of age while undergoing so serious an operation as a Japartomy. 2. The infant should be kept surrounded with hot water bottles all the time while on the operating table. 3. It is well, if the case is a nursing, to let it take the warm mother's milk as soon as it has come out from the anesthetic. 4. Regular nursing is the best heart stimulant it can receive. 5. When there is profound shock with sepsis, the plan suggested by Murphy for the treatment of general septic peritonitis of giving hot saline by slow, continuous rectal irrigation, is distinctly life saving. Its effect in washing out the toxins and thereby raising the opsonic index and of increasing the amount of urine secreted, of relieving thirst and changing the dry tongue and the whole septic face of the patient, is little short of magical.

BRITISH MEDICAL JOURNAL

August 3, 1907.

(Seventy-fifth Annual Meeting of the British Medical Society.)

1. President's Address. *Science in Its Association to National Health.* By H. DAVY.
2. Address in Medicine. *A Plea for Accuracy of Thought in Medicine.* By W. H. WHITE.
3. Address in Surgery. *On the Contagion of Cancer in Human Beings.* Announced. By E. T. BUTLIN.

3. The Contagion of Cancer.—Butlin tells us that the accumulation of knowledge of the last few years enables us to formulate, much more definitely than we could before, the conditions under which cancer is likely or unlikely to be accidentally communicated from one human being to another. All cases of reputed contagion of cancer in which the disease is not of the same variety must be unhesitatingly rejected. Cases must

not be accepted where there is no evidence that the affected parts of the two individuals were from time to time in contact. It is extremely improbable that contagion would take place from a covered cancer, such, for instance, as a cancer buried in the breast, or that the disease could be implanted in a part the covering of which has not been broken. These exclusions largely limit the number of possible cases of contagion, and the limitation is still greater when it is taken into account that sepsis of the tumor or of the broken part which comes in contact with it is an almost absolute obstacle to the success of accidental implantation. For it is notorious that cancers which are exposed for the most part rapidly become septic and ulcerate and suppurate. The best evidence of the contagiousness of cancer is furnished by the occasional examples of successful implantation in different parts of the body of the same individual. Such cases have long been known under the name of autoinoculation. Probably the best example is where a squamous celled carcinoma on one labium of the vulva of a female affects the opposite one, whether it be the labium majus or minus. It affects the opposite side of the vulva by direct contiguity as surely as a condyloma. Time only is necessary and a certain amount of moisture to make it invariably the rule. In conclusion, the writer gives details of fifteen cases of autoinoculation of cancer, undoubted or apparent. For some years past surgeons have been more cautious than they used to be in dealing with cancerous growths, and many cases have been recorded in which there was reason to believe that recurrence was due to implantation during the operation rather than to imperfect removal of the disease. Cancers should not be cut into unless for diagnosis, and the wound should be tightly closed before the actual operation is commenced. The instruments which were used for the purpose of diagnosis must not be used again until they have been boiled. Exposed or ulcerated cancers should not be pressed against or dragged across raw surfaces made in the course of the operation. And care should be taken that breaking down cancers should not be opened during operation. If they are opened by mischance means should be taken to cleanse the surface of the wound and to destroy the exuded contents of the cancer cavity.

LANCET.

August 3, 1907.

1. Science in Its Application to National Health.
By H. DAVY.
2. A Plea for Accuracy of Thought in Medicine.
By W. H. WHITE.
3. The Contagion of Cancer in Human Beings: Autoinoculation.
By H. T. BUTLIN.
4. Mobile Kidney, with a Description of an Operation for Anterior Nephropexy.
By E. S. BISHOP.
5. A Study of the Conditions Producing the Anomalous Reaction Not Infrequently Met With on Testing Urine for Sugar with Fehling's Solution (II).
By F. W. PAVY.
6. Iodine as an Antidote in Carbolic Acid Poisoning.
By J. MURPHY.
7. Notes of a Case of Addison's Disease in a Negress.
By R. SEHEULT.
8. Note on a Case of Tuberculous Cerebrospinal Meningitis.
By S. HODGSON.
4. **Movable Kidney.**—Bishop states that true floating kidney—that variety which possesses a mesonephron and is entirely surrounded by peritoneum—is a thing of great rarity. In searching through the literature of the subject he has only found three undoubted specimens. The majority of cases fall into the category of "mobile" or "wandering" kidney; they are not surrounded by peritoneum, and their excursions take place entirely behind the parietal peritoneum in the loosened subperitoneal connective tissue. On only four points are all writers on the subject

agreed. These are: 1. That such a condition does actually exist. 2. That this condition exists most frequently in women. 3. That it is most frequently seen on the right side. 4. That it is frequently associated with neurasthenia. There is marked disagreement as to the frequency of the condition, and as to its importance. Whatever view is taken of the causation of wandering kidney, it is evident that the factors producing the displacement act unequally upon the two equally important segments of this part of the urinary apparatus, the kidney itself and the peduncle composed of its ureter and the vessels passing to it from the aorta and vena cava. Whether loss of supporting fat, alterations in the incidence of intraperitoneal pressure, or undue traction upon the lower end of the ligamentum suspensorium renis, all will act with much greater and more immediate force upon the kidney itself, and it will only be after these factors have been in action for some time and have begun to be reinforced by the added weight of this organ, that any alteration will be perceptible in the attachment of the ureter to the spinal column or in the length of the vessels. Two stages in the descent of a "wandering" kidney are therefore predicable from the very conditions present, and the history of reported cases proves not only that such stages do occur, but that they are easily recognizable, the symptoms present in each being markedly different. In the first stage the kidney itself tends to sag downwards, the lower pole becoming recognizable by the examiner's hand on a lower and more median plane than normal; the vascular peduncle being, however, of a normal length, the actual position of the organ will be that of the resultant of the two forces acting upon it—loss of support, aided by any other force pulling downwards, and the inward pull of the vascular and ureteral peduncle; it will consequently rotate in the line of a curve, the centre of which will be the most fixed point of its attached vessels; this is the stage described by Morris as a distinct variety, the "cinder shifting" variety. The symptoms of this stage are such as might be expected from the mechanical condition; the bend produced at the junction of the renal pelvis with the ureter, produced by the rotation of the kidney, will interpose a distinct obstacle to the due evacuation of urine from the renal pelvis and the renal intrapelvic distention so caused will result in aching and tenderness in the renal region of the affected side. If the bend be an acute one and somewhat suddenly made, Dietl's crises will be present; these depend not only on the ureteral obstruction, but also, and perhaps mainly, upon the kinking or twisting of the renal veins which necessarily accompanies it; these crises are characterized by violent attacks of colic, attended by nausea and vomiting, possibly abdominal distention and tenderness, sometimes by a rise of temperature and collapse. Digestive disturbances, nausea, dyspepsia, vomiting, and jaundice have been frequently observed. Almost all the symptoms of the first stage are of an acute type. In the second stage, owing to the persistent downward traction, the attachment of the ureter to the spinal column becomes looser, is elongated, and permits more range of movement. At the same time the bloodvessels elongate and become less firmly attached. Kinking of the ureter is much less likely to occur, and if it does occur is much more easily overcome. Pain is no longer sudden and acute; there is rather a feeling of weight and discomfort in one loin with a sensation of dragging, stiffness in the back, some cramp in the abdomen, and backache. All these symptoms are increased by exercise. Digestive disturbances are common in this stage. The presence of calculous deposit in the renal pelvis as a complication greatly intensifies the pain. The author describes a new operation for the fixation of floating kidney, in which the lower segment of the renal capsule is stripped off and

attached to the abdominal wall. Sutures are also passed between the renal pelvis and the site of attachment of the renal peduncle.

6. Iodine in Carbolic Acid Poisoning.—Maberly reports three cases which demonstrate the great value of iodine as an antidote for carbolic acid. In two of the cases the iodine was given early before any general toxic symptoms developed, and acted most beneficially in relieving the burns of the mouth and throat. In the third case all the general toxic effects were fully developed, the abdomen being tympanitic and the stools dark and slimy; yet the patient recovered. In all the cases the iodine was given in the form of the tincture. The doses varied from a few drops up to a drachm. The chemical compound formed as a result of the reaction between iodine and phenol is apparently harmless. For practical purposes it is probable that equal parts of tincture of iodine and carbolic acid are complementary.

LA PRESSE MEDICALE.

July 27, 1907.

1. The Relation of Sclerosis of the Ear to Arteriosclerosis, By SOULEYRE.
2. Anæsthesia in Surgery of the Face, By BARTHELEMY and DUFOUR.
3. The Sternal Angle and the Predisposition to Tuberculosis, By R. ROMME.

1. The Relation of Sclerosis of the Ear to Arteriosclerosis.—Souleyre uses the term *sclerose otique* to designate the entire group of morbid processes of the middle ear and of the internal ear and of both combined which are sclerotic and known under various names. He believes that they are all symptoms which belong to the syndrome of arteriosclerosis and should be treated as such.

2. Anæsthesia in Facial Surgery.—Barthelemy and Dufour present an apparatus which they have devised for the administration of chloroform during operations on the face with a view to keeping the anæsthetizer out of the way of the operator. It is a modification of Doyen's apparatus in which the mask is done away with and the vapor introduced directly into the larynx through a tube.

July 31, 1907.

1. Sporotrichosis, By DE BEURMANN and GOUGEROT.
2. The Examination of the Urine for Albumin, By HENRI LABBE.

1. Sporotrichosis.—De Beurmann and Gougerot mention the different known forms of sporotrichi and describe the several forms of the disease produced by the *Sporotrichum Beurmanni*, together with their treatment both general and local. They assert that sporotrichosis is not a pathological curiosity, but a disease which the physician, in the interest of the patient, cannot afford to ignore. The diagnosis is made from the culture alone, the macroscopic appearance of the colonies of which is very characteristic.

LA SEMAINE MEDICALE.

June 10, 1907.

Relations Between Chronic Gastrointestinal Troubles and Anæmic Conditions, By LEON TIXIER.

Gastrointestinal Troubles and Anæmic Conditions.—Tixier says that functional insufficiency of the hæmatopoietic organs do not play the principal part in the production of anæmia of digestive origin, but that this part is played by a substance in the blood which exerts a hæmolytic action on the blood corpuscles. This hæmolysis is elaborated as the consequence of the more or less serious functional trouble of the digestive canal and possesses a double action, one destructive to the blood corpuscles, the other a stimulant to the bony medulla.

June 10, 1907.

Essay on the Mortality Due to Acquired Syphilis, By PROFESSOR CHARLES AUDRY.

Mortality Due to Acquired Syphilis.—Audry states that the world mortality of syphilis, considered specifically and deuteropathically, approaches 14 or 15 per cent.

July 3, 1907.

1. The International Conference in Regard to the Sleeping Sickness, By PROFESSOR R. BLANCHARD.
2. The Part Played by the Appendices Epiploïques in Hernia, By VULLIET.

1. The Sleeping Sickness.—Blanchard gives in detail the questions which were brought before the conference, the general scope of the discussion, and the prophylactic measures which were advised.

July 31, 1907.

1. Is There Such a Thing as Uræmic Meningitis? By PROFESSOR R. LEPINE.
2. The Prognostic Value of Hypertension and Hypotension in Diabetes.

1. Is There a Uræmic Meningitis?—Lepine reports two cases of death from Bright's disease in which the autopsy revealed an intense redness of the meninges of the brain. In one case the meninges were adherent over a very small portion of one temporal convolution, in the other there was great congestion of the gray substance.

BERLINER KLINISCHE WOCHENSCHRIFT.

July 22, 1907.

1. Circumscribed Arachnitis Adhæsiva Cerebralis, By S. PLACZEK and F. KRAUSE.
2. Habitual Vomiting of Infants, By J. PEISER.
3. Apraxia of the Closure of the Lids, By M. LEWANDOWSKY.
4. Biology of the Pernicious Diseases of the Blood and of the Malignant Cells, By C. FUNCK.
5. Treatment of Erysipelas with Metakresolantol, By H. NEUMANN.
6. The Present Position of the Atoxyl Treatment of Syphilis, with Reports of Cases, By F. MOSES.
7. Measles and Appendicitis, By A. BICKEL.

1. Circumscribed Arachnitis Adhæsiva Cerebralis.—Placzek gives in full detail the clinical history of a woman, twenty-five years of age, who presented symptoms which led him to think that she was suffering from a tumor in the posterior fosa of the skull. Krause did not fully coincide with the diagnosis, but agreed that death was threatened unless an operation was performed. Krause describes the two operations which he performed. At the second operation the dura was found to be greatly thickened and a cyst like formation was discovered at the inner lower margin of the right hemisphere of the cerebellum, and several adhesions between the upper surface of the cerebellum and the lower surface of the tentorium.

2. Habitual Vomiting of Infants.—Peiser reports a case of habitual vomiting in an infant on whom he performed laparotomy and found numerous large adhesions between the loops of intestine. As it was impossible to break all of these adhesions up attention was devoted to those in the region of the pylorus. The child bore the operation well, the vomiting continued, grew less, and finally ceased. From the time the child was a year and a half old it did not vomit.

3. Apraxia of the Closure of the Lids.—Lewandowsky reports the case of a man, sixty-four years of age, who had a sudden attack of unconsciousness followed by paralysis on the left side. Five days later his mind was clear and he had no trouble in his speech. There was a very slight facial paralysis, the tongue deviated a little to the left. He was unable to voluntarily close his eyes and could not hold the passively closed lids together, although he winked involuntarily, and the winking reflex to the sudden approach of the hand was prompt. This peculiar condition in which the voluntary control of the eyelids is absent and the involuntary reflexes present the author denominates apraxia of the closure of the lids.

4. **Biology of the Pernicious Diseases of the Blood and of the Malignant Cells.**—Funch draws from his studies the practical point that the therapeutic employment of the x rays in pernicious blood diseases should be confined to those cases in which there are strong indications of its need. He also finds that the malignant cell is less resistant than the physiological to certain toxic substances, and of those that have yet been tested the ptomaine isolated by Coley shows the strongest action upon the malignant cell. The action is local by preference.

5. **Treatment of Erysipelas with Metakresolanytol.**—Neumann reports that since October, 1900, he has treated twenty-three cases of erysipelas, twelve complicating wounds of the head and face, eleven wounds of the extremities, with metakresolanytol and had but three deaths. He considers that we have an excellent means to combat erysipelas in this drug.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

July 30, 1907.

1. Diagnosis of Tuberculosis of the Urogenital Tract, By ROLLY.
2. The Clinical Alexin Test. Second Paper, By MORO.
3. Concerning Fixed Combinations of Univalent Phenol and Their Advantage in Practice, By SEEL.
4. Vicarious Respiration, By GEIGEL.
5. Concerning Eclampsia Without Convulsions, By REINECKE.
6. Concerning Abscesses of the Brain from Streptothrix, By LÖHLEIN.
7. What Warrants Us on the Basis of the Functional Test of the Hearing to Assume Stimulation or Exaggeration to be in Question? How Can We Proceed Best to Ascertain the Hearing Actually Present in Cases Convicted of Stimulation or Exaggeration? By DOLGER.
8. Reply to Criticisms on My Statistics of Gonorrhoea, By FRB.
9. A New Urinal for Baby Boys, By TEUFFEL.
10. Hot Air as a Means of Treatment of Chilblains in Domestic Medicine, By HORNING.
11. The Differential Diagnosis of Streptococci Pathogenic to Man, By SCHULZE.
12. Concerning the Treatment of Congenital Want of Vitality (*Concluded*), By PFAUNDLER.
13. The Three Hundredth Anniversary of the University of Gießen, By JESIONEK.

1. **Diagnosis of Tuberculosis of the Urogenital Tract.**—Rolly says that the only certain way to determine whether bacilli in the sediment of the urine, or in the genital secretions, are smegma bacilli or tubercle bacilli is by inoculation of the lower animals.

5. **Eclampsia Without Convulsions.**—Reinecke reports the case of a primipara, nineteen years old, who died of eclampsia, as demonstrated at autopsy, but did not suffer from convulsions.

7. **Detection of Simulation or Exaggeration of Faulty Hearing.**—Dölger thinks that we are warranted in the assumption of simulation or exaggeration (1) when the subject, or person being investigated, in the hearing test for speech makes the proper movements of the lips for the commencement of the utterance of the test word, but utters it either not at all or only tardily; (2) when the subject with actual or apparent occlusion of the one normal or nearly normal ear alleges to be unable to hear loud whispers or a conversational tone close to the other ear; (3) when with the hearing of one ear normal or nearly normal he states to be unable to hear certain tuning forks applied to the skull, as the bone conduction is absolutely absent only when the deafness is bilateral or nearly so; (4) when he hears certain tuning forks applied to the skull in the normal or nearly normal ear without change when this is really or apparently occluded, or when he hears the tuning forks in both ears, better in one after occlusion of the other; (5) when he hears a tone better in one ear than in the other, but not better in one ear after occlusion of both; (6) when he hears a tone better in one ear than in the other, but not better in one ear after a longer or shorter occlusion of both ears.

time by aerial conduction in the ear, while the other ear is well occluded and yet is unable to hear whispers or conversational speech close to the ear; (6) when repeated tests give results which show important variations each time.

12. **Treatment of Congenital Want of Vitality.**—Pfaundler concludes in this number a paper which has run through numbers. It does not lend itself well to abstract, but is well worth reading in the original to anyone interested in the subject.

LA RIFORMA MEDICA

$$t \text{ min } \lambda_1, \lambda_2, \dots, \lambda_n$$

1. Changes in the Blood in Diseases of the Liver,
By LUIGI FERRANNINI
2. The Treatment of Acute Mercurial Poisoning,
By L. SABBATANI.
3. Resection of the Vascular and Nervous Structures of
the Neck,
By GIOACCHINO NEGRONI.

1. **Changes in the Blood in Hepatic Diseases.**—Ferranini complains of the lack of thorough studies of the blood in hepatic diseases, a lack which is all the more to be deplored when one remembers the importance of the liver, and its physiological connection with the spleen, in forming the blood. In the present essay he gives analyses and blood counts taken in a series of hepatic disorders, and notes that in some cases of severe hepatic lesions, with cachexia (cancer of the liver, etc.), the blood presents astonishingly few changes. In the majority of cases, however, the diseases of the liver are accompanied by a number of æmæmic changes. The hæmoglobin and the number of red cells are usually diminished; there is an increase in the number of polynuclears, at the expense of the lymphocytes, and an increase in the number of blood platelets. The coagulability of the blood is usually diminished to a marked extent. When this change is not present, it is probable that some portions of the liver assume an exaggerated amount of work, and thus compensate for the insufficiency of the affected portions. The mechanism of this deficient coagulability is as yet obscure, but there is no doubt that this phenomenon is connected in some way with lesions in the liver.

2. **Treatment of Acute Mercury Poisoning.**—Sabbatani suggests as antidotes for poisoning with mercuric chloride, solutions of sodium thiosulphate, or of hydrogen sulphide, by mouth, or in enemas, or as eye-washes (in case of burns of the conjunctiva with strong solutions of mercuric chloride). In cases in which a less rapid action is needed, sulphur, or calcium sulphide can be given internally in small and repeated doses. The action of the sulphur compounds consists in forming insoluble and nonabsorbable sulphides of mercury. The author does not give doses or exact modes of administration.

ROUSSKY VRATCH

June 30, 1907.

1. Position of the Nipples in Men. The Left Mammary Line in Estimating the Size of the Cardiac Dulness. By N. F. TCHIGAJEFF.
2. Intratracheal Injections in the Treatment of Diseases of Lung Tissue. By A. J. GALEBSKI.
3. How Can Diseased Wheat Be Rendered Eatable? By O. A. GABRILOWITSCH.
4. On the Scarlet Fever Vaccine of G. N. Gabritchewski. By B. K. SCHAMARINE.
5. Primary Desquamative Stomatitis of Measles (Stomatitis Morbillosa Desquamativa Primaria). By M. J. LIASHENKO.
6. The Respiratory Mobility of the Lungs and the Theory of Physiological Compensation in Chronic Pulmonary Tuberculosis (*Concluded*). By A. N. RUEBEL.

1. **Mammary Lines in Men and Variations in the Areas of Cardiac Dulness.** Tchigaieff examined 235 soldiers with a view of determining the variations in the distance of the mammary from the sternal line.

and the variability of the areas of cardiac dullness. The existence of these variations in health is recognized by a number of writers, and several have compiled data thereon, but none on such an extensive scale as the present author. The weight, height, distance of nipples from the median line, height of nipples, and the absolute and relative cardiac dullness were measured. It was found that the percentage of cardiac murmurs discovered in the patients examined increased as the boundary of absolute dullness approached the median line. On the other hand, there were cases in which the cardiac dullness went over two and one half centimetres over the mammary line, while the heart was perfectly sound, though enlarged. There were also well marked cardiac murmurs with cardiac areas one and one half to two centimetres within the mammary line. These anomalies depended upon the actual distance of the mammary from the midsternal line. Normally the absolute dullness varies from six to 7.5 centimetres. When the absolute dullness exceeds 7.5 centimetres, a suspicion of enlargement of the heart may be entertained. The relative dullness in health is from ten to eleven centimetres in the transverse diameter. When it exceeds 11.5 centimetres a suspicion of an enlarged heart may be entertained.

3. Method of Rendering Diseased Wheat Edible.—Olga Gabrilowitsch (the first woman in Russia to obtain the degree of Master of Pharmacy) studied the nature of the poisonous mold which affected a large part of the wheat crop in Russia in 1904. The peasants knew this unhealthy flour by the name "drunken bread;" and the government has been making efforts to find the cause of the wholesale poisonings from its use, as well as a method of preventing such poisonings. Owing to the famine it was desirable to use even this diseased wheat, if the poisonous element could in some simple way be removed. Miss Gabrilowitsch, working in the biological laboratories of the botanic gardens at St. Petersburg, found that the diseased wheat was infected with an abundant fungous growth, *fusarium roseum* being the principal toxic agent. The toxine which she isolated is a glucoside, and is formed from the proteid matter in the grain. This glucoside is soluble in water and most of the poisonous principle can be removed from the grain simply by soaking the latter in water and drying. A much better method, securing a more complete destruction of the mold, is heating dry to 100° C. This gave excellent experimental results with grain, the toxine being destroyed after heating for a number of hours. In years when the mold is prevalent, it is best to teach the peasants to heat all their grain before grinding it to flour.

4. Gabritchewski's Scarlet Fever Vaccine.—Schamaine reports good results with the preventive use of Gabritchewski's vaccine for scarlet fever. This vaccine is made from streptococci isolated from the blood in the hearts of children dead of scarlet fever. It is a condensed bouillon culture of streptococci killed by heating to 60° C., and the addition of 1/2 per cent. carbolic acid solution. Each c.c. contains 0.02 to 0.03 of the bacterial mass. The vaccine was first used in Moscow in 1904. Usually ten drops were injected with an ordinary hypodermic syringe. The injections were made during an epidemic of scarlet fever, 185 persons being thus treated, as a preventive measure. A rise of temperature was observed in all but one. A moderate rise in sixty-four persons, a faint rise in fifty-four, a marked rise in sixty-six. Local tenderness was seen in sixty-six patients, redness in the injected area in 173, swelling in 103. In many cases there was a rash resembling true scarlet fever, and in five patients there was desquamation. There was a general rash in forty-three persons, a local rash in seventy, no rash in seventy-two of the 185 patients, only two developed scarlet fever, the remainder remained well, save that

they showed these temporary complications after the use of the vaccine.

THE JOURNAL OF NERVOUS AND MENTAL DISEASE August, 1907.

1. The Classification of Psychoneurotics, and the Obsessional Element in Their Symptoms,
By GEORGE L. WALTON.
 2. The Use of Social Intercourse as a Therapeutic Agent in the Psychoneuroses, a Contribution to the Art of Psychotherapy,
By SIDNEY SCHWAB.
 3. Myoclonus Epilepsy, with a Report of Two Additional Cases,
By WILLIAM T. SHANAHAN.
1. The Classification of Psychoneurotics and the Obsessional Element in Their Symptoms.—Walton concludes from his observations that many psychoneurotics offer a combination of the symptoms classed under neurasthenia, hypochondria, *folie du doute*, *tic convulsif*, habit chorea, depressive mania, and hysteria minor. Many, if not most, of their morbid mental and physical tendencies may be traced to the obsession. In these cases the treatment is more important than the exact classification; unless the symptoms of one or the other disorder are definitely preponderant it lends more to clearness to include the general term psychoneurosis, or, still better, obsessive psychosis, than to insist upon a more distinctive classification. The result of simple fatigue, without obsessive or other morbid mental tendency, is physiological, not pathological. In such cases, therefore, the term "brain fog" of Tuke would answer every purpose and be less misleading than neurasthenia or even phrenasthenia or psychasthenia. The term neurasthenia, though convenient, like "nervous prostration," for popular use, is inaccurate, misleading, and unsatisfactory, and can be discarded so far as scientific records are concerned. Nor has any material gain been made by substituting psychasthenia for phrenasthenia. The majority of the cases thus classed partake so far of the various morbid mental states peculiar to the ideobossive, that they are best included under the general designation, psychoneurosis, or obsessive psychosis.
3. Myoclonus Epilepsy, with a Report of Two Additional Cases.—Shanahan, in speaking of the prognosis, says that periods of freedom from myoclonic movements of variable length occur, but there is no permanent cessation. The mental condition may change but little. Death may occur in status myoclonus or from intercurrent disease as pneumonia. Treatment should be along general lines tending to place a patient in the best possible physical condition. Chloral hydrate and amylene hydrate have a marked effect in controlling myoclonic movements. Bromides have an excellent effect in some cases.

THE MILITARY SURGEON

August, 1907

1. Splenic Abscess as a Not Uncommon Complication of Grave Malarial Infection,
By WILLIAM HEMPHILL, BELL.
2. Wounds of the Colon Treated Without Operation,
By PETER R. EVAN.
3. An Epidemic of Cerebrospinal Meningitis Occurring at the United States Naval Training Station at Newport, R. I.,
By NORMAN J. BACKWELL, MILES, S. GUEST, JOHN H. EVAN, and JOHN L. NELSON.
4. The Use of Amyl Nitrite for the Control of Hemorrhage in Rattle Wounds of the Lungs,
By FRANK A. SWEET.
5. Medical Aspects of a Military Medicine Chest for Transportation, Medicine and Surgical Supplies on Mountainous Roads,
By ALFRED C. ROSS.
6. Infantile Spasms: The Infantile Psychomotoric as the Predominating Symptom,
By WESLEY P. CHAMBERLAIN.
7. Notes on the Surgery of the Middle Ear, with Special Reference to the Middle Ear, and to the Results of Operation,
By EDWARD J. LINDEN.

8. Tropical Diseases in the Philippine Islands.

By PERCY M. ASHBURN and CHARLES F. CRAIG.

1. **Splenic Abscess as a Not Uncommon Complication of Grave Malarial Infection.**—Bell states that abscess of the spleen, though a comparatively rare subject of report, is not as uncommon as we are led to suppose. Theoretically the condition should be a very frequent occurrence and malaria is a disease most important as a cause. The imminent possibility of such a grave splenic complication in malaria should not be forgotten and should be early diagnosed. Operation should always be resorted to and, when selection of the method to be undertaken, as between splenectomy and splenotomy, is made with rational discrimination, offers a fairly favorable prognosis.

4. **The Use of Amyl Nitrite for the Control of Hæmorrhage in Bullet Wounds of the Lungs.**—Sweet, observing the striking results obtained from amyl nitrite in the hæmorrhages of tuberculosis, believes that its sphere of usefulness can be enlarged and that hæmoptysis, either primary or secondary, resulting from penetrating wounds of the lung, can be similarly successfully treated. He says that nearly one half of the men killed in battle meet their death from penetrating wounds of the chest, and the mortality of those admitted to field hospitals is correspondingly high. Hæmorrhage is the most immediate and serious complication. Of all forms of bleeding that from the lungs has been least amenable to treatment, and death from exsanguination, suffocation, or the formation of hæmothorax with compression of the lung, frequently occurs. Ergotine has been used with little success, atropine seems to have been forgotten, while the calcium salts are slow in action; consequently the chief reliance must be placed upon opium to quiet the cough and afford the bleeding area opportunity to tampon itself with its own clot. This method undoubtedly favors septic processes, and septicity is the most frequent cause of secondary hæmorrhage. The introduction of a new remedy in these desperate cases therefore needs no apology. The administration of amyl nitrite should differ in no respect than when given for asthma or angina pectoris. No drug is supposed to be more evanescent in effect than amyl nitrite, the headache alone remaining for hours, yet the emptying of the pulmonic vessels and blanching of the lung which recent experiments upon dogs have demonstrated, may be more persistent than is thought. The action of nitroglycerin and sodium nitrite is much more prolonged and their use is indicated where the effect is to be maintained. The dosage should be small and oft repeated.

8. **Tropical Diseases in the Philippines.**—Ashburn and Craig hope to be able to demonstrate very soon the following concerning the ætiology of dengue fever: 1. That the cause of dengue is present in the blood of the infected individual, as the intravenous inoculation of healthy men with blood from a patient suffering from dengue is followed by a typical attack of the disease. 2. That the organism causing the disease is probably ultramicroscopical in size, as the inoculation of infected blood into healthy men after it has been passed through a filter which retains the smallest known organism, produces a typical attack of dengue. 3. That the incubation period is four days whether filtered or unfiltered blood be used in inoculation. 4. That the disease is not contagious. 5. That dengue is transmitted by at least one species of mosquito (*Culex fatigans*) : *Experimental Experiment.*

THE PRACTITIONER.

August, 1907.

1. The Guthrie Lecture on Some Recent Research Work on Cancer, By S. M. COPEMAN.

2. The Spread of Cancer in the Upper Lip and Its Influence on Treatment, By G. L. CHEATLE.

4. Backward Displacements of the Uterus,

By G. B. SMITH.

5. Movable Spleen, By T. G. MOORHEAD.

6. Notes on Two Cases of Leprosy Affecting the Eyes, By A. W. ORMOND.

7. Fons et Origo Mali Maris, or an Inquiry Into the Cause of Sea Sickness, By K. F. LUND.

8. A Review of Recent Literature on Hernia, By H. M. RIGBY.

9. A Review of Recent Work in Abdominal Surgery, By H. UPCOTT.

10. The Treatment of Ulcers, By B. C. STEVENS.

11. Review of Dental Surgery, By J. G. TURNER.

1. **The Guthrie Lecture on Some Recent Research Work on Cancer.**—Copeman believes that research work justifies the following tentative conclusions: That cancer is to some extent preventable. That it is not in the ordinary sense an infection, there being no evidence that its onset and development are due to micro-organisms. That it is the local manifestation of perverted body metabolism, one evidence being the abeyance of the normal hydrochloric acid secreting function of the gastric mucous membrane. That temporary improvement sometimes results with or without obvious delay of growth. That early and complete operative measures, when possible, furnish the only satisfactory treatment at present. That it occasionally disappears spontaneously, the tumor ceasing to grow and becoming absorbed. That continued investigation may afford accurate knowledge of the conditions which favor spontaneous cure, and that the indications thus afforded may result in the discovery of specific treatment.

2. **The Spread of Cancer in the Upper Lip.**—Cheatle describes the method by which such growths may be removed as completely as possible. He also gives three anatomical conditions which complicate its extension and do not apply to cancer of the lower lip or angle of the mouth: 1. Early spread to the alveolar margin of the upper jaw, especially when the disease begins in or spreads to the central part of the lip. The upper lip is shorter here than elsewhere, and is made smaller by the contracting connective tissue which encircles and pervades cancer. Atrophy of the normal tissue also diminishes the natural size of the lip. 2. The relation of the disease to the alæ nasi, and the columella. If cancer begins in the upper lip the columella is invaded before the alæ nasi. The septal origin of the orbicularis oris is an easy path for the disease to reach the columella. 3. The presence of the facial groups of lymphatic glands. If the buccinator group of glands is present it should be included in the incisions for removal of small cancers at the angle of the mouth.

3. **The Diagnosis of Addison's Disease.**—Grunbaum observes that early diagnosis is all important, though often very difficult. The disease gives rise to definite signs and symptoms and usually to marked lesions of the medulla of the suprarenal gland. The solar plexus is frequently diseased; owing to the influence of the secretion of the gland in stimulating the sympathetic system. Pathognomonic signs are asthenia, pigmentation, vomiting, and attacks of faintness. If these symptoms are well marked the diagnosis is not difficult, but when they have become evident the chances of successful treatment are not good. Transplantation has been found successful in animals, and may some day be applied to man. Early diagnosis will, however, still be essential. Quite recently the opsonic index of the serum for the tubercle bacillus has been used to assist diagnosis.

4. **Backward Displacements of the Uterus.**—Smith gives the following as a summary of his views: 1. Many cases of backward displacement are unattended by symptoms, and need no treatment. 2. Congenital cases have symptoms, such as dysmenorrhœa and sterility, which are not referable to the displacement,

and require treatment. 3. If there is enlargement and tenderness of the uterus, and difficulty in immediate replacement, treatment for the purpose of reducing congestion should be instituted. Similar treatment should be adopted in cases in which there is prolapse of the ovaries. 4. If there are well marked symptoms of neurosis the case should be carefully considered to determine the influence of the local condition in producing them. The treatment of such cases is more or less experimental. 5. If the uterus is bound down by adhesions persistence of symptoms will justify an operation for their removal, and for the release of the uterus. 6. Ventral fixation of the uterus and similar operations are indicated in only a minority of cases. The risks from the operation and from possible future pregnancy must not be ignored.

5. **Movable Spleen.**—Moorhead thinks such cases are infrequent. The term should be limited to cases in which the organ has actually slipped, or is capable of slipping from its bed to some other portion of the abdomen. The term dislocation of the spleen applies to cases in which the organ has left its normal site, has become attached by adhesions in some other location, and has again lost its mobility. The most important changes in the organ from an etiological standpoint are enlargement, relaxation of the splenic ligaments, and trauma. A movable spleen is sometimes mistaken for hydronephrosis, or for a tumor of the pelvic organs, and must be carefully differentiated from these. The treatment may be splenectomy or splenopexy. The former yields a permanent cure, the latter is subject to recurrence, which has been recorded in a number of instances.

7. **Pons et Origo Mali Maris.**—Lund, after reviewing the various causes of sea sickness, concludes that: 1. The vomiting is not due to the unusual impression of vision, for it may occur on land, when the eyes are closed, and even to the blind. 2. It is not due to smell. Any unpleasant odor may cause vomiting, and may occur on land, and to any, including deaf mutes, who have sensitive nasal organs. 3. It is not due to momentary displacement of viscera, for it occurs in swinging, or in descending upon an elevator. The sensation is present whether the eyes are open or closed, but it does not occur in deaf mutes. 4. There is some mechanism in the auditory organ, perhaps the system of semicircular canals, which is directly affected by the oscillations of a vessel at sea, which acts as a stimulant to the vomiting centre. The sensation in the ears is synchronous with that in the epigastrium and may be due to change in the equilibrium of the endolymph in the semicircular canals. The treatment consists mainly in lowering the sensibility or conductivity of the different nerves or in benumbing the vomiting centre by narcotic drugs.

9. **Treatment of Diffuse Suppurative Peritonitis.**—Upcott thinks the consensus of opinion at the present time favors the early removal of the cause of peritoneal inflammation with as little injury and handling of the tissues as possible, and with no attempt to cleanse the peritoneal cavity. The operative procedure, with especial reference to peritonitis associated with acute appendicitis, consists in removal of the appendix, cleansing of the appendiceal site, and irrigation of the pelvis and lower abdomen by means of a return flow cannula. The peritoneum may usually be closed without complete removal of the saline irrigation fluid. The external wound to the peritoneum should usually be drained, as it is usually infected. Gentle lavage is often desirable before the patient is removed from the operating table. An ounce or two of a saturated solution of Epsom salts may be introduced through the stomach tube, and left in the stomach. Morphine should be avoided if possible. Rectal saline irrigation may be used every six or eight hours for two days.

Fowler's position does not greatly influence the drainage of peritoneal secretions.

Proceedings of Societies.

AMERICAN SURGICAL ASSOCIATION.

Twenty-eighth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. DUDLEY P. ALLAN, of Cleveland, Ohio, in the Chair.

(Continued from page 330.)

Rupture of the Spleen.—Dr. ELLSWORTH ELLIOT, Jr., of New York, reported three cases. He said that the treatment by splenectomy was the best. A laceration might be overlooked. Packing did not always check bleeding, especially where the vessels were torn. Where the diagnosis was clear the incision should be made along the right rectus muscle, from which a transverse one was carried along the left costal border. The pedicle must be exposed for clamping. If adhesions to the stomach or diaphragm existed, the costal cartilages must be resected. If the pedicle was not too large, it might be ligatured, but if it was large, clamps might be used. Drainage was desirable, especially if pancreatic fistula was likely to occur. The only objection to splenectomy was the loss of a desirable organ, but not an indispensable one.

Final Results of Operations for Carcinoma of the Breast.—Dr. FREDERIC S. DENNIS, of New York, reported seventy-seven per cent. of permanent cures, but this, he said, was doubtless incorrect, as all cases could not be followed. By selecting fifty cases solely on the ground of personal knowledge more accurate figures were obtained. Three years was too short a period to cover a cure. The patients were classified in three groups: 1. Those living beyond three years. 2. Those apparently cured at the expiration of three years, but who died of independent disease. 3. Those apparently cured after the same time, but who died of metastases. Ten years was the period which must be reached before a cure could be affirmed. Investigation of these cases assured us that at even eighteen years later there might be a recurrence. The more radical the operation the better the prognosis. One patient operated upon twenty years ago for cancer of the breast returned two years ago with a growth in the other breast, which was removed and pronounced carcinoma. Another patient with carcinoma of the breast had sarcoma in the other breast fourteen years later. He considered this as a coincidence; the tumors bore no relation to each other. No tumor, however small, especially toward the menopause, should be neglected. The final results had been satisfactory in some of the most hopeless cases, and every patient should have the benefit of the doubt.

Dr. KÜSTER, of Marburg, Germany, said that the microscopical appearance was not always easy to define. The period after which a patient may be considered cured had first been fixed at three years, but had been extended to five years. He had seen a return after seventeen years.

Dr. JAMES E. MOORE, of Minneapolis, now believed that we might have censured ourselves unjustly. He showed the photographs of a patient upon whom the radical operations were done in 1904. In August, 1906, she had areas of recurrence marked by little nodules at some distance from the original site of the tumor. The second removal was made by wide dissection. Seven months later nodules appeared in the skin at some distance from the line of incision. This skin originally covered the back and the abdomen. This woman was rapidly failing from mediastinal disease. Was it possible that this was just an extension from the carcinoma?

Dr. JOHN B. ROBERTS, of Philadelphia, wished to know as to the propriety of amputating the arm when the axilla was involved, in order to get out the vessels and nerves.

Dr. C. B. NANCREDE, of Ann Arbor, Mich., stated that microscopical examination was sometimes unsatisfactory, as the same observer had found sarcoma and carcinoma in the same tumor. A number of so called cases of carcinoma had been shown to be tuberculosis.

Dr. ALEXANDER HUGH FERGUSON, of Chicago, could not understand how an amputation would facilitate the removal of the lymphatics of the neck. He had once amputated where the recurrence involved the axillary veins and was accompanied by oedema. On the tenth day, while the patient was sitting up, she suddenly died. In every case in which the disease had gone to the neck the patient had died within two years. He had removed ribs, sternum, and pieces of lung, but doubted if the operation was of any avail.

Dr. THOMAS W. HUNTINGTON, of San Francisco, stated that operations reaching to the neck prolonged life and gave comfort. The interscapular amputation was done in one case, and nine months later the patient was doing well.

Dr. W. B. COLEY, of New York, said that ten to fifteen per cent. of the patients remained cured after ten years. He had seen sarcoma and carcinoma in the same individual in two instances. Ehrlich had been able to propagate the sarcoma from the carcinoma in the mouse tumor, as probably both were produced by the same organism. He did not believe in amputation of the arm, as the moral effect on persons contemplating an operation was bad.

Dr. RODMAN, of Philadelphia, said that three years were not sufficient to indicate a cure, but believed Volkmann's law was a good one. These so called recurrences might not be recurrences at all, for we must be able to demonstrate the identity of the growth. He agreed with Dr. Ransohoff that the so called recurrence was purely a new growth independent of the first. He believed that primary union should be sacrificed in the interest of the free removal of the tumor. Halsted had bled better than he knew when he advocated removal of skin, muscles, and neck glands.

Dr. S. H. WEEKS, of Portland, Me., said that the operation was not completed until everything pathological was removed. The old rule which called for the removal of all disease with the least destruction of tissue was a good one.

Dr. JOHN C. BLOODGOOD, of Baltimore, said that the character of the tumor determined the nature of the prognosis. In adenocarcinoma, ninety-six per cent. were cured when the complete operation was done. In five cases of adenocarcinoma where the axilla was not cleaned out, four had died. This emphasized the importance of the radical operation. In scirrhus or medullary carcinoma the percentage of cures was lower. It was the practice at Johns Hopkins Hospital to measure the amount of skin removed, and most recurrences had occurred in those cases in which the smallest amount of skin had been removed.

Dr. B. FARQUHAR CURTIS, of New York, believed that cells of a carcinomatous type may be found in distant parts for years without growth and even with retrogression.

Dr. W. H. CARMALT, of New Haven, Conn., said that epithelioma and carcinoma were found in the same tumor, and we could not say which would return. He removed a sarcomatous uterus from a woman, thirty-two years old; three weeks later she had a tumor in the abdomen, and three weeks after this there was optic neuritis. She died from round cell sarcoma of the brain. He then examined the original tumor, but it

Dr. S. J. MIXTER, of Boston, wished to emphasize the importance of the early and radical operation. No mutilation could be so great as a tumor. The necessity for maintaining this stand was that many men who were not surgeons professed to do the radical operation, but they did not do it.

Dr. H. L. BURRELL, of Boston, introduced a resolution to the effect that any person having a palpable tumor of the breast should have it examined and removed by a capable surgeon. It was adopted as the official sentiment of the association.

Rupture of the Kidney, with Remarks on Conservative Treatment.—Dr. THOMAS R. NELSON, of Philadelphia, reported four cases. He had studied all the reported cases to determine the best method of treatment. The deduction was not an easy one, as many complications were encountered. The mortality in uncomplicated cases treated medically was twenty-one per cent., while the surgical mortality in the same class of cases was seven per cent. With nephrectomy the mortality was over twenty per cent. In most cases with complications, packing, suture, or drainage had given the best results. Nephrectomy gave a higher mortality, but it was possible that the kidney was more severely injured in those cases. When there were sufficient grounds for believing that severe injury had taken place an operation was advised. Only in cases where local symptoms were slight could the expectant treatment be successful. There was a choice between the abdominal and lumbar incision, dependent upon the presence of abdominal rigidity and pain, which, if present, indicated laparotomy. The question always arose as to whether the organ should be removed. Every attempt should be made to save it if possible. If a part of the organ was irreparably damaged, we might remove that part. The operation of packing was quickly done, and that was a decided advantage. The rubber drainage tube had its indications, especially where the wounds were multiple. The succeeding fistula usually healed in a few weeks. Secondary hemorrhage was rare, and infection of the second kidney by way of the bladder was very unusual.

Primary Sarcoma of the Prostate.—Dr. CHARLES A. POWERS, of Denver, reported the following case: A man, sixty years old, was first seen in February, 1907, when he complained of difficult urination. He never had had any bladder trouble until a few weeks before. He complained of constant pain in the hypogastrium. He passed water every half hour, there was no residual urine, and the urine was normal in amount. A searcher passed easily into the bladder. Rectal examination showed a large bulging prostate, and the pressure it gave the finger was unusual. It was of moderate consistence and balloon-like. A diagnosis was made of probable malignant tumor. On February 12th an inverted Y incision was made deep in the perineum, and manual examination showed a large growth. The enucleation was attended with profuse hemorrhage, which was controlled by packing. No capsule was detected and large friable masses were taken out. The top of the growth could not be reached. The amount removed was enough to make two handfuls, and the growth proved to be a small round cell sarcoma. The man died on the fifth day, of pneumonia. Dr. Powers doubted if the suprapubic route would have been better, as the hemorrhage could not have been checked. The literature shows nineteen cases of primary sarcoma of the prostate, not including the one now reported. There was no record of a permanent cure.

Prostatectomy.—Dr. ARCHIBALD MACLAREN, of St. Paul, Minn., said that two books recently published, one by Young and the other by Deaver, were excellent contributions to this subject, but each advised a different method. Murphy decided that both routes

were applicable in selected cases. Dr. MacLaren had used the suprapubic for years, and in few cases had there been so much bleeding that packing had been necessary. The bad cases were best treated with a perineal drain, and he had made median perineal incisions recently. He found he could remove almost all in that manner. The difficult ones are the hard, fibrous prostates. The enucleation had to be done by the sense of touch alone. The greatest care was needed to prevent injury to the rectum, but by working from the inside of the capsule through the incision of the urethra the danger was slight. Rectal fistula was said to occur in eight per cent. of the cases. The mortality is said to be three to five per cent. Rectal incontinence was present in a small percentage. It was generally stated that the mortality of the suprapubic operation was twice as high as that of the perineal, but Murphy said the mortality was the same. Young said an operation for cancer of the prostate was undoubtedly the best thing to do. The neurotics needed careful treatment, and pure neurotics should not be operated upon. Gonorrhœa was not an important causative agent, as stricture was present in only eight of the 145 cases.

Dr. C. L. GIBSON, of New York, had had one case of sarcoma of the prostate which had never been published. He removed the prostate *in toto*. The patient died in three weeks. When he first adopted this operation he did elaborate dissections, but now confined himself to perineal sections without suprapubic section. The operation lasted only a few minutes, and in his recent cases the average age has been seventy-two years, with no deaths. He had his patient up on the second day and out in a week. The operation required ten minutes or less.

The Surgical Treatment of Cancer of the Head and Neck.—Dr. GEORGE W. CRILE, of Cleveland, Ohio, said that we could, by tubing the throat for anesthesia, eliminate pneumonia and operate on a patient in any position, and thereby prevent gravity abscess in the mediastinum. There might be an immunity reaction in sarcoma, and animals bled had the least resistance, and therefore the less blood lost the best chance of recovery. He had practised transfusion of blood after operations to increase resistance and hasten convalescence.

He had seen no good results from the x ray in deep seated tumors, but had in superficial ones, and, acting upon this, he had left the wound wide open, that the x ray might be used in this way. The naked wound might be exposed each day until a reaction was shown, and then skin grafting employed. Perhaps the x ray had played an important part.

High mortality followed the loss of the carotid artery. Ligation of the external carotid increased the risk of cerebral embolism two per cent. The jugular veins, one or both, might be excised without fear. The growth rather returned in the sheath of the artery. The sternomastoid might be removed on one or both sides, and its loss is well compensated for and need not be seriously considered.

The scar was little source of concern. Unilateral division of the vagus was attended only with hoarseness. Death followed double division. Unilateral excision of the phrenic nerve produced loss of the power of less than one half of the diaphragm. Section of the hypoglossal on one side was safe, but on both sides was fatal. In 1906 he reached the conclusion that operation for cancer should be by incision of the scapular radical. He had operated thirty times since then, and thirty-nine per cent. of the patients had passed the three year limit, while only fifteen per cent. passed that limit before now. The operative technique had enabled the surgeon to reach every part without loss of blood. The x ray was useful. The only tumor to be suspected was the common or internal carotid, while

the sternomastoid might be disregarded. Unilateral incision of the phrenic, hypoglossal, or pneumogastric nerve was safe.

Dr. A. VANDER VEER, of Albany, N. Y., said that in operations about the neck he had tied the common carotid and had had no reason to regret it. He heartily endorsed such a paper as Dr. Crile had read.

(To be concluded.)

Book Notices.

Leçons de thérapeutique pratique. Par G. RAUZIER, professeur adjoint à la Faculté de médecine de Montpellier. Préface de M. le Professeur ALBERT ROBIN, membre de l'Académie de médecine. Montpellier: Coulet et Fils. Paris: Masson et Cie, 1907. Pp. 382.

Professor Rauzier has made a selected collection of his lectures, mostly during the summer course of 1905, which he has held before the clinical class of the students of the medical faculty of the university of Montpellier, leaving out such details as case histories and bibliographies. He thus has treated the therapy of hæmoptysis, acute bronchitis, chronic bronchitis, acute infection of the ultimate branches of the bronchial tubes and the lung, atonic dyspepsia, helminthiasis, mucomembranous enterocolitis, acute articular rheumatism, scarlatina, specific epilepsy, migraine, and syphilis. From this summary it may be seen that the author has selected such subjects which are of interest to the general practitioner, and that the book indeed is, what its title proclaims, a lecture on practical therapeutics. The chapter on special epilepsy is very interesting, the author explaining his reason for using the archaic term special or idiopathic epilepsy, as opposed to symptomatic epilepsy.

Professor Rauzier gives us a clear picture of each disease he speaks of in his lecture, points out the diagnosis, and describes the modes of treatment with a full list of prescriptions. The index is well carried out. The book is a valuable addition to the list of books of its kind.

Diseases of the Intestine and Peritonæum. By Professor Dr. HERMANN NOTHNAGEL, Late Professor of Special Pathology and Therapy, University of Vienna. Edited, with Additions, by H. D. ROLLESTON, M. A., M. D., F. R. C. P., Physician to St. George's Hospital and to the Victoria Hospital for Children, London. Second Edition, Thoroughly Revised. Authorized Translation from the German, under the Editorial Supervision of ALFRED STENGEL, M. D., Professor of Clinical Medicine in the University of Pennsylvania. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 1059. (Price, \$5.)

The comparatively recent death of the distinguished author of this work adds interest to the second edition of this translation, which appeared first some three years ago.

Dr. Rolleston has found it advisable to make some alterations in the arrangement and substance of the additions that were made to the text in the former edition, and whatever new additions have been incorporated so as to make the text as complete as possible in its presentation of the most recent and authoritative knowledge of these diseases, which are most comprehensively described in the present work. There is now written a paper on colic ulcer, diverticula of the appendix, enteroptosis, hyperplastic hypertrophy of the stomach, and lesions of the great omentum. The volume contains the best representation of this series.

The Essentials of Chemical Physiology for the Use of Students. By W. D. HALLIBURTON, M. D., LL. D., F. R. S., Fellow of the Royal College of Physicians. Professor of Physiology in King's College, London. Author of *Textbook of Chemical Physiology and Pathology*. Sixth Edition. London: Longmans, Green, & Co., 1907.

Concise summaries of the essentials of subjects the details of which he is engaged in mastering are of much value to the student, provided they are written in an accurate manner by the man who is master of the more minute particulars of the branch. The well known *Textbook of Physiological Chemistry* would argue for the possession of this qualification by Dr. Halliburton, the author of the book under consideration. Each teacher in a subject will be able to produce a book which will be adapted to meet the particular wants of the students under his immediate instruction. The *Essentials of Chemical Physiology* of which we are writing, is well arranged and will present the subject to the students in a helpful manner. The danger of such books is that the student is prone to receive the idea that all has been said on the matter in hand in the shorter books.

The subject matter in this work is arranged as an elementary course and an advanced course, with an appendix. In the elementary course the subjects treated are: (1) The elements contained in physiological compounds; (2) the carbohydrates; (3) the fats; (4) the proteins; (5) foods; (6) the digestive juices; (7) the blood and respiration; and (8) the urine. In the advanced course the following subjects are treated: (1) Carbohydrates; (2) the action of malt upon starch; (3) the crystallization of egg albumin; (4) the proteoses; (5) digestion; (6) hæmoglobin and its derivatives; (7) serum; (8) coagulation of the blood; (9) muscle and nervous tissue; (10) urea and chlorides in the urine; (11) phosphates and sulphates in the urine; (12) uric acid and creatinin; and (13) the urinary pigments. In the appendix hæmocytometers, hæmoglobinometers, polarization of light and polarimeters, the relation between circular polarization and chemical constitution, mercurial air pumps, the analysis of gases, Kjeldahl's method of estimating nitrogen, solution, diffusion, dialysis, and osmosis are considered.

A Manual of Diseases of the Nose, Throat, and Ear.

By E. B. GLEASON, M. D., LL. D., Clinical Professor of Otolaryngology in the Medico-Chirurgical College, Philadelphia, etc. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 556. (Price, \$2.50.)

The author has aimed to prepare a manual to supply students and general practitioners with the essential facts of rhinology, laryngology, and otology in a concise, practical form that is needed by the many medical men who cannot refer patients with such complaints to any near at hand specialist.

The more important facts in the anatomy, physiology, and pathology of the nose, throat, and ear are reviewed; and the methods of examination and of diagnosis of diseases of these organs are described with detail proportionate to the purpose of the book. There is a collection of formulas, with a description of the better method of use of some of the more important drugs. The book is well illustrated and is likely to prove a useful working manual.

Miscellany

The Medical Corps in the Russian-Japanese War.—The *Allgemeine Militarärztliche Zeitung*, in reporting the transactions of the Society of Sanitary Officers of the Ninth Army Corps summarizes a paper by Staff Surgeon Gottwald on the Medical Corps in the Russian-Japanese war. At the beginning of the war

the Russian Medical Corps was totally unprepared, practical surgical methods had not been adopted and everywhere their slight independence made itself apparent. The war proved that a scheme for troop and principal dressing stations (*Truppen und Hauptverbandplätze*) will not do. Everything depends upon the adaptability and the preparedness to meet quickly unforeseen emergencies. The first bandages applied were often very primitive. Wreden desired the best quality of first aid packet, protected against infection, especially by flies, and containing well corked spirits of soap and tincture of iodine. He estimates 17 to 20 per cent. loss of official strength by death from wounds. Out of four or five wounded having perforated wounds one died. The inadequate means for transportation of the sick and wounded in the East Siberian Rifle Regiment necessitated the improvisation of many things such as using mule drawn carriages at the first place captured. The railway transportation of the wounded had promised much and while on the one hand were the most luxurious accommodations, on the other wretched equipment or none at all. The removal of the wounded was therefore always critical, also the transportation of the numerous insane was poorly managed.—*The Military Surgeon*, February, 1907.

Relation of Antitoxine to Globulin During Diphtheria Immunization.—Lednighani concludes that: During the immunization of a horse which ultimately failed to yield high grade antitoxic serum, the globulin content of the total proteid showed no tendency to increase. The slight rise in total proteid which occurred was due to an increase in the albumin fraction. It is probable that the failure of this horse to yield high grade antitoxine was in some way connected with the initial high globulin content of the serum. During the immunization of a goat, the rise in total proteid affected mainly the albumin fraction and the globulin fraction in lesser degree. During the immunization of a horse which ultimately yielded high grade antitoxic serum, the percentage globulin content of the total proteid, progressively increased. This increase affected the euglobulin fraction more than the pseudoglobulin fraction. In the horse the pseudoglobulin contains the greater part if not all the antitoxine, but it seems probable that this relationship holds good only when the antitoxine content of the serum is steadily rising. In the goat the antitoxine content of the euglobulin and pseudoglobulin fractions may vary at different periods in the course of immunization.—*The Journal of Hygiene*, Cambridge, England, January, 1907.

The Losses to Farmers from Tuberculosis in Cattle.—It is a difficult matter to estimate with any approach to accuracy the losses from a disease like tuberculosis, concerning which the statistics are incomplete in every respect. There are now, however, approximately 11,000 carcasses of beef and 65,000 carcasses of hogs condemned each year by the Federal meat inspectors on account of tuberculosis. We should not be far wrong in estimating the loss on these carcasses at present prices as \$40 each on the beef and \$12 each on the pork, according to the United States Department of Agriculture. We should, therefore, have as the net annual loss from the condemnation of carcasses \$440,000 for beef and \$780,000 for pork, or a total of \$1,220,000. This statement, however, does not include the 647 parts of beef carcasses and the 142,105 parts of hog carcasses which it was necessary last year to condemn for the same cause, and the approximate value of which cannot be ascertained. In addition to the carcasses condemned by Federal inspectors, there are a considerable number condemned by State and municipal inspectors. These are mostly carcasses of dairy cattle killed in the work of suppressing tuberculosis, or of cows no longer profitable in the dairy which are sent for slaughter to the smaller abattoirs. The aggregate number of these has not been ascertained, but in some years it has

amounted to several thousand carcasses. The losses to the dairy industry from tuberculosis have been enormous from decrease in milk and depreciation and death of animals. The dairy herds have been affected to a greater extent than any others, and the infection as a rule spread through the cows of a herd until 50 to 80 per cent. of the animals were affected. In the early stages of the disease the product of the cows is not visibly lessened, but as the tubercular process develops, the animals often become feverish, their milk is diminished in quantity, and they lose flesh and are no longer profitable. The losses from shrinkage of the milk and from the destruction of so many cows must be tremendous, but it has never been definitely determined. An extremely serious phase of this subject is the effect of the disease in destroying valuable families of cattle and blood lines which can never be removed. In most of the breeds there are certain families or strains of blood which have been developed by long and skillful selection, and which represent the one marked success in a breeder's life. The representative animals of such a strain are generally few in number and may all be in one herd. Under such circumstances the introduction of tuberculosis has often meant the annihilation of the strain and the blotting out of the achievements of a lifetime of toil and study. Such losses can scarcely be measured in dollars and cents, but they are no less real and no less serious as an obstacle to the development of the cattle industry. The influence upon our export trade of regulations relative to tuberculosis will probably become more and more unfavorable. Breeding and dairy cattle for Canada and Argentina must now be tested and found free from the disease before they will be admitted. The tendency everywhere is to make more stringent regulations, and any considerable increase in the prevalence of the disease would have an unfavorable effect upon the sale of live animals, meats, and dairy products, even if burdensome regulations were not imposed. To meet successfully the increasing competition in the markets of the world, it is important to have products which it can be shown are produced from healthy animals, and which do not carry danger of any kind to the health of the consumer.—*The Committee on the Prevention of Tuberculosis.*

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending August 16, 1907:

Smallpox—United States.				
Places.	Date.	Cases.	Deaths.	
California—Los Angeles	July 26-27	1	1	
Indiana—Elkhart	July 27-Aug. 3	1	1	
Indiana—Indianapolis	July 26-Aug. 4	2	2	
Louisiana—Shreveport	July 27-Aug. 4	1	1	
Missouri—St. Joseph	July 27-Aug. 3	1	1	
New Jersey—Newark	July 27-Aug. 3	1	1	
New York—New York	July 29-27-Aug. 1	1	1	
Wisconsin—Milwaukee	July 27-Aug. 1	2	2	
Smallpox—Foreign.				
Africa—East London	June 29-July 6	1	1	Imported
Argentina—Rosario	May 1-31	1	1	
Austria—Vienna	July 13-20	1	1	
Canada—Halifax	July 27-Aug. 3	1	1	
China—Amoy	June 29-July 6	2	2	
Denmark—Copenhagen	July 6-20	1	1	
France—Paris	July 13-20	15	15	
Greece—Piræus	July 20-27	1	1	
India—Calcutta	June 22-29	2	2	
Italy—Genoa	July 11-18	1	1	
Java—Batavia	June 22-29	3	3	
Mexico—Amos, Calientes	July 27-Aug. 3	1	1	
Portugal—Lisbon	July 13-20	6	6	
Russia—Moscow	June 29-July 20	11	11	
Russia—Riga	July 12-27	1	1	
Siberia—Vladivostok	June 4-11	2	2	
Turkey—Bagdad	June 22-29	1	1	Present
Turkey—Rassadon	June 29-July 6	6	6	Present
Turkey—Constantinople	July 14-21	2	2	

Yellow Fever—Foreign.

Cuba—Alacranes	Aug. 9	1	
Cuba—Cienfuegos	Aug. 3-14	14	1
Nine cases among American troops.			
Cuba—San Nicolas	Aug. 8	1	

Cholera—Foreign.

India—Calcutta	June 22-29	68	
India—Kashmir	June 22-29	>40	723
Straits Settlements—Singapore	June 8-15	2	

Plague—United States.

California—San Francisco	Aug. 12-14	3	1
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Plague—Foreign.

Australia—Brisbane	May 25-June 8	3	1
Australia—Tasmania	May 25	1	
Australia—Sydney	May 25-June 1	1	1
China—Amoy	June 22-29	1	1
India—Calcutta	June 22-29	28	
Peru—Callao	June 27	2	1
Peru—Chicla	June 27	6	3
Peru—Mollendo	June 27	4	
Peru—Paña	June 27	3	
Peru—Trujillo	June 27	22	5
Russia—Odessa	July 14	1	1
From vessel.			

Public Health and Marine Hospital Service:

List of Changes of Stations and Duties of Commissioned and Noncommissioned Officers of the Public Health and Marine Hospital Service, for the seven days ending August 14, 1907:

- COFER, L. E., Passed Assistant Surgeon. Granted leave of absence for one month.
- COLLINS, G. L., Assistant Surgeon. Granted leave of absence for one day.
- ELDRIDGE, M. B., Pharmacist. Granted leave of absence for twenty-three days, from September 3, 1907.
- FRANCIS, EDWARD, Passed Assistant Surgeon. Directed to proceed to Mobile, Ala., for special temporary duty, upon completion of which to rejoin his station at Mobile Quarantine Station.
- GEDDINGS, H. D., Assistant Surgeon General. Directed to proceed to Ellis Island, N. Y., for special temporary duty, upon completion of which to rejoin his station in Washington, D. C.
- GIBSON, L. P., Acting Assistant Surgeon. Granted leave of absence for eight days, from August 8, 1907.
- GOODMAN, F. S., Pharmacist. Granted leave of absence for thirty days, from July 5, 1907, on account of sickness. Granted leave of absence for twenty-eight days, from August 5, 1907.
- GRUBBS, S. B., Passed Assistant Surgeon. Granted leave of absence for one day.
- GUSTETTER, A. L., Acting Assistant Surgeon. Granted leave of absence for thirty days, from September 1, 1907.
- HUNTER, S. B., Acting Assistant Surgeon. Granted leave of absence for six days, from August 7, 1907.
- MCGINNIS, R. H., Acting Assistant Surgeon. Granted leave of absence for thirty days, from September 1, 1907.
- MILLER, W. W., Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to report at the Bureau in Washington for temporary assignment in the Hygienic Laboratory.
- NUTE, A. J., Acting Assistant Surgeon. Granted leave of absence for twenty days, from August 20, 1907.
- OLSEN, E. T., Assistant Surgeon. Granted leave of absence for one month and twenty-eight days, from August 18, 1907.
- RODMAN, JOHN C., Acting Assistant Surgeon. Granted leave of absence for three days, from August 8, 1907.
- SAFFORD, M. V., Acting Assistant Surgeon. Granted leave of absence for four days, from July 15, 1907, on account of sickness. Granted leave of absence for four days, from August 8, 1907, under paragraph 270, Service Regulations.
- SIMONSON, G. T., Acting Assistant Surgeon. Granted leave of absence for ten days, from August 5, 1907.
- TROTLER, R. F., Pharmacist. Granted leave of absence for seven days, from August 10, 1907.
- WALKLEY, W. S., Acting Assistant Surgeon. Granted leave of absence for six days, from August 18, 1907.

Promotions.

Assistant Surgeon A. M. SRIMSON commissioned as passed assistant surgeon, to rank as such from July 27, 1907.

Assistant Surgeon W. C. RUCKER commissioned as passed assistant surgeon, to rank as such from July 27, 1907.

Assistant Surgeon W. K. WARD commissioned as passed assistant surgeon, to rank as such from July 27, 1907.

Assistant Surgeon J. W. TRASK commissioned as passed assistant surgeon, to rank as such from August 16, 1907.

Appointments.

Dr. CHARLES W. CHAPIN commissioned (recess) as assistant surgeon in the Public Health and Marine Hospital Service, August 8, 1907.

Dr. EDWARD R. MARSHALL commissioned (recess) as assistant surgeon in the Public Health and Marine Hospital Service, August 8, 1907.

Dr. RAYMOND B. SCOFIELD commissioned (recess) as assistant surgeon in the Public Health and Marine Hospital Service, August 8, 1907.

Dr. EMIL KRULISH commissioned (recess) as assistant surgeon in the Public Health and Marine Hospital Service, August 8, 1907.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending August 17, 1907:

BANISTER, JOHN M., Lieutenant Colonel and Deputy Surgeon General. Relieved from temporary duty as chief surgeon, Department of the Missouri, Omaha, Neb., and to return to station, Fort Riley, Kas.

BANISTER, WILLIAM B., Major and Surgeon. Detailed member of the examining board at Manila, P. I., for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion or advancement, vice Captain Thomas S. Bratton, assistant surgeon, U. S. Army, hereby relieved.

BARTLETT, C. J., First Lieutenant and Surgeon. Left Cuba en route to the United States on thirty days' leave of absence.

BYRNE, CHARLES B., Colonel and Assistant Surgeon General. Ordered to report in person to commanding general, Department of the East, Governor's Island, N. Y., for duty as chief surgeon of that department.

COWPER, HAROLD D., Captain and Assistant Surgeon. Granted one month's leave of absence, with permission to apply for two months' extension.

DAVIS, WILLIAM B., Lieutenant Colonel and Deputy Surgeon General. Relieved from duty as chief surgeon, Department of the East, and ordered to report in person to the commanding general, Department of the Missouri, Omaha, Neb., for duty as chief surgeon of that department.

FIELD, PETER C., First Lieutenant and Assistant Surgeon. Ordered to accompany Troops F and G, 4th Cavalry, from San Francisco, Cal., to Fort Snelling, Minn., and then to proceed to and take station at Fort Wayne, Mich.

HALLORAN, PAUL S., Captain and Assistant Surgeon. Granted one month and fifteen days' leave of absence.

IVES, FRANCIS J., Major and Surgeon. To accompany 9th Infantry from Presidio of San Francisco, Cal., to Fort Sam Houston, Texas.

KEEFER, FRANK R., Major and Surgeon. To accompany 9th Infantry from Presidio of Monterey, Cal., with troops in field.

KIRKPATRICK, THOMAS J., Captain and Assistant Surgeon. Granted one month and eleven days' sick leave of absence. Relieved from treatment at the Army General Hospital, Fort Snelling, Minn., and to proceed to and take station at Fort Wayne, Mich., upon the expiration of the sick leave of absence, and will proceed to join his proper station.

LEWIS, JAMES A., Captain and Assistant Surgeon. Granted leave of absence for one month, effective September 1, 1907.

NICHOLS, HENRY J., First Lieutenant and Assistant Surgeon. Ordered to accompany Troops F and G, 4th Cavalry, for studying tropical diseases as they exist in the Philippine Islands, vice Assistant Surgeon Charles F. Craig, U. S. Army, hereby relieved.

DAVIS, W. B., Lieutenant Colonel and Deputy Surgeon General, and RICHARD, CHARLES, Major and Surgeon. Appointed members of an army retiring board to meet at Governor's Island, N. Y.

VOSE, WILLIAM, Captain and Assistant Surgeon. Relieved from duty in the Philippine Islands, to sail from Manila, P. I., about October 15, 1907, for San Francisco, and upon arrival report by telegraph to the Adjutant General of the Army for further orders.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending August 17, 1907.

ALFRED, A. R., Surgeon. Detached from duty at the navy recruiting station, Pittsburgh, Pa., and ordered to the *Itasca*.

BIELLO, J. A., Acting Assistant Surgeon. Ordered to the naval hospital, Philadelphia, Pa.

BLAKEMAN, R. S., Passed Assistant Surgeon. Discharged from treatment at the naval hospital, Norfolk, Va.

GRIEVE, C. C., Passed Assistant Surgeon. Detached from the navy yard, Portsmouth, N. H., August 31st, and ordered to command the naval hospital, Sitka, Alaska.

GRUNWELL, A. G., Surgeon. Detached from the *Wolverine* and ordered to the *Kentucky*.

HOUGH, E. P. W., Acting Assistant Surgeon. Ordered to naval hospital, Annapolis, Md.

LUNG, G. A., Surgeon. Detached from the *Kentucky* and ordered home to await orders.

MCMAHON, J., Pharmacist. Detached from duty at the navy yard New York, N. Y., and ordered to the naval hospital, Norfolk, Va.

MELHORN, K. C., Acting Assistant Surgeon. Ordered to the naval hospital, Norfolk, Va.

OWENS, W. D., Assistant Surgeon. Ordered to the navy yard, Portsmouth, N. H., August 31st, and to additional duty on the *Southerly*, August 21st.

STROOPS, R. E., Assistant Surgeon. Ordered to the navy recruiting station, Pittsburgh, Pa.

STUART, A., Passed Assistant Surgeon. Detached from command of the naval hospital, Sitka, Alaska.

TAYLOR, E. C., Passed Assistant Surgeon. Detached from duty at the navy recruiting station, Memphis, Tenn., and ordered home to await orders.

ZALESKY, W. J., Passed Assistant Surgeon. Ordered to the navy recruiting station, Memphis, Tenn.

Births, Marriages, and Deaths.*Married.*

LEONARD—GEBBIE.—In Philadelphia, on Wednesday, August 7th, Dr. H. F. Leonard and Mrs. Susan E. Gebbie.

WEISKOTTEN—PENDLETON.—In Syracuse, N. Y., on Tuesday, August 6th, Dr. W. O. Weiskotten and Miss Sadie L. Pendleton.

Died.

ABBOTT.—In Contrecook, Massachusetts, on Friday, August 9th, Dr. Ezra Abbott, aged sixty-eight years.

BUCKNER.—In Osceola, Nebraska, on Thursday, August 8th, Dr. E. D. Buckner.

DINSMORE.—In Deep Valley, West Virginia, on Thursday, August 8th, Dr. C. P. Dinsmore.

MCCLURE.—In Philadelphia, on Thursday, August 8th, Dr. Sorden McClure, aged twenty-nine years.

NASH.—In Philadelphia, Pa., on Tuesday, August 13th, Dr. Miles H. Nash, of New York, aged seventy-four years.

SALMON.—In Clinton, Missouri, on Monday, August 5th, Dr. George Y. Salmon, aged eighty years.

SCARBORO.—In Towson, Maryland, on Wednesday, August 7th, Dr. Silas Scarboro, aged eighty years.

SHANKS.—In Albany, N. Y., on Monday, August 13th, Dr. Morris Shanks, aged thirty-eight years.

WOOD.—In Albany, N. Y., on Monday, August 13th, Dr. Eben A. Wood, in the fifty-fifth year of his age.

WURTS.—In Media, Pennsylvania, on Tuesday, August 13th, Dr. Charles S. Wurts, aged seventy-eight years.

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WHOLE No. 1500.

Original Communications.

VILLOUS PAPILLOMATA OF THE RECTUM.*

By BENJAMIN MERRILL RICKETTS, PH. B., M. D., LL. D., Cincinnati, O.

The rarity and disposition of this neoplasm to undergo epitheliomatous degeneration causes it to be looked upon with suspicion.

Historical.—Thompson described it as fimbriated papilloma; Gosselin, glandular papilloma; Rokitsky, villous cancer; Virchow, papilloma; and Forster, papillary tumors. It is sometimes referred to as superficial vegetating epithelioma of the rectum.

The number of cases and authors reporting them are mentioned in the following order: Quain, one; Holmes, two; Curling, one; Vance, two; Goodsall, one; Cook, one; Bowlby and Mackie, one; Paul, one; Mummery, one; Tuttle, three; Allingham, seventeen; Quenu and Landel, seven; Gowland, three; Cooper, one; Syms, two; Marshall, one; Cripps, one; Gosselin, one; Van Buren and Bryant, one; Quinu and Hartman, sixteen. Thus sixty-two cases have been reported, nine of which have been by six American authors. Among the most prominent of these is Tuttle, who reports three, two of which were malignant.

There is no known cause of rectal papillomata, and they may be single or multiple, sessile or pedunculated. Kelsey maintains that they are found only in adult and advanced life. Bowlby's patient, seventeen years old, is the youngest reported. However, the indications are that it is more frequent from thirty-five to sixty years of age, and that it attacks both sexes alike in frequency.

The rapidity of their growth is uncertain. Gowland, however, states that growth in his patient was slow. The scarcity of cases, and their limitations causes the question of growth rate to remain undetermined. While their infrequency is a matter of speculation, they are no doubt more numerous than reports would indicate, their imperfect classification being proverbial.

Many have been reported as polypi, others colloid cancer, and still others myxomata or fibromata on account of their villous character.

Description.—The soft variety which is found only on mucous membranes is velvety and exceedingly smooth, bleed easily, and are single or branched. Their surface is covered with one or more layers of cylinder or pavement epithelium, with one or more stems covering more or less surface of the mucous

membranes of the bladder or any part of the intestinal tract, especially the colon and duodenum. The ends of the villi found in the bladder are more blunt than those found in the rectum. They originate in the mucous membrane or superficial layers of the submucosa, and when found in the rectum are most frequently three inches from the mucocutaneous line, upon the posterior wall. Allingham says that they are more commonly found upon the perineal surface.

They contain highly vascular connective tissue covered with epithelial cells, sometimes infiltrated with small round cells. Clark describes them as outgrowths of dense areolar tissue permeated with bloodvessels. Allingham's early teachings was that villous tumors of this character did not recur, but, in his more recent work he asserts, that their removal is occasionally followed by replacement of epithelium.

Recurrence usually indicates malignancy. Considerable time of immunity from cancer may ensue after the primary removal of the growth by surgical or spontaneous amputation. Tuttle says that "the insertion of the pedicle into the rectal wall, without induration, with preservation of suppleness and normal constituency, distinguishes these growths clinically from cylindrical epithelioma, and gives them the right to be classed among the benign neoplasms of the rectum."

The pedicle, when present, is chiefly of mucous membrane, and varies from one to three inches in length.

The size of the growth varies from that of a millet seed to five inches or more in diameter.

"Papillomata found in the membranes of the brain are covered with endothelium, the Pacchonian bodies being types of this variety; they are found in the parietal region and also at the base of the brain springing from the dura, they may grow into the venous sinuses" (Klem).

"The hard fibropapilloma is found upon the mucous membranes, upon the lips, mouth, uvula, nasal cavity, larynx, urethra, the vagina, the labia, cervix uteri, and in the bladder. It has a firm stroma, and is covered with layers of pavement epithelium" (Warren's *Surgical Pathology and Therapy*, pp. 750-751, 1895).

Symptoms.—There is always a profuse and frequent discharge of a yellow, turbid, albuminous secretion, both voluntary and involuntary, immediately followed by relief from an intense desire to evacuate the bowel.

Constipation is a constant symptom, and causes

* Read before the American Proctological Society at Atlantic City, N. J., June 3 and 4, 1907.

more or less distress when the feces pass down and out of the rectum. Diarrhoea may, however, be the reverse to constipation, and its frequency also causes distress.

Prolapse is frequent, and its degree dependent upon the size and location of the growth, and amount, character, and frequency of stool.

Hæmorrhage is not an early associated symptom, and its severity and frequency not governed by the amount of tissue involved, as a small growth may

the growth itself, or, together with any amount of rectal tissue, when situated in the lower third of the rectal wall, is desirable and indicated when it is small, with elasticity of the tissues involved. If the pedicle is long or the base of the growth, together with the rectal wall free from dense adhesions to the connective tissue, the procedure is very rapid and safe.

Longitudinal resection may be sutured with silk or a ten day catgut.

Circular resection with suture to the anorectal margin is advisable when less than three inches of the rectum has been removed, occasionally this can be done when more than three inches has been removed.

Technique.—The bowels having been thoroughly evacuated and the rectum irrigated with a warm saline, the sphincter is divulsed and the mass brought down as far as possible. A ligature of large, soft, and nonabsorbable material should be passed through the base of the mass by means of a needle

and made to surround every particle of the growth. If small, one such ligature will answer, but if the mass is large, several may be inserted. This most popular method is attended with some dangers, such as slipping of the ligature, puncturing the peri-

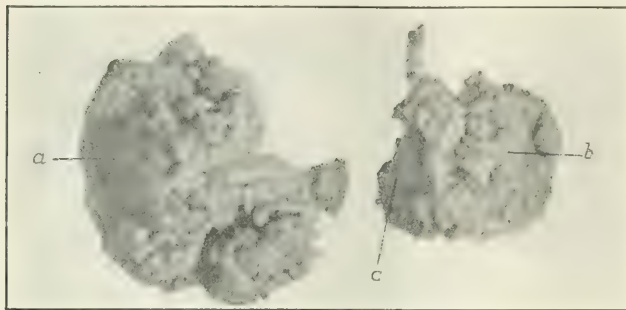


FIG. 1.—Tumor removed October 25, 1906, one half natural size. *a* and *b*, top surfaces of lobulated masses; *c*, base of tumor.

bleed more frequently and profusely than a larger one, and the blood may be bright or dark red in color, depending upon its source, whether arterial or venous or both, either of which may prove serious or fatal.

Tenesmus is almost a constant symptom, especially immediately following evacuation of the bowel, of either mucus or feces. This is probably more aggravated when these evacuations are mixed with pus or decomposed offensive blood, one or both, owing to the irritation which contents of this character in the rectum produce.

Emaciation is almost invariably present, the degree depending upon the amount and frequency of bleeding which may be periodical or constant.

Cachexia appears in the later stages, causing suspicions of malignancy when it does not exist.

Febrile disturbances vary in degree and are no doubt due to loss of blood and infection from necrosis of the mass.

Frequent urination is common and painful; however, pain is an infrequent symptom, except when the broad base overlies or is attached to the prostate gland or urethra.

Adenoma resembles villous papilloma in many ways, especially in character and appearance. They are usually multiple and nonpedunculated in advanced life, and single and pedunculated in childhood.

They vary in size from a pea to a hen's egg, sometimes larger and associated with diarrhoea, tenesmus, gripping pains, and more or less bleeding, sometimes severe. They develop from the mucous and submucous coat, and are composed of epithelial, tubular, fibrous, and glandular elements, which frequently undergo carcinomatous degeneration, epitheliomatous or cylindrical in character.

Method of Operation.—*Intramural resection* of



FIG. 2.—Specimen of first growth, removed October 25, 1906, showing adenomatous character of growth and infiltration; upper portion composed entirely of glandular tissue; the blood vessels opening to surface as in papilloma.

tonæum with the needle, and thereby causing infection, penetrating the small intestine, which may by chance be present in the pouch of peritonæum resulting from the dragging down of the gut or surrounding it with the ligature. The ligature securely applied, the mass whether large or small may

be removed at once or remain to pass away by gradual necrosis. Primary removal in all cases is desirable when the growth is small or has attained a considerable size. Forceps may be applied when there is a pedicle and the neoplasm removed by strangulation as by ligature. Indeed, it is occasionally necessary to combine the use of both liga-

may be removed by transfixion with ligature, or that portion of the rectal wall from which it originates excised transversely or longitudinally, and the incised edges of the rectal wall closed with chromicized catgut.

Resection of the rectum is accomplished after separating the rectum from its cellular attachments with the finger. This is easily done where there are no adhesions. The gut is surrounded high up and closed tightly with a tape, two such constrictions being made, that the gut may be divided between them, with as little discharge of fecal matter as possible into the field of operation. A large silk ligature is then applied around the distal end of the rectum as close as possible to the anorectal margin. The lower end of the rectum is then denuded, and the remaining end brought down to the mucocutaneous margin and sutured with absorbable or non-absorbable material.

After removal by any method, all bleeding vessels should be secured with absorbable material, followed by firmly packing the rectal cavity with gauze around a noncollapsible rubber tube extending into the sigmoid and out of the anus.

Resection per abdomen is indeed of rare occurrence. It is necessary only when the neoplasm involves the colon or sigmoid. The complete removal by resection of sufficient gut is demanded, on account of the proneness of villous papillomata to recur. This is the only means of giving assurance of eradication in their early development.

CASE I.—Quain, 1855, relates the following case:

"A lady, aged sixty eight years, who commonly had



FIG. 3.—Specimen of first growth, removed October 25, 1906, shows adenomatous character of growth and infiltration; upper portion composed entirely of glandular tissue; the blood vessels running to surface as in papilloma.

ture and forceps when the ligature is unsafe, or has for any reason become dislodged. Clamp and cautery is a method used for the removal of the smaller growths. It is probably not so safe as the ligature when done by the inexperienced operator.

Extraanal resection is accomplished after removing the coccyx, and offers a most satisfactory means for inspection, manipulation, making an artificial anus, resection of any part, or all of the rectal wall, or removing the growth alone. But one or two operations of this character for benign neoplasms are recorded. It has met with favor in dealing with malignant growths, and is demanded where a benign growth is large, or where it is attached to the rectal wall with dense adhesions, especially upon the perineal surface and prostate, where the attachment is more than four inches above the mucocutaneous border, and when malignancy is suspected or present.

Technique.—The field of operation is prepared by removing the hair and washing with soap and water, followed by the application of benzine or turpentine, an incision is made from the sacrococcygeal margin in the median line to the sphincter ani. The coccyx is then denuded of the periosteum and soft tissues overlying it, and divided with bone forceps. The posterior rectal wall being now exposed, a small opening is made for digital examination. The size, location, and character of the growth determined, an incision is made to extend in the required direction. If the growth is small, pedunculated, or nonadherent to the prostate or subcellular tissue, it

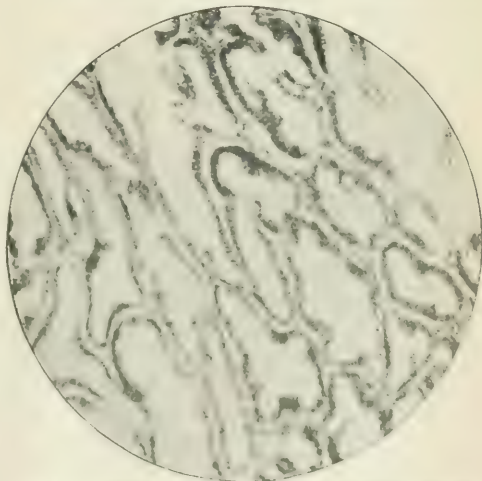


FIG. 4.—Specimen of first growth, pleomorphic elements, removed October 25, 1906, from the same patient as Fig. 3.

good health, though not a robust person, began to suffer inconvenience in the lower bowel about seven years before she came under my care, and for the last two years was in constant uneasiness or pain. I found with every fecal evacuation and even with the escape of flatus, that a tumor was protruded from the bowel. The descent of the tumor was attended with a discharge of slimy mucus, and the loss of blood of a considerable amount. The mass was replaced each

time by a servant. The tumor, when partially propped up, was found to be a large, pulpy mass, separable into several loosely connected lobes, consisting of pencil like processes, the whole surface being covered over with blood and mucus. The connection with the bowel was nearly three inches from its orifice and towards its back part. The pedicle was about two inches broad.

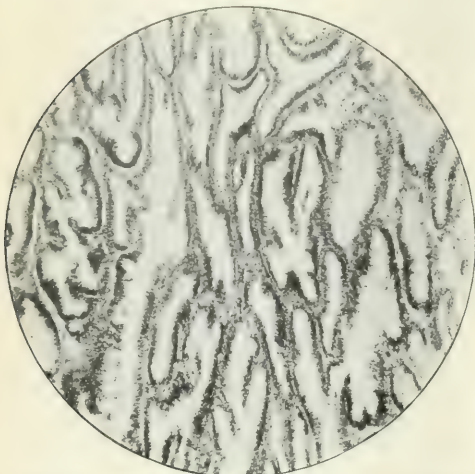


FIG. 5.—Specimen of first growth, glandular elements, removed October 25, 1906. Obj. 4, Oc. 1.

I removed the growth, guarding against hæmorrhage with a ligature.

"Eighteen months after removal she was free from inconvenience of any kind in the bowel, as well as from any indication of the disease.

"The tumor was about five inches long by two inches in breadth, and composed of elongated slender processes hanging loosely together upon a basis of white fibrous tissue, the processes resembled villi, but on a colossal scale, and were a little enlarged at the ends, club shaped. They were highly vascular; arteries were detected even in the most minute parts, and it was observed that each was covered with a delicate basement membrane, over which was a layer of columnar epithelium.

"The broad character of the growth seemed to me to be formed of elongated processes—villi (whence the distinctive name?) the want of solidity or firmness, from the small amount of connective tissue; the extreme vascularity and the slight restraint to the escape of blood on account apparently of the coats of the vessels being extremely thin and but slightly protected from without. When placed in spirit for preservation the elongated mass besides undergoing the usual change of color, owing to the escape of blood, shrank into a rounded body the size of an orange, the villous processes at the same time shrinking in proportion."

CASE II.—T. Holmes, 1860, records the case of an elderly male. When first seen a large, soft tumor was easily felt just within reach of the finger, springing from the anterior or upper wall of the gut close to the prostate gland and base of the bladder. It was very soft, bled easily, and was attached by a broad base to the gut. An attempt was made to enclose the base in a ligature, with a view to its removal, but this failed, since, though the ligature could be carried round, what appeared to be the whole base of the tumor, it was found impossible to get a hold, the tumor being soft

and so sessile that the string slipped off at once. Under these circumstances it became necessary to remove as much of the morbid structure as could be pulled away with forceps. Hæmorrhage was moderate. The base was freely cauterized with nitric acid, and much relief followed this operation, but the tumor grew again, although not very rapidly, and again the obstruction to the passage of the fæces caused him to apply for relief. This went on up to the time of his death, a period of more than two years, during which time he was operated upon as described, not less than thirty-three times, the operation each time being attended with temporary benefit. The tumor, however, gradually extended at its base and caused an increasing amount of obstruction. He died slowly.

Necropsy: Rectum was found to be enormously distended, the tumor occupied more than half the entire circumference of the gut, and was about four inches in one direction by three and one half inches in the other at the base. The tumor consisted of long, fringe like processes, some of them nearly an inch in length, covered by villous membrane, and presenting an abortive appearance when floated out in water.

(The probabilities are that this neoplasm was at first benign, and that it underwent epitheliomatous degeneration. B. M. R.)

CASE III.—He also reports another case in which he showed a tumor about the size of a small apple, deeply lobulated, and with villous arrangement of the surface, precisely resembling that in the former tumor. It was, however, pedunculated, and therefore removable. Patient was an elderly female, and it was stated that the tumor was removed with success and without return of the disease. On the latter point, however, there is no positive evidence. The specimen was exhibited merely as a comparison to the former.

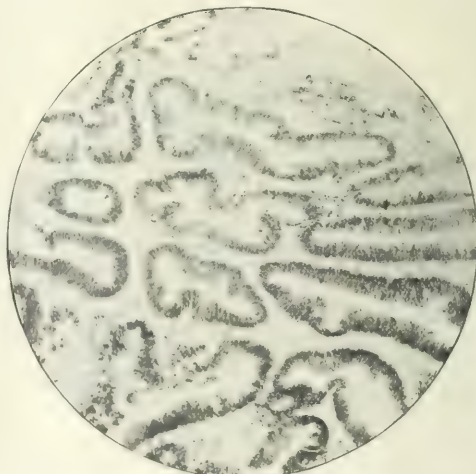


FIG. 6.—Specimen of first growth, removed October 25, 1906, showing cilia and infiltration, Obj. 4, Oc. 3.

CASE IV.—Marshall, 1871, reports the case of a male, aged sixty. The patient had always enjoyed good health; for six or seven years he had felt a small tumor in the rectum, which came down whenever he had a motion, was always replaced without difficulty, no pain save for a slimy discharge and occasional sharp hæmorrhage.

Examination.—There was found, projecting between the nates, a tumor the size of a fist, dark in color, and

"One day in October, 1876, the bowels having been thoroughly emptied the night before, I exposed the diseased part by the aid of a stimulating enema, and pierced the base of the growth with a large, slightly curved needle, armed with a double ligature. Three other double ligatures were passed in the same way. Commencing with the threads which enclosed the largest mass of the growth, gentle compression was

and split up readily into a great number of thin, independent layers which bled excessively when handled. The lobulated character of the mass was very apparent. Patient was ordered to the Charity Hospital on Blackwell's Island, but not caring to go, he left with his friends, and I never heard of him again."

CASE VIII.—Dr. Goodsall, 1881, exhibited an adult male, who was under his care suffering from a large, villous polypus of the rectum; the mass was about the size of an orange, and was rough and tuberculated on the surface. There was a frequent and copious watery discharge from the rectum. He had never lost more than half an ounce of blood at any one time, nor was he losing flesh in any marked degree. The pedicle of the tumor was well within reach of the finger, and of sufficient length to allow of the painless extrusion of the mass.

CASE IX.—Dr. George J. Cook, 1889, mentions a female, aged forty years, mother of several children, and still menstruating. About five years previous she began to have at times some pain in the rectum and sacral region, dull and aching in character, and noticed occasionally a free discharge of mucus. These symptoms of rectal disease gradually increased until the pain became almost constant during the daytime, when she was up, and the discharge of mucus was of daily occurrence. During the previous six months she had been losing flesh and strength rapidly, and now was confined to bed most of the time on account of general weakness and the distress in the rectum in the upright

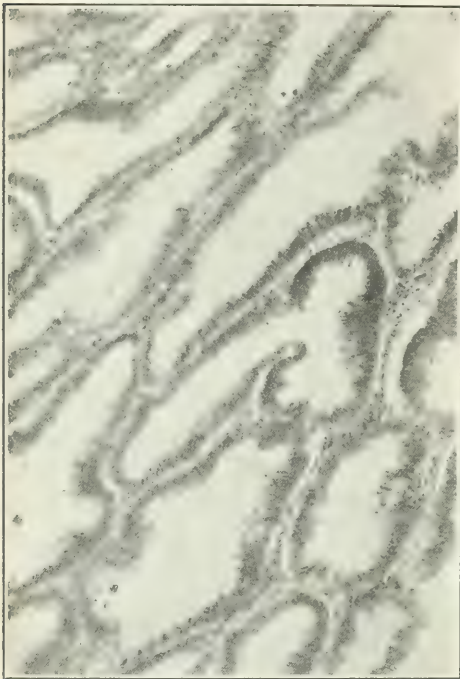


FIG. 9. Specimen of second growth, removed May 8, 1907.

made in order to observe the effect of a gradual interruption of the circulation through the tumor, and then the ligatures were drawn tightly and tied. When the four ligatures were secured, it was noticeable that they compressed the part of the growth which was situated on a plane beneath the level of the surrounding mucous membrane. No endeavor was made to remove any portion of the villous prolongations of the tumor, but after the ligatures were tightened, their loose ends were removed, and the whole projecting mass was returned within the cavity of the rectum. The patient was directed to remain quietly in bed, and an opiate was administered to keep the bowels at rest. The operation was conducted without anesthetics and did not seem to cause any great amount of pain. There was absence of severe inflammatory fever during the sloughing of the ligated tissues. Result was good, every function could be properly performed, and so far as the rectum was concerned the man was in perfect health."

CASE VII.—Dr. Vance reports another similar case. "Middle aged male, with a tumor attached to the posterior part of the rectum. It protruded considerably when the patient was erect, and did not disappear when he assumed the recumbent posture. The discharge was very offensive. The growth was of a dark red color,

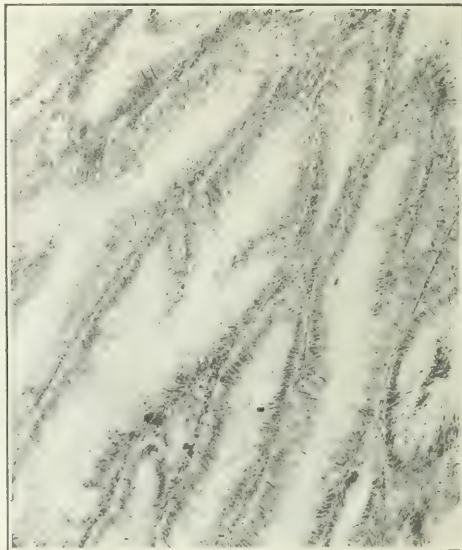


FIG. 10. Specimen of second growth, removed May 8, 1907.

position. For two months past a tumor would present at the anus while straining at stool, but never entirely prolapsed, and occasionally some blood was lost, there was one natural passage from the bowels daily; but several times a day a large quantity of thin mucus would pass, sometimes a half a pint or more at once; appetite was poor, and the skin was pale and waxy.

Digital Examination.—A tumor was recognized in rectal pouch well above internal sphincter muscle, so slippery that it was with difficulty held beneath the finger for examination. It was of a spongy consist-

tence, with no induration and firmly attached to the posterior rectal wall.

When the patient was placed under an anæsthetic and the sphincters dilated, the tumor was easily drawn outside. It was the size of a large hen's egg and of a bright arterial color, without a pedicle, but grew from the gut wall by a broad base. A fold of mucous membrane was dragged down to allow it to come outside

tum, about two and one half inches from the anus. The growth felt soft, and in parts like boiled sago, but seemed to be more infiltrated in front. The tumor had the typical structures of villous papilloma, and did not infiltrate the submucous tissue. Some of the compound villi were more than one inch in length. He believed these growths to be more rare than some reports would lead one to believe, as a microscopical examination had often been omitted, and owing to the same reason it was erroneously supposed that they were very liable to become malignant. They appeared only to occur in elderly people.

CASE XII.—Mummery, 1905, presented a male patient, aged sixty-three years, who gave the following history:

He was quite well until May, 1903, when he had an attack of diarrhœa lasting about six weeks, six to seven stools a day, accompanied by certain amount of tenesmus and pain in the upper sacral region, no blood was noticed in stools. The patient improved, and was apparently well for three months, when he had another attack of diarrhœa lasting about a fortnight and accompanied by the same symptoms as before. Since that time he had had two further attacks of diarrhœa, and had noticed a little blood with and after the stools. He was admitted to the hospital complaining of frequent defæcation, four or six motions per diem accompanied by tenesmus, and a feeling that the bowel was incompletely emptied. There had been slight bleeding on several occasions, also a certain amount of rectal discharge. The patient lost flesh slightly. There was a dull pain in the upper sacral region, but this usually disappeared when he was in a recumbent position. On passing the finger into the bowel a soft papil-

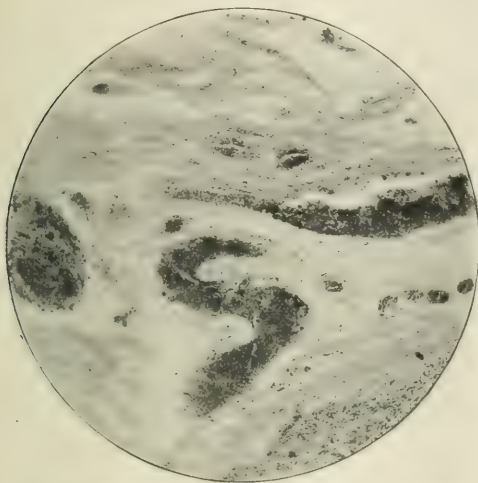


FIG. 11.—Specimen of second growth, removed May 8, 1907.

the anus, there was some thickening of the fibrous tissue at the base, and from this sprang long, villous processes, which composed the bulk of the tumor, each one of these increased in size from the base toward the free extremity, giving the ends a clubbed appearance. The outline of the tumor was very distinct, without a surrounding zone of congested or inflamed membrane, but the healthy tissue came up to the outer row of villi. The contrast in color was marked and the surrounding membrane pale, owing to the great debility of the patient, and the tumor was of a bright arterial hue.

It was removed by passing a double ligature through the fold of mucous membrane above it, tying, then cutting off with the knife. The ligature came off in a few days, and the patient made a rapid recovery, soon becoming strong and more fleshy than ever before in her life.

CASE X.—Dr. A. A. Bowlby, 1891, presented a specimen which had been removed by Dr. Mackie from the rectum of an Arab lad, aged seventeen, who had for some time suffered from rectal pain, and passage of blood per anum. A digital examination revealed the presence of a diffuse papillomatous growth, a considerable mass of which was removed entire. The growth was about as large as the end of the thumb. Its surface was papillary, its base of attachment narrow, and its substance soft and friable. The microscope showed that it was composed of loose fibrous tissue, rich in cells, and evidently of inflammatory origin, in the meshes of which were large numbers of the ova of *Filicæ*. "This genus or trematode helminths was established by Cobbold and characterized by having separate sexes" (Cobbold's *Dictionary*, p. 205, 1900).

CASE XI.—Mr. Paul, 1895, showed a very large specimen of this growth that he had removed by Krasko's operation from a female, aged fifty-six. It formed a broad-based, two to three inches deep, round the rec-

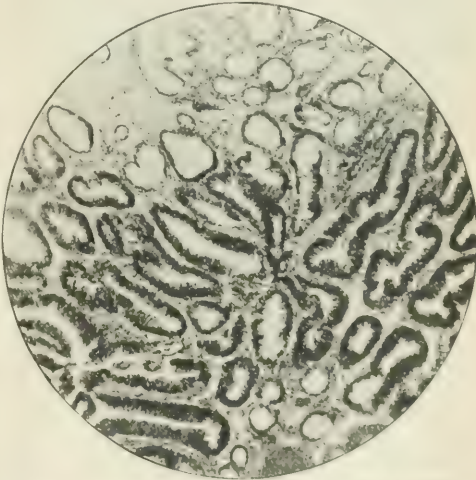


FIG. 12.—Specimen of second growth, removed May 8, 1907.

tomatous mass, the size of a five shilling piece, was felt in the posterior rectal wall. It was somewhat tender and bled slightly after examination. With the electric sigmoidoscope the growth could be easily seen above the middle Houston's valve.

Operation.—Patient was placed in left Sim's position, and an incision made from the base of the coccyx to about one inch behind the anus. The coccyx was freed and removed entirely. The rectum was then freed in all directions, so as to allow that part of it, in which the growth was situated, to be brought well

up into the wound. The wound itself was next packed with gauze, and gauze was placed around that portion of the rectum which was to be opened. An incision was made into the posterior wall of the rectum to one side of the growth, and that portion of the bowel from which the tumor was growing was excised together with half an inch of healthy tissue around it. The portion of the posterior rectal wall removed measured three square inches. The wound in the mucous membrane was closed by a continuous suture, and another line of suture was used to close the muscular coats. A small drainage tube was inserted in the upper part of the wound, and the skin wound was then sewed up.

Patient made an uninterrupted recovery.

Microscopically the growth presented the ordinary appearance of a papilloma; there was, however, some small celled infiltration at its base and a slight ingrowth of the epithelium of commencing malignant degeneration.

CASE XIII.—Ricketts, 1906. The patient, male,

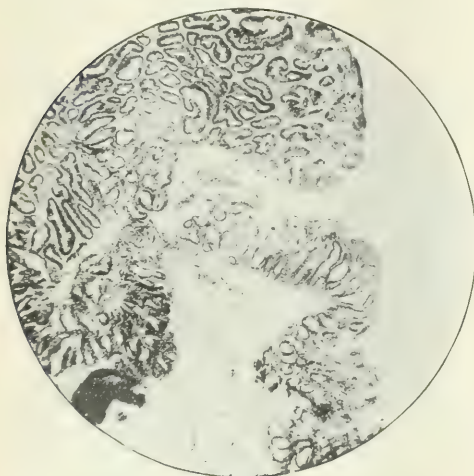


FIG. 13. Specimen of removed growth, removed May 8, 1907

white, fifty-two years of old, was referred by Dr. J. W. Dodd, Cincinnati, October 25, 1906.

Patient first noticed the growth six months previous, with emaciation, having lost twenty-five pounds, pain, tenesmus, and prolapse, especially when evacuating bowel. An offensive white, aluminous matter, varying in quantity and slightly mixed in the latter stages with blood, varying in color, came from the rectum, both voluntary and involuntary. Severe hæmorrhages prevailed for two months, the mass now and then presenting itself at the anal opening, and causing great discomfort.

Digital examinations revealed a mass of soft tissue about three inches above the mucocutaneous border in the right lateral rectal wall. The mass, without a distinct pedicle, was about two inches at the base and four inches across its top.

Under chloroform narcosis this was brought down as far as possible, transfixed at its base with three large silk ligatures, and removed with scissors. In doing this, one of the ligatures became dislodged resulting in a severe hæmorrhage from one of the inferior hæmorrhoidal arteries. This was controlled by for-

Recovery was uneventful, and the patient regained his former weight and good health.

The patient returned on May 6, 1907, stating that he had lost seven pounds, that he had great difficulty and discomfort while emptying the bowel. A considerable segmented mass was found upon the perineal rectal wall in the median line extending to the right and left, and a smaller one, the size and shape of a large pecan, with a pedicle attached nearer the posterior median line. Their surfaces were more firm and smoother than the original growth removed during October, 1906. They did not have the soft, velvety characteristics or bleed upon being manipulated with the finger. To the sense of touch and sight they somewhat resembled the surface of the osage orange.

It was at once realized that a neoplasm of a different character must be dealt with, and preparations were at once made to remove it by first resection of the coccyx, and then of that portion of the gut encroached upon by the growth.

May 8, 1907, under chloroform narcosis, an incision was made in the median line from the sacrum downward through the sphincter and muscle for the purpose of resecting the growth or rectum or both, if benign, anastomose with suture, and preserve the function of the anus, if malignant to resect both neoplasm and lower portion of rectum and establish an artificial anus immediately below the denuded end of the sacrum. The entire coccyx was rapidly removed, thus exposing about five inches of the posterior rectal wall, which was incised for a distance of five inches from the denuded sphincter muscle. The entire inner rectal wall was in this way exposed for inspection. The larger mass was situated upon the perineal rectal wall, which was attached to the prostate gland by dense adhesions to such a degree that it could not be separated with the finger without great danger of opening the prostatic urethra. Several smaller tumors, similar in character, were found near the larger one, each of which was without a pedicle. They were adenomatous in character, and gave rise to the question of diagnosis.

The microscopic report of the tissue removed seven months before was that of villous papilloma, while that of the specimens removed on May 8, 1907, was that of adenoma. It is thus seen that both villous papilloma and adenoma occupied the rectum at or near the same time. But one neoplasm of any character was detected at the time of the primary operation of October 25th. However, the probabilities are that the adenomata were then present.

The finger was used to free the rectum from its normal attachments and the scissors to free the adherent mass overlying the prostate, so that about four inches of the entire lower rectal wall was removed.

The sphincter ani was not removed, but sutured. The end of the remaining gut was sutured at a point immediately below the lower end of the sacrum, and drainage provided for through the anal opening. The operation, requiring but forty minutes, was uneventful and the loss of blood insignificant. Although the bowels had moved freely during the previous twenty-four hours, fecal discharges were several times thrown into the field of operation.

Patient died seventy-two hours after operation, apparently from exhaustion, probably the result of infection. Temperature remained normal after operation, bowels moved freely, but nourishment could not be retained.

It has been stated that adenomata may become villous to such a degree that they resemble villous papilloma, but no such case has been recorded, nor has it been shown that villous papilloma becomes adenomatous. It being impossible to identify either of these

indicate their intimate relationship. There is some doubt as to the two existing independently at the same time in a given case, but so long as the difficulty to distinguish them exists even with the use of the microscope, such a doubt cannot be dispelled.

Conclusions.

1. The insertion of the pedicle into the rectal wall without induration with preservation of suppleness and normal constituency to such a degree as to permit the mass to present itself at the anorectal margin (Tuttle) with the villous character described indicates villous papilloma in the first instance.

2. The failure of its recurrence indicates that it was benign.

3. Adenomata were not found on October 25, 1906, probably because the examination and operation only pertained to the mass presenting and because of the desperate condition of the patient.

4. The large size and number of the adenomata, together with the absence of pedicle and the slow growth which is ascribed to them, would indicate that they were present on October 25, 1906.

5. The relationship of villous papilloma and adenoma of the rectum being so intimate and difficult to determine is greatly in favor of the two existing at the same time in a given case.

I am indebted to Dr. M. L. Heidensfeld for the most excellent microphotographs, reproduced in this article.

CORNER OF FOURTH AND BROADWAY.

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GLAUCOMA.

*The Importance of Its Early Recognition.**

By MARY BUCHANAN, M. D.,
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After promising to read a paper this evening, I was casting about for a subject on "eyes," yet of interest to the general practitioner, when a living text presented itself at the Presbyterian Hospital Eye Clinic almost in answer to my prayer.

The patient, a woman, fifty-one years old, was being treated for "change of life." She was confined to bed last July and August, and was visited regularly by her family physician. She says the sight failed suddenly in her left eye. It seemed to have a screen over it, was red and swollen and was intensely painful; in fact she was unable to sleep for the pain. She told her doctor about it, and with-

out taking the trouble to examine the eye, he told her to bathe it in hot water, and that she had probably taken cold!

When she appeared at the clinic, she had an eyeball as hard as stone, and as blind. The slight haze of the cornea, the dilated pupil, nonresponsive to light, with the shallow anterior chamber, told the story without taking the tension and making the ophthalmoscopic examination to prove it. (See Fig. 1.)

This is a desperate example of ignorance and indifference on the part of the attending physician, but unfortunately it is not an isolated case. Even now there is a woman in the Polyclinic who has lost both eyes because her doctor treated her for weeks for keratitis! I remember another where the oculist was called to see a patient in consultation out of town, and when he arrived the physician said glau-

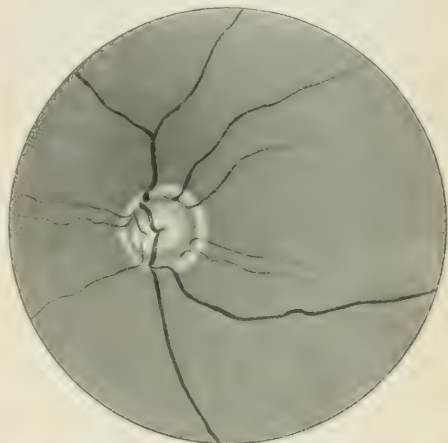


Fig. 1. Absolute glaucoma, case first cited. Compare with Fig. 2, which shows normal disk and vessels. Dr. Buchanan.

fully, "Well, doctor, I've got the pupil dilated for you; I've been soaking it in the atropine." And thus he had treated an eye with acute glaucoma!

Volumes could be written, and have been, upon glaucoma, and I would not impose upon your time and patience discussing all its phases, but will sketch briefly its aetiology, pathology, and symptoms which a general practitioner should know and recognize.

The term glaucoma is applied to any condition where the intraocular pressure is increased. It is a very grave disease, and unless arrested early, means blindness, and as both eyes are usually affected in the primary forms, the prognosis is still more hopeless. It is divided into two forms: (1) Primary glaucoma, coming on independently of previous inflammation or traumatism; and (2) secondary glaucoma, that which follows either of these and is caused by them. According to duration it is divided into acute, subacute, and chronic glaucoma. Chronic may be either inflammatory or noninflammatory, i. e., simple.

If you will try to remember the anatomy of the eye you will recall the canal of Schlemm and the spaces of Fontana, which are situated in the most anterior portion of the sclera, and completely surround the cornea and drain the aqueous humor from

*Read before the Medical Society of the Woman's Hospital of Philadelphia, April 18, 1907.

the anterior chamber. Schlemm's canal is really a venous plexus and is separated by a thin membrane from the angle formed by the iris with the cornea. Nearly all the fluid of the eye is drained off by Schlemm's canal, and this angle is known as the filtration angle. (See Fig. 5.) The ciliary body, which you remember lies posterior to the periphery of the iris, secretes the lymph which flows into the posterior chamber in front of the lens, and through the pupil into the anterior chamber, to be carried off



FIG. 2. Normal disk, showing eccentric excavation. —Dr. Buchanan

by Schlemm's canal. As long as this filtration angle is open a proper balance between secretion and excretion is preserved, but if the iris is pushed against the cornea in this angle, it is blocked off, filtration is interfered with, and an increase in tension of the eyeball results. (See Figs. 6 and 7.) If this condition persists, adhesions form between the iris and the periphery of the cornea, and it is almost, or quite, impossible to tear the iris away, so that an iridectomy, to be of use, must be done before this stage. A dilated pupil acts mechanically in producing glaucoma by crowding into the angle and blocking it up. If the secretion continues while filtration is stopped, the increased fluid must go somewhere, and the direction of the least resistance is the optic disk. Here the tough sclera is represented by a few scattered fibres, mostly of elastic tissue, and the soft nerve tissue readily yields, causing excavation, a process which means death to the retina, either rapid or gradual. The pressure is felt first by the temporal side of the optic nerve, hence the nasal side of the field is the first to go, then follows the temporal, while central vision may remain fair for a long time in the chronic cases. (See Figs. 3 and 4.)

Ætiology.—The direct cause is interference with filtration. The contributing causes are many—a small eyeball, a small cornea, refractive errors, especially hypermetropia, middle age or past it (Priestly Smith found the percentage increased with each decade over twenty), in the female sex, although the ratio is about six women to five men, constipation, sedentary occupation, loss of sleep, and grief.

Priestly Smith found that while the eyeball does not grow appreciably larger after the fifth year, the lens does, probably because, being epiblastic in structure, the cells continue to proliferate within a closed sac without being thrown off. This disturbs the relations of the surrounding structures, and the iris is pushed forward peripherally, damming up the filtration angle. Refractive errors excite by producing a constant congestion of the ciliary body, constipation and sedentary occupation by the sluggish circulation, loss of sleep partly by the dilated pupils, for when we lie awake in the dark the pupils are dilated and the filtration angle partially shut off, and also by the hyperæmia of the cerebral vessels. Grief probably acts also by congestion of the bloodvessels of the head and eyes.

Symptoms.—These differ widely in the acute and chronic varieties. The acute attack is often ushered in with such violent constitutional disturbance that the fact that the inflamed eye is the exciting cause is overlooked, and the patient is treated for a bilious attack, neuralgia, erysipelas, toothache, ptomaine poisoning, etc. The diagnostic points are: 1. The rapid failure of sight in that eye; 2, increase in tension (test by trying your eye, then patient's); 3, the dull cornea, it looks steamy, like glass that has been breathed upon; 4, anaesthesia of the cornea, when a wisp of cotton touches it the lids do not wink; (5) the semidilated and nonresponsive pupil; (6) shallow anterior chamber, the iris seems to be pushed against the cornea; (7) the lids are somewhat swollen and discolored, conjunctiva injected and swollen, and there is dull, red, ciliary injection; (8) pain in the eyeball, reflected over the brow and temple, and around the lower margin of the orbit.

The eye is suddenly attacked with pain, which increases in severity. It is frequently accompanied by vomiting, and the patient is prostrated. Often

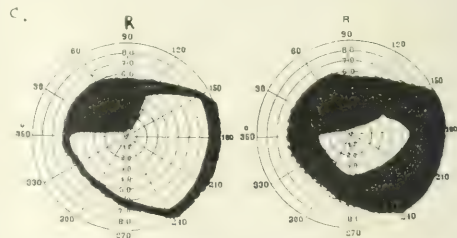


FIG. 3. Chronic glaucoma. Fields, right eye, male, aged fifty-two years. Vision 6.6. Blackened area shows part lost from normal field; a, taken May 31, 1902; b, from same eye two years later.—From Dr. Thorington's clinic.

these attacks come on during the night, or in the early morning hours, the patient being awakened by the sharp pain in the eye. It is the family doctor who is sent for, not the specialist, and it lies with him to make the correct diagnosis, and having made it to lose no time in sending for an oculist, for delay is dangerous to the sight of the eye. A general practitioner would not hesitate to call in a surgeon in a strangulated hernia or a perforation of the bowel, or even in appendicitis, yet he will dally with a precious eye by prescribing a boric acid wash, passing it off as a "cold" and trusting to Nature to do the rest. Such neglect is fatal in glaucoma,

for there is nothing that will reduce that pressure but external interference, surgical or medical.

There is one precaution that must be taken in diagnosing this condition, and that is against confounding it with iritis. Iritis has the pupil contracted, the cornea much clearer, and the tension not increased. Then there is the age of the patient, generally below middle life, and a history of syphilis, gonorrhoea, or rheumatism. Iritis is not so painful.

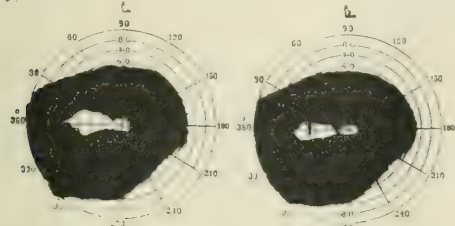


FIG. 1. Chronic glaucoma. Case of Dr. W. C. Posey, treated with eserine sulphate for thirteen years. Fields, left eye, male, aged forty-eight years. White area within black is only part of field preserved: a, taken April 7, 1893, central vision 5/5; b, taken April 1, 1906, central vision 5/7½.

ful, and does not prostrate the patient, nor does it reduce vision so rapidly as glaucoma.

In glaucoma we sometimes can get a history of the eye becoming hazy at times, and the appearance of colored rings around lights at night, but acute glaucoma may start up without any such warnings. Subacute glaucoma pursues a milder course. The attacks of pain and inflammation are not so severe, but the end is the same, blindness.

Simple glaucoma is a different entity, and until the ophthalmoscope was discovered in 1851, it was not recognized as glaucoma at all, but the fundus picture shows the same changes to have taken place in the disk. These patients often feel no pain, have no external inflammation, and they often become blind in one eye and almost blind in the other before they discover the fact accidentally, because central vision is the last to be affected. We frequently have these patients walk in for the first visit with their fields so cut down that they are practically looking through a tube. There is a fixity about their expression, the eyes stare straight ahead, and if they want to see anything to one side they turn the whole head. These people are in great danger unless they know of their infirmity. I heard of one such lady a few years ago who set the house on fire. She lit the gas and the match caught a lace curtain at one side of her and gained quite a headway because she could not see it and did not know anything about it until warned by her other senses.

The deep veins are often visible on the white sclera; they are tortuous and full. The cornea is small and the anterior chamber very, very shallow, with a large pupil. While the ball may not feel very hard, there is a rigid feeling to the sclera. These patients are generally far sighted, and often are satisfied with glasses picked from a bargain sale in a department store.

Secondary glaucoma, either acute or chronic, follows a previous inflammation or traumatism, which interferes with the filtration angle. Its result is the

same as the other varieties, and the glaucoma symptoms are the same except that where it follows an iritis with complete posterior synechia, the pupil is not dilated.

I have dwelt upon the external subjective symptoms, but it would be the play of Hamlet with Hamlet left out not to mention the ophthalmoscopic picture.

There is no clear view of the fundus during an acute attack. If it is possible to see the nerve head, we find it excavated, gray in color, with the vessels pushed to the nasal side, and bending abruptly when they get to the disk's margin, and then being lost to view and seen again at the bottom of the excavation. There is also arterial pulsation if the tension is increased, or, if it is not visible slight pressure on the ball will produce it. The further advanced the disease, the greater the excavation and the grayer the disk (see Fig. 1). The doom of these eyes is sealed, but if we see them early, when the vessels are just kinked at the disk margin, but pushed toward the nasal side, we know what to expect and can attempt to ward off the impending evil.

Having diagnosed acute glaucoma, summon the nearest oculist, for a few hours' delay may mean blindness. While waiting for his arrival, drop a one or two per cent. solution of eserine sulphate into the eye, repeating the dose every fifteen minutes till the pupil is pin point. Use hot stupes all the time, give morphine hypodermically and a cathartic.

An iridectomy is the treatment for acute glaucoma, but it is a difficult operation and requires the skill of a trained ophthalmologist. It is better, if possible, to get the pupil contracted with eserine sulphate and hot stupes before the iridectomy is performed. Many operators prefer to puncture the sclera and relieve the tension a little that way before attempting the iridectomy. The sudden reduc-

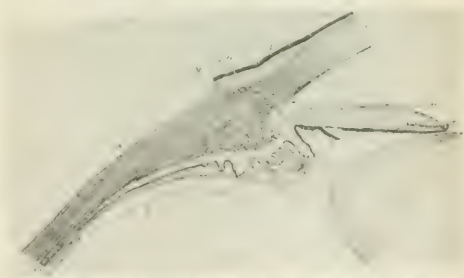


FIG. 3. Showing normal interior of posterior chamber. I is in ultra-thin angle. a, b, Schlemm's canal. Puncta.

tion in tension which follows an iridectomy may cause intraocular hæmorrhage and blindness.

Subacute glaucoma demands eserine sulphate and iridectomy, but the time for operation can be chosen between the attacks. There is no guarantee that the next attack may not be severe and fatal to sight. Opinions differ as to the value of iridectomy in chronic or simple glaucoma, for in most of these cases it is like locking the stable after the horse is stolen. The iris is adherent to the cornea before we see the patient. Dr. Bull, of New York, is in favor of iridectomy early. Others believe that eserine sul-

phate or pilocarpine will keep these patients with a useful amount of vision through life. The treatment becomes irksome, for it means drops in each eye four times a day for years, and while private patients may keep it up, clinic habitués will not.

Not the least distressing feature of primary glau-

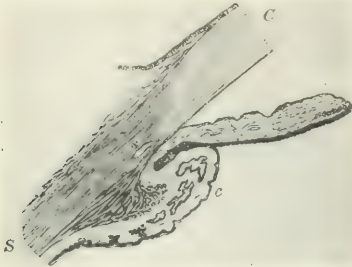


FIG. 6. Iris and ciliary body in recent inflammatory glaucoma. Magnified $9 \times$. 1. The ciliary process, *c*, is so greatly swollen that it pushes the root of the iris forward and presses it against the sclera, *s*, and the cornea, *C*. The sinus of the anterior chamber, which should lie somewhat behind Schlemm's canal, *s*, is thus closed. The ciliary muscle shows the pronounced development of the circular muscular fibers (Miller's portion), characteristic of the hypermetropic eye. — Fuchs.

coma is that it is generally bilateral, and one eye is only a little in advance of its fellow. Its victims belong to all walks of life. It has even claimed a world renowned French oculist, Javal, just deceased.

Remember a few days of hesitation on your part may mean years of blindness for your patient. Always keep glaucoma in mind when dealing with eye troubles in those of middle age or past it. Never

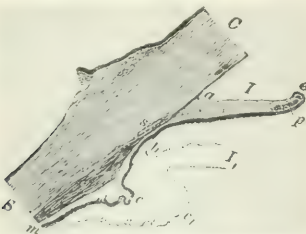


FIG. 7. Iris and ciliary body in old inflammatory glaucoma. Magnified $9 \times$. 1. The dotted line gives the outline of the iris, *I*, and the ciliary body, *c*, in the normal condition. The root of the iris is adherent to the sclera, *s*, and the cornea, *C*, wherever it has been pressed against them by the ciliary body. The attachment of the iris is hence displaced forward and lies in front of Schlemm's canal, *s*. So, too, the sinus of the anterior chamber is displaced from *b* to *a*. Wherever the iris has become adherent it has been thinned through atrophy, so that in places *b*, for example, it consists of scarcely anything more than the sclerotic layer. — Fuchs.

use a mydriatic without considering carefully the possibility of an attack of glaucoma. Even cocaine has produced it. Discourage patients going to jewelers or refracting opticians for their glasses. If these hyperopes could all be examined ophthalmoscopically at forty or forty-five years of age, when they are driven to glasses for near work, incipient cases would be recognized and saved, and the numerous, carefully run eye clinics leave expense out of consideration. At a recent symposium on glaucoma it was stated by one oculist that he did not

see as many cases of glaucoma as he did fifteen or twenty years ago, and the other men present concurred in this fact, that in Philadelphia at least there were fewer, and the consensus of opinion was that it was due to the proper correcting glasses being so generally worn.

Glaucoma is one of the tragedies in ophthalmology. It creeps upon its innocent victims and dooms them to outer darkness before they realize what has happened.

324 SOUTH NINETEENTH STREET.

BACTERIOLOGICAL EXAMINATION OF THE FÆCES AS A MEANS OF EARLY DIAGNOSIS IN TUBERCULOSIS.*

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The finding of tubercle bacilli in the fæces of patients suffering from intestinal tuberculosis is quite common; but as a routine examination in cases of pulmonary or general tuberculosis bacteriological examination of the fæces is very little employed. Dr. Randle C. Rosenberger, of Philadelphia, has found tubercle bacilli in the fæces not only of recognized cases of pulmonary tuberculosis, but even of patients who at the time of examination were not known or suspected to have tuberculosis in any form. A large percentage of these patients have since come to autopsy. In few was the peritonæum or intestinal mucosa involved; all showed evidence of tuberculosis in some portion of the body, some only in the lymphatic glands.

Dr. Rosenberger found tubercle bacilli in the fæces of the six cases I am reporting. There was no family history of tuberculosis in any of these patients. One had had pneumonia a year before admission. Another, three months before, had suffered from an attack diagnosed as influenza. The previous medical history of the rest was negative. The duration of the illness varied from two weeks to three years. Four patients suffered from diarrhœa, one from chills, and three from muscle pains. Cough was not marked in any of the patients and was absent in four, of whom two had previously suffered from cough, while one developed it later. In two the cough was very slight, one being affected only off and on. Three did not expectorate at all; one only occasionally. When examined, the sputum failed to show tubercle bacilli. Two patients had suffered slightly from night sweats. One complained of loss of weight. Hæmoptysis had never occurred in any. One patient was convalescent from typhoid fever, the temperature finally dropping to normal. The temperature was elevated for a few days and then subnormal in one, and of the ordinary irregular tuberculous type in four.

There was no evidence of peritonitis in any case. The examination of the lungs was practically negative in one patient. Two showed slight infiltration of one apex, the involvement being very slight in

* Read before the Clinical and Climatological Section of the American Association for the Study and Prevention of Tuberculosis, at its annual meeting at Washington, D. C., May 1910.

one. One case presented slight consolidation of both apices, another consolidation of the right apex with infiltration of the left. One patient, who upon physical examination was supposed to have slight infiltration of one apex and a thickened pleura, proved at autopsy to be a case of acute miliary tuberculosis.

Technique Employed.

The technique employed by Dr. Rosenberger is as follows: A spread of the fæces is made, there being no effort at selection of any particular mass or portion; if the stool is solid a small portion is mixed with sterile distilled water. After drying and fixing, the spread is stained with carbol fuchsin for fifteen to twenty minutes in the cold. The excess of stain being drained off, Pappenheim's solution (consisting of a 1 per cent. solution of rosolic acid in absolute alcohol, to which is added methylene blue to the point of saturation and a small quantity of glycerin) is applied, and *when the preparation is of the color of the counter stain (methylene blue)* thorough washing in water is resorted to, the spread being then dried and mounted in balsam.

The most important part in the technique is the obtaining of a spread the color of the counter stain with not a particle of carbol fuchsin showing to the naked eye.

Dr. Rosenberger alleges that in this technique there is no other acid or alcohol fast bacilli observed except the tubercle bacillus.

Report of Cases.

The cases I am reporting occurred in Dr. A. A. Eshner's service at the Philadelphia Hospital, where I serve as Assistant Visiting Physician.

CASE I.—G. Br., a colored man of forty-three years of age, was admitted to the hospital on February 14, 1907. The family history was negative. In 1898, while in Cuba, the patient suffered from chills, which had recurred several times since. In November, 1906, he suffered from headache, some fever, cough, loss of weight, and general weakness, and was treated at the Philadelphia Hospital for influenza. The illness for which the patient entered the hospital began two weeks before admission with epistaxis, headache, anorexia, pain in the back and abdomen, vomiting, and diarrhœa.

The patient was well developed, but was very stupid and dull. Physical examination showed a well developed chest. Expansion was fair, but was not so good on the left side as on the right. Fremitus was slightly increased on the right side. There was slight impairment of resonance at both apices. The breath sounds were rather harsh at both apices. At the right apex there were a few very small râles, and scattered through both lungs were many sonorous râles. The heart sounds were very distant and weak. The examination of the abdomen was negative. The urine did not contain albumin. The Widal reaction was negative.

No animal parasites were found in the fæces. Tubercle bacilli were present in the fæces, but were not found in the sputum. The temperature was irregular. The patient coughed very little. For two weeks he remained in a lethargic state, but complaining of pain in his head. In four weeks' time, however, he was working about the ward with normal temperature.

CASE II.—C. Br., aged forty-three years, was admitted January 19, 1907. Both the family history and the past medical history were negative. The patient had been drinking for two weeks before admission,

when he developed abdominal pain, headache, lassitude, and diarrhœa. For a month previous he had had a cough, but no expectoration.

The patient was a fairly well developed man, but was pale. There were depressions above and below the clavicles. Fremitus and vocal resonance were increased on both sides anteriorly. Whispered sounds were heard. Anteriorly the percussion note was slightly higher pitched on the left than on the right, but everywhere seemed hyperresonant. The expiratory sound was harsh and prolonged over the anterior portion of both lungs. Posteriorly there was dulness at the right base with distant breath sounds. The heart showed myocardial degeneration. The abdomen was tympanitic and exhibited slight resistance. Examination was otherwise negative. The urine was normal. The white blood cells numbered 7,800. The Widal reaction was not present.

The fæces contained tubercle bacilli, but no animal parasites. The diarrhœa persisted until the patient's death. The cough disappeared after one month. The temperature remained irregular. Examination made two months and ten days after admission showed slight infiltration of the right apex and a thickened pleura over the right base.

The patient died on April 28th. An autopsy was performed by Dr. Allen J. Smith, who made the following pathological diagnosis: Tuberculous peritonitis; fatty infiltration of the liver; miliary tuberculosis of the spleen; chronic diffuse nephritis and miliary tuberculosis of the kidneys; peripancreatic tuberculosis; subserous tuberculosis of the stomach; tuberculosis of the abdominal lymph glands; chronic adhesive pleurisy, and tuberculosis of the pleura; miliary tuberculosis of the lungs and peribronchial tuberculosis with cavity formation in the lungs; tuberculosis of the lymphatic glands of the posterior mediastinum.

CASE III.—D. C., a man, aged fifty-three years, was admitted on February 8, 1907. Family history was negative. The patient had had measles, whooping cough, and scarlet fever in childhood, typhoid fever six years before, and pneumonia one year before. One month before admission he received a severe wetting, the water having frozen on his clothing. The night of the exposure the patient was seized with cramps in the abdomen, diarrhœa, and vomiting. The vomiting disappeared after two days, but the diarrhœa persisted. In six months the patient lost forty-eight pounds.

The patient was rather emaciated, with sallow skin. His chest was long and rather spare. There were marked depressions above and below the clavicles. Expansion was good. The percussion note was apparently clear everywhere, though slightly hyperresonant. The breath sounds were clear, though rather loud. The heart was normal. The rest of the examination was negative. The temperature at first was elevated and later became subnormal. Nothing abnormal was found in the urine. The fæces contained tubercle bacilli.

The diarrhœa persisted, although the patient felt well. Later, cough developed with expectoration. The patient had several night sweats. He left the hospital on March 9th, much relieved.

CASE IV.—A. D., white, aged twenty-one, was admitted to the hospital on January 25, 1907. His family history was negative. He had been infected with both gonorrhœa and syphilis two years before. The previous medical history was otherwise negative. The illness for which the patient sought treatment began three years before admission, with loss of appetite and the sudden development of a watery diarrhœa, which had persisted. The patient complained of frequent headaches and of cramps in his abdomen and in the muscles of his legs. His stools were watery and contained blood and mucus with membranous shreds. He

had had a slight cough and expectoration off and on for some little time. He had never had hæmoptysis.

The patient was emaciated and looked anæmic. His chest was flat and thin. The percussion note was dull at the right apex posteriorly, but elsewhere was hyper-resonant. The breath sounds were pronounced everywhere. A few râles were heard occasionally on inspiration. The heart presented no murmurs. The abdomen was flat and the muscles hard. There was some tenderness on deep pressure. The hæmoglobin was 60 per cent., the red blood cells numbered 1,400,000, and the leucocytes 8,600. The urine contained a few hyalin casts, but no albumin. The fæces contained tubercle bacilli. In the course of two weeks the diarrhoea was checked and did not recur. The patient gained in weight and strength and worked about the ward. The temperature remained slightly elevated, exhibiting a more or less remittent character. Later a hæmorrhoid and an inflammatory new growth were removed from the rectum. The patient experienced a few night sweats. Two months after admission his cough and expectoration had ceased. At this time physical examination showed infiltration of the apex of the right lung.

CASE V.—H. H., white, aged forty-one years, was admitted to the hospital on February 18, 1907. His family history was negative. The man, during the previous three and a half years, had been a patient of mine at the medical dispensary of the Hospital of the University of Pennsylvania, where he had been treated for vasomotor ataxia and chronic gastritis. He had exhibited the xiphosternal crunching sound that I described several years ago.¹ For three weeks before admission the patient had felt chilly and had suffered from pain along the anterior surface of his legs. For the previous two weeks he had been getting daily attacks, during which his head was dull, he felt creepy, was feverish, and usually had a sweat. The attacks lasted three to six hours. He complained also of general pains in his muscles and joints, but the latter had not been swollen or very tender. At intervals reddish macules, from pin point to quarter of a dollar in size, had appeared, chiefly on the posterior surface of the forearms and the anterior surface of the legs and ankles, disappearing in a few days. These were very tender.

The patient was ill nourished. The chest was long and bony, and scattered over the arms, legs, and back were some bright red maculopapules; but expansion was fair. Anteriorly there was impaired resonance with blowing breath sounds at both apices. Posteriorly there was dullness at both apices, more marked on the right. Vocal resonance was increased at the right apex, where loud blowing breathing was heard with a to and fro grating sound, the latter extending as far down as the angle of the scapula. The heart was normal. The abdomen was soft and the liver slightly enlarged.

The examination of the urine was practically negative. Differential count of the leucocytes showed polynuclear, 88 per cent.; lymphocytes, 8 per cent.; hyalin, 4 per cent. The blood was examined on several occasions, but the malarial organism was never found. No pathogenic organisms were found on blood culture. Tubercle bacilli were found in the fæces. While in the hospital the patient had several chills, followed by a rise of temperature. The patient did not cough or expectorate while in the hospital. After being in six weeks he developed cerebrospinal meningitis. In the cerebrospinal fluid obtained by lumbar puncture there were 86 per cent. polynuclear leucocytes, 9 per cent. hyalin, and 5 per cent. lymphocytes. There was a

scanty growth of diplococci, morphologically and tintorially resembling meningococci. Subsequent examination showed undoubted meningococci. Tubercle bacilli were not demonstrable in the spinal fluid. At this time the lungs showed consolidation of the right apex and infiltration of the left. The temperature was remittent from the day of admission. The patient was removed to the Municipal Hospital. At both hospitals the disease ran a rather mild course, the patient at no time seeming very ill.

He was discharged from the hospital on May 1st. On that day he stated he no longer experienced pains in his legs and chilliness.²

CASE VI.—H. O., white, aged fourteen years, was admitted to the hospital on February 12, 1907, suffering from typhoid fever. He gave a negative family and previous medical history.

The patient was thin and anæmic looking. His chest was long and emaciated. Percussion showed tympany at the left apex and in both axillæ, and hyperresonance at the sides; but dullness at the right apex and impaired resonance at the right base. At the right apex whispered voice sounds were heard. The breath sounds were harsh and prolonged, the respiratory sounds in both axillæ suggesting the cavernous type. A few râles were heard at the right base. The heart sounds were loud, but lacking in muscle tone. The second pulmonic was accentuated. The abdomen was distended and rather tense and tympanitic, the spleen was palpable. The Widal reaction was positive.

Convalescence was so protracted that the fæces were examined, tubercle bacilli being found. The boy developed an acute parenchymatous nephritis, but no tubercle bacilli were found in the urine. About two weeks after admission the patient coughed for a week, but had not coughed or expectorated since. Examination six weeks after admission showed slight infiltration of the upper right lobe of the lung. The temperature finally became normal.

A number of important facts are brought out and some very interesting questions are raised by these cases.

The diagnosis of tuberculosis can often be made by bacteriological examination of the patient's fæces. By this means diagnosis may sometimes be made in the absence of clinical symptoms and even of physical signs. This will therefore be an important aid in the study of cases of early tuberculosis and in all cases in which the nature of the disease is obscure.

The fæces of tuberculous patients must be regarded as a source of contagion and must always be thoroughly disinfected. The same precautions in regard to the disinfection of hands, clothing, bed covers, etc., soiled by fecal evacuations, that are taken in cases of typhoid fever, should be observed in the management of patients with tuberculosis.

So called closed tuberculosis may not be closed at all, as the tubercle bacilli may escape in the fæces. Cases of pulmonary tuberculosis without expectoration consequently must be regarded as dangerous. It is also possible that the so called cases of latent tuberculosis may permit tubercle bacilli to escape in the bowel and thus be a menace to the public health. Can tubercle bacilli be eliminated by the bowel without the latter being involved, just as they are believed to be excreted by the kidneys in the absence of tuberculous lesions in the genito-urinary tract?

¹The patient shortly afterward was again admitted to the Municipal Hospital with symptoms similar to those exhibited during his attack of meningitis. He is still in the hospital, diagnosed as a case of chronic meningitis.

²See *Journal of the Medical Association*, 1907, page 1000.

Does the presence of tubercle bacilli in the *faeces* indicate the existence of a tuberculous infection in the absence of symptoms or of demonstrable lesion?

Some believe that in cases of pulmonary tuberculosis in which the intestines are not involved tubercle bacilli gain access to the bowel by means of swallowed sputum. Interesting in this connection is the absence of expectoration in several of my patients.

It is possible that in some cases tubercle bacilli in the *faeces* may point to the bowel as being the portal of entrance rather than of exit. Their presence may have some bearing on the theory as to the intestines being the portal of entry in the majority of tuberculous infections. Normal persons in whose *faeces* tubercle bacilli are found might therefore represent cases who are just being attacked or who are resisting the efforts of the bacteria to gain a foothold. Between these and well marked cases of tuberculosis all gradations may exist.

The frequent occurrence of ischio-rectal abscess and fistula in ano in patients suffering from pulmonary tuberculosis may possibly be explained by the presence of tubercle bacilli in the bowel of all such cases.

May there not be carrier cases of tuberculosis; persons who harbor tubercle bacilli, without becoming themselves infected thereby, but who nevertheless may infect others with tuberculosis?

More extensive investigations over a much greater number of cases will be necessary to determine many of the questions here propounded. An important public health problem, however, is undoubtedly presented by thus demonstrating the infectivity of the bowel evacuations of tuberculous patients. It has also been shown that the finding of tubercle bacilli in the *faeces* upon bacteriological examination may be a means of early diagnosis in tuberculosis.

4110 PARKSIDE AVENUE.

TREATMENT OF CHRONIC INDIGESTION.

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The question of treatment of chronic indigestion is of peculiar interest to the physician, in view of the agitation that is going on in favor of operative intervention in these cases. It is significant, however, that the internist does not favor operative procedures, and his opinion in this matter is certainly deserving of respectful consideration. The surgeon bases his claims for operative interference in chronic indigestion upon the poor results attendant upon medical treatment, and he advises operative procedures in all such patients who do not show improvement after a few weeks of internal medication. This teaching is, in my opinion, not only unwarranted, but directly dangerous. It tends to confuse the general practitioner and he frequently finds himself in a dilemma when confronted with a case of this character. He is loath to advise operative procedures when he finds no positive indications for such treatment, and at the same time he is in fear of causing his patient irretrievable injury by continuing internal medication; for was he not warned again and again by the surgeon against procrastination in just

such cases. Such a rash and unwarranted opinion can only spring from insufficient appreciation of underlying pathological conditions, and inability to properly diagnose and treat gastric diseases.

To me it is quite clear that the question of treatment of chronic indigestion hinges upon a proper diagnosis of the condition and upon the application of appropriate medical treatment. It is not at all a question of how long a case of chronic indigestion was treated, but how a diagnosed case was treated. It has been my experience, and it is, undoubtedly, that of a great many internists, that gastric organic diseases are much more amenable to treatment than organic diseases of any other organ. A great many poor results from medical treatment can be traced directly to a wrong diagnosis and improper treatment.

That surgery has its legitimate field in gastric diseases is undeniable, and that its excellent results are most striking is unquestionable, but its field is necessarily limited to those cases in which there is mechanical obstruction interfering with the proper evacuation of the stomach contents.

The diagnosis of gastric disorders is certainly as important as that of diseases of other organs, and yet how often does one meet with cases in which not even an attempt was made to properly diagnose them. How often is a chronic gastritis diagnosed where there is not even a suggestion of a catarrh; and very frequently just such cases are ingeniously mistaken for neurasthenia. It is not at all surprising that mistakes in diagnosis are made, for the clinical symptoms referable to the stomach are few and they are almost all present in various diseases of this organ. Only by careful examination and strict attention to details can a correct conclusion be arrived at. Naming the disease does not, by any means, solve the problem; it is important that the underlying pathological condition be understood. It is not enough, for instance, to diagnose a chronic gastritis, for assuming that the diagnosis is correct, the treatment is not the same for all forms of gastritis. It makes all the difference in the world whether we have to deal with an acid or anacid gastritis, a mucous or atrophic gastritis. The physician who treats all his gastritis cases on the same principle is certain to come to grief. The same is true of ulcer and the long list of functional and reflex gastric disturbances. In illustration of the foregoing I will briefly cite a few of a long list of cases of chronic indigestion that were benefited by medical treatment.

CASE I.—Mrs. A., forty-six years of age, kindly referred to me by Dr. Shulman for diagnosis and treatment, gave a history of digestive disturbances covering a period of nineteen years. She had suffered during the early stage of her illness with short attacks of gastralgia, which recurred several times a day. These attacks were very severe; they bore absolutely no relation to her meals, being neither aggravated nor relieved by the ingestion of food. She suffered in this manner for years until about eight years ago, when the pain disappeared and in its stead attacks of nausea and vomiting developed, which lasted for days at a time. She was hardly free from these unpleasant symptoms more than a day or two during the week, and as a result she had grown weak and quite thin. The thoracic and abdominal organs were found apparently normal

on physical examination. The examination of the urine was negative. The stomach contents after a test breakfast revealed an immense quantity of mucus, the undigested food particles intimately intermixed with it, complete absence of free hydrochloric acid; a total acidity of 12, and no lactic acid. The motor function of the stomach was not affected. Microscopically a large number of leucocytes and well preserved epithelial cells were found.

From these findings I concluded that it was a case of an acid mucous gastritis. During the early stage of her illness her symptoms were ascribed to an ulceration of the gastric mucosa. I was inclined to differ from this view, as it appeared more probable that she suffered from an irritative gastric catarrh, which continued until the glandular elements finally became exhausted, resulting in suppression of secretion.

If ever a case of chronic indigestion was entitled to the benefits of enthusiastic gastric surgery, this one certainly was, but fortunately medical treatment did as much and more than could have been expected from surgery. Daily lavage with a solution of sodium bicarbonate, hot normal salt solution internally, local astringents in the form of silver nitrate, and a carefully regulated diet removed, in a week's time, all the unpleasant symptoms from which she had suffered so long. To use her own expression, she was not conscious of her stomach for the first time in nineteen years. It may be interesting to note that the stomach contents were free from mucus a month later. Orexin, hydrochloric acid and pepsin, later pancreatin were tried, but had to be abandoned, as her stomach rebelled against all drugs.

She is still continuing in excellent health, gaining in weight and strength and she considers herself perfectly cured.

CASE II.—Miss J., twenty-seven years of age, referred to me by Dr. Shulman with a diagnosis of chronic peptic ulcer of eighteen months' duration. She complained of being bloated after meals, of pressure in the epigastrium and of severe pain half an hour after the ingestion of even the lightest food, as milk or water. She hadn't eaten solid food for a long time, because of the severe pain it caused her.

She was always nauseated and vomited very sour material occasionally. In addition she suffered from heartburn, sour eructations, severe headaches, and obstinate constipation. She had been steadily losing weight and strength, having been reduced from 140 to 105 pounds. The stomach was found within normal limits in extent and an anterior and posterior pain point was elicited. The large intestine was in a state of spastic contraction. I did not consider it safe to sound her stomach and have therefore not tested its functions.

The usual ulcer treatment and diet had no effect on the pain, so I was compelled to have recourse to rectal alimentation, which I continued for a week. For two months she was kept on a carefully regulated diet with the result that she made, apparently, a complete recovery. The pain after meals disappeared entirely, as did also the anterior and posterior pain points. The headache, nausea, pyrosis, distention of the stomach, constipation, and all the other unpleasant symptoms did not recur since. Eight months after the beginning of treatment her weight reached 130 pounds and she attended her work without discomfort.

I had full control over her diet for six months, and I ascribe her continued well being to this fact, as many recurrences are caused by indiscretions in diet which are sure to occur if the patients are left to themselves. As far as can be judged from objective and subjective signs she made a complete recovery. Chronic ulcer of long duration is considered preeminently a surgical

disease. I doubt, however, if surgery could have accomplished more, if as much.

CASE III.—Mr. H., sixty-six years of age, carpenter, suffered for two and a half years with intense pain in the epigastrium, which was intensified after a meal. No nausea or vomiting at any time, but he suffered from heartburn and the belching of ill smelling gas. During that long period he was never entirely free from pain; he would not touch solid food, restricting his diet to milk and cereals. As a result of this starvation diet he was reduced to almost a skeleton, had become extremely anæmic and had to abandon his work.

The patient consulted me on the 24th of October, 1905, regarding the advisability of an operation for the relief of his suffering. He was convinced that he had a cancer of the stomach, having been told so by several physicians. The last physician he consulted pronounced it carcinoma after a cursory examination, and told him frankly that he could do nothing for him in the way of treatment, but that he might try x ray treatment or undergo an operation as a last resort. His general appearance suggested a cachectic state and my first impression rather favored a diagnosis of malignancy. A moderate dilatation of the stomach was found on examination, and a small sized, rather hard, but smooth tumor, tender on moderate pressure, and evidently belonging to the anterior gastric wall. All the other abdominal organs, with the exception of a spastic contraction of the colon, were apparently normal. No enlarged glands could be made out anywhere. The rectum was free as far as the finger could reach. The stomach contents, after a test breakfast, showed a normal acidity, sarcinae, no blood or mucus. The history, supported by the result of the examination of the stomach contents, and the absence of enlarged glands, was sufficient evidence to refute the diagnosis of a malignant growth. The tumor on the anterior wall of the stomach impressed me as being due to the indurated edges and scarring of an old imperfectly healed ulcer.

At the end of three months he was so far improved that he was in condition to resume his work. The greatest difficulty in his treatment was encountered in overcoming his prejudice, or rather fear, of food. I carefully regulated his diet from week to week, depending to a great extent on sweet butter, cream, and olive oil, which last served me wonderfully well in this case.

It is now fifteen months since I last treated him and he still keeps well. He has not missed a day from his work, and his general appearance is that of a perfectly well man. On several occasions he has had an attack of gastralgia which he ascribed to overindulgence in forbidden food.

The few cases, which I have cited, were selected for their chronicity with a view to illustrating that chronic cases, notwithstanding their prolonged duration, can be benefited medically. I fully recognize the value of surgery in chronic digestive disorders, but I maintain that before recourse is had to such treatment, the indications must be clear and beyond dispute. It is safer practice for the surgeon, at the present state of our knowledge of this branch of medicine, to work hand in hand with the internist, in order to better subserve the interests of the patient. Such cannot be the case if conclusions are arrived at from premises not based on actual observation and experience. Above all, an exhaustive examination is imperative in order to arrive to a proper diagnosis. The treatment of these patients is more a matter of diet and regimen than drug-

302 E. LEXINGTON AVENUE.

SOME RECENT IDEAS ON LOCAL INFLAMMATION AND ITS TREATMENT.*

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Rubor, calor, tumor, dolor, were long since described by a Roman physician as the outward signs of local inflammation, and even at the present day we cannot give any better description of the outward symptoms of an acute local inflammation. Very much, on the other hand, have the ideas changed as to the causes, and especially as to the meaning of an inflammation.

Among the laity there was always prevalent the idea that fever, inflammation, suppuration, transpiration, expectoration, diarrhoea, etc., should not be suppressed because they are meant to free the body of hurtful and impure juices. Not so always, however, among medical men. From time to time there came an author who declared inflammation and also fever to be expedient; but in general, and especially during the second half of the last century and to some extent even at the present time, the idea was prevalent that an inflammation was a nutritive disturbance caused by some tissue damage. The idea that an inflammation may have some good purpose seemed entirely lost.

Especially the teachings of Darwin seemed at first to exclude forever the teleological principle from the study of biology, but soon it became apparent that Darwin's teachings were based on teleology, but it is true, in a somewhat changed form. Every property and function of an organism must be of such a nature that they do not bring danger to the existence of that organism in the struggle for existence. That is, every organ must purport for the existence of the organism, the organism must be fitted for its function, must have full teleological competency. Now, should an organism which has to be fitted for all purposes in time of health work unfittingly in time of sickness? That seems inconceivable. Applied to our question, should that whole complex of symptoms which we call inflammation only be a disturbance and the organism apparently not do anything to protect itself against an injury? Has inflammation a purpose?

But before going any further let us for a moment consider what constitutes an inflammation. What pathological changes take place during an acute local inflammation in any part of our body? The most apparent changes during an acute inflammation occur in the blood and the bloodvessels. You all know those symptoms of a local inflammation as one can watch them under a microscope, increased velocity of the blood current with dilatation of the vessels making an active hyperemia, then very soon retardation of the blood current, exudation of fluid, and diapedesis of white and sometimes red blood corpuscles; and so very soon the active hyperemia changes to a more passive hyperemia. The question, where we have to look for the starting point of all these phenomena, has caused much discussion. The tissue, the walls of the bloodvessels, the blood, and the nerves, or a combination of these or a disturbed relation between these factors, has been considered as causing those manifestations, but they

were almost always considered as a direct effect of the irritant which caused the inflammation. We know now that the cause of most of the local inflammations are bacteria, and so the inflammation was and is to a certain extent still considered as a direct result of the action of these bacteria. That such ideas were fostered is apparent from the method of treatment. The antiphlogistic treatment was everywhere used. And this antiphlogistic treatment was directed against the cause, the bacteria, of course first, but then, as the name implies, against those changes which we call inflammation or phlogosis. And since an increased blood supply is the most conspicuous symptom of a local inflammation the antiphlogistic treatment was directed towards relieving and lessening this increased blood supply. Cutting off the blood supply by ligating the arteries, local bleeding and cold were, and partly are still, the favorite agents for relieving the arterial tension and the beginning effusion. Cold especially was used with the idea that it should contract the vessels and prevent the emigration of blood corpuscles. The counter irritants, the derivantia, and revulsiva, were used chiefly in deeper seated inflammations with the idea that they acted purely as a revulsive, dilating the superficial vessels and so drawing away the blood from the inflamed area to the skin. We will later on come back to these very useful agents, but with a different explanation for their action. In the same way as inflammation, so, too, fever was considered a direct effect of the irritant which caused the inflammation and therefore was fought with antipyretics and restricted diet: They thought let the fire burn out and do not add new fuel.

But during the last decade or so we see again a change in our ideas. Over one hundred years ago one author expressed the opinion, that inflammation was a reaction of the organism for the restitution and maintenance of its integrity with increased exertion of all the systems; and now we come back to those same ideas, namely, that inflammation is not a manifestation, deleterious in itself, but a reflex, an answer of our organism to the attack of any harmful agency which causes the inflammation. The exact histological researches discovering the increased cell proliferation in inflamed areas, Metschnikoff's great discovery of phagocytosis, the discovery of the bactericidal action of the normal blood serum and of the specific antitoxines, have proved conclusively that inflammation is not an injury to the organism, but a process meant to protect and repair. And whatever the cause of an inflammation may be, the action of the organism is essentially the same; that is, to get rid of the cause—in most cases the bacteria, and to repair the damage.

Since we believe that inflammation and fever are protective processes we should support Nature in its fight against the infection, but we should not fight inflammation and fever. The temperature alone should not govern our actions, and we should fight against the injuring agents, but not against the symptoms which mark the fight of the organism against them. But here arises another question, are fever and inflammation reflexes of the organism to the irritant, then they are subject to the laws for all reflexes. All reflex actions are only to a certain point expedient, reflexes are expedient as to the

* Read before the annual meeting of the Dutchess County Medical Society, January 9, 1907.

direct cause of the reflex, but not always reasonable and expedient as to the welfare of the whole organism. So with fever also; the reflex, which creates the fever, sometimes overshoots itself; we get too much fever. Then our duty would be to take action in order to avoid bad effects which too high a temperature in itself may have. It has been proved that the bactericidal action of the blood is increased with increased temperature, but again too high a temperature decreases this bactericidal action of the blood. 'On the other hand', that cooling off of the body temperature is not a good way of fighting an infection seems to be proved by those experiments with animals which had been infected with anthrax. Repeated cooling off of the body had always the effect that the anthrax bacilli quickly appeared in the blood. If we now recognize fever and inflammation as expedient manifestations of the system to fight the bacteria, does that now mean we should, in our efforts to help Nature in its fight, increase fever and inflammation, or at least try to? I am not prepared to state that we should try to increase fever, but I would not be surprised if, in the near future, we might come to the plan to try to raise the body temperature in certain cases of torpid inflammation. In certain lines of very successful treatment we already get a rise of body temperature; we take it now with the results of the treatment; perhaps, some day, we may consider the rise of body temperature the most important part of this treatment. And, what is much more remarkable, some investigators, Bier especially, have already experimentally and with conscious intention caused, so to speak, acute, aseptic, infectious diseases. By injecting in the veins sterile animal blood, as has been done before for other purposes, Bier intentionally caused in some cases of far advanced tuberculous patients a complex of symptoms with fever, chills, headache, vomiting, etc., which very closely resembles an acute infection, and the result was a remarkable improvement in even those hopeless cases.

How about inflammation and its treatment?

The great bacteriological discoveries of the last quarter of the last century have put us in the position, first, to avoid the infection—I only need to mention the words sterilization and disinfection—then to assist the organism in its fight against one special kind of bacteria—think of the antitoxines—and what is more, to make the organism immune against an infection, that means to put it in the position to fight the bacteria so successfully that they have no chance to grow and develop. In this line we hope for still greater results as the knowledge of the change of matter of the bacteria progresses.

But let us come back to the local inflammation. In the old description of a local inflammation we find that at least tumor, calor, rubor are caused by a changed circulation, by increased blood supply, by hyperemia. And the histological examination of inflamed tissue also shows that hyperemia seems to be the weapon which the organism uses in its fight, and if we intend to help the organism in its way and method of fighting we must do it, as it does, with hyperemia. Not only inflammation, but likewise all vital functions of the organism are concomitant with hyperemia. Work, growth, regeneration, genera-

bodies, bacteria especially, but also chemical agents, everywhere we find hyperemia. Hyperemia is the most favored tool and remedy of the body, but we must not forget that there is a difference between the active hyperemia with increased velocity of the blood current and the passive hyperemia with decreased velocity of the blood current. And in cases of a reaction against and repair of the damage we usually find a passive hyperemia, but often there is no sharp limit between them. And, looking back to the old methods of treating an inflammation, we find that all those derivantia, I may mention tincture of iodine, turpentine, mustard, and in the same way alcohol compresses, any application of heat, yes, the burning with the ferrum candens and the cautery, do not act as they were supposed to do, that is, by drawing the blood to the surface, but they make a very deep hyperemia. Tincture of iodine painted on the arm makes an hyperemia down to the marrow of the bone. Burning of the back, as it has been done for different purposes, does not make a deep anemia, but a strong hyperemia down to the coverings of the spinal cord. Yes, looking more closely into it, we find that all these so called derivantia only start a more or less severe inflammation and in that way they cause hyperemia.

With regard to the application of cold, of the ice bag, we have to say that it is more than probable that the ice bag does not induce an anemia, as was supposed, but does cause an anemia only at first, and after lying a little longer, it makes a very deep and lasting passive hyperemia. And it does not seem unreasonable to conclude that the hyperemia is the most important part of all these means of treatment.

All these derivantia induce the hyperemia only indirectly by way of inflammation, but we do have means by which we can directly alter the circulation and which we are able to regulate and dose, according to the requirements of the case. These are the application of hot air to cause active hyperemia, and the use of a rubber bandage and of the vacuum cup to produce a passive hyperemia, if one does not consider the result of bandage and cup also as forms of slight inflammation. And it is a lasting merit of Dr. August Bier to have studied and applied to the practice these methods of treatment with active and passive hyperemia. Bier's numerous experiments, and especially his extensive experience, have shown that active hyperemia is better applied to chronic nonbacterial diseases and their sequels, while the passive hyperemia is extremely useful in acute bacterial affections. To-day we will leave the active hyperemia and its application and only consider the passive hyperemia.

The vacuum cup and the rubber bandage are the principal means to create a passive hyperemia. Dry vacuum cups have been used for a very long time, but in cases of inflammation they were never used to induce an hyperemia, but as a derivative. Therefore they were always put not on, but near the inflamed area to draw the blood away. Bier applied the vacuum cup on the furuncle or small abscess, on the sinus or in modified form it was used to induce a hyperemia in a whole limb. The vacuum cup is applied every day for about three quarters to one hour, but five minutes at a time, with a rest of

two or three minutes. No large incisions, no packing of the wound is required. The rubber bandage, on the other hand, is applied anywhere from one to twenty-two hours a day. The technique is not easy and requires some experience and strict attention to the cases. The first and most remarkable effect of the hyperæmia is that the pain is almost invariably relieved. This fact is so constant that Bier time and again has said, if the bandage increases instead of lessens the pain it is not properly applied. How this remarkable fact is to be explained is not quite clear, probably the serous impregnation dilutes those bodies which cause the pain or decreases the sensibility of the nerves. One might think that such an impregnation would cause pressure and more pain, but experience shows that hyperæmia lessens pain. Next the limb begins to swell and to get cedematous; during the time when the bandage is not applied this cedema disappears. From fresh wounds or sinuses there is a considerable oozing during the time the bandage is applied. Joints which were stiff and painful can be moved without much pain. And the result of this method of treatment seems to be that acute inflammations are cured quicker and, what is especially important, that the function of the joints and tendons is saved and regained to a far greater degree than was possible with the antiphlogistic régime. And what the rubber band does for a limb the vacuum cup does for those parts of the body where a bandage cannot be applied.

And if we ask now, how this passive hyperæmia can have such great results, we must say that many here involved questions are not yet answered. First, we must get rid of the idea that such a slow moving blood current as that of the passive hyperæmia is a disturbance of nutrition: it is rather an improvement of the nutrition. And it is justified to say that the application of the suction cup on a furuncle or an infected wound would remove some of the bacteria and toxins from the wound. In comparison we may think of the practice of sucking out a snake bite. In the same way the rubber bandage seems to act, in that it practically reverses the lymph current and certainly presses out much of the toxins of an infected wound or an open abscess. But that is certainly not all. Another point is that with the increased amount of serum and leucocytosis in the infected area goes hand in hand an accumulation of the bacterial principle of the blood, and with increased passive hyperæmia the diapedesis of the leucocytes is of course increased. Furthermore, the increased amount of serum tends towards diluting the toxins of the bacteria, and at the same time the resorption from the affected limb is greatly retarded by the rubber bandage. One might think that after removal of the bandage there would be a rather sudden overloading of the body with toxins and endotoxines. This is to a certain extent probably true (we will come back to this point a little later), but there seems to be a factor which will all living cells to destroy toxins, and this destroying seems to be going on, perhaps to an increased degree, while the limb is under the influence of the rubber bandage.

Let us for a moment take the endotoxine theory into our consideration. This apparently very well

founded endotoxine theory says that in addition to the toxins, which the bacteria produce and against which the organism produces its antibodies, there come into the circulation through the bacteriolysis these so called endotoxines which are set free by the dissolution of the bodies of the bacteria. If too many bodies of bacteria are suddenly destroyed and in this way very many endotoxines brought into the circulation the patient dies from too many endotoxines, that is, because too many of the bacteria have suddenly been destroyed. For this reason it has always been advocated to use the bactericidal sera—for instance, the so called diphtheria antitoxine which contains not only antitoxines to neutralize the toxins, but has also bactericidal properties—as early as possible, before there are so many bacilli in the body that the sudden liberation of the endotoxines would be disastrous. Still better results one gets by prophylactic use, by making the person immune, that is, resistant against the infection. As with this serum therapy the whole body is made resistant, so Mikulicz made the peritonæum resistant against an infection by causing a slight aseptic inflammation, producing with it a hyperæmia with the presence of an increased amount of bactericidal serum and of leucocytes, so that any bacteria if brought on this hyperæmic peritonæum were destroyed before they had time to grow and develop; while the same bacteria if brought on a normal peritonæum would have had time to grow until they were numerous enough for themselves to irritate the peritonæum to an inflammation with all its changes of the circulation which are, as we have seen, only meant as a fight of the system against the infection. In the case of the peritonæum which is made resistant, the hyperæmia and inflammation with the array of bactericidal serum and leucocytes are there already, waiting for the bacteria.

As Mikulicz made the peritonæum resistant by causing an aseptic inflammation, so Bier made any limb resistant with the hyperæmia, the principal part of an inflammation.

These considerations show why it seems natural that hyperæmia by damming would be most effective if used in the beginning of an inflammation, and if used prophylactically. Bier has, for instance, used the hyperæmia prophylactically in cases of evidently infected wounds of the hands where a number of finger joints were opened and filled with dirt and most of the tendons cut, and with the best results. In cases of abscesses where there are already many bacteria present sufficient incisions, even if small, must not be omitted, so as not to hinder the elimination of the serum and pus that is loaded with toxins and endotoxines. I mention this particularly because at first with the hyperæmia treatment the old rule *ubi pus ibi evacua* seemed somewhat negligible. On the other hand, this same endotoxine theory seems to give some counter indications for the use of the bandage. In cases of general sepsis, for instance, there is no serum in the organism which is not laden already with the products of the bacteria. Also in very virulent and very progressive infections the hyperæmia treatment is, it seems, not always successful, perhaps because too many endotoxines are brought into the circulation and in the meantime are resorbed.

I myself have, I am sorry to say, not had very many cases where I could apply this treatment, but my results were such that I certainly will use it again in proper cases. As strange and as contrary as the whole treatment seems to be to many of our former ideas of treatment, and as many questions as there are about it that have still to be explained, yet the results of Bier and many others are so interesting and remarkable that these methods are certainly worth our consideration.

Before leaving the subject I wish to say that local inflammations are by no means the only affections for which the induction of hyperemia is of great advantage; stiffened joints, joints affected by chronic rheumatism, sprains, fractures with insufficient production of callus, etc., form a large field for the treatment with either active or passive hyperemia.

255 MILL STREET.

CHILDREN'S CALCULATIONS.

By E. L. G. BROWN, M. D.,
Washington, D. C.

Children learn to count in school, and they practice it in their cots with the wall paper designs, with the squares of the quilt or the panes of the window. They like the gay colored patterns and fantastic designs better than the markings on the slate, and they find more meaning in them. All children are the same; they like gay solid figures that are made for them, and the walls and quilts around and upon the childish cots are fuller of interest than those they see when they have outgrown their cots.

That which applies to all children applies most strongly to the sick ones. They have plenty of time for their childish calculations, for the forms of diversion offered to other children are denied them. In the children's wards of modern hospitals, gay wall papers are now unknown. The sanitary precautions which regulate the use of powerful acids require even the walls of the wards to be covered with sanitary substances. Much use is made of tile for this purpose, and the pure white in color is the one most frequently chosen as being the most suggestive of the cleanliness which must characterize everything in a hospital. There is everything to be said in favor of such walls; they can be no aid in spreading infection; they are easily kept clean, and they outlast the remainder of the building, for tile as a building material has no rival in durability. But if quite unadorned, the white walls are apt to look monotonous. It is possible, however, to apply a decoration to these white tile, which is as lasting as they are themselves. They may be beautified by the designer, and there is no reason why the wonderful designs which the museums show in this work should not be found imitated, in some small measure at least, on the walls of the institutions built for the public good, where they would give pleasure to others beside the children.

And in addition to the decoration of tile by means of designs, there is another form which is also as lasting as the tile themselves. They can be painted upon; and the pictures may be as varied in subject as the painter's ideas. The colors do not fade from exposure to air or light, because the painting is executed in a certain kind of fire paint which, when it

leaves the painter's hands, is subjected to a high temperature so that the colors may be burned in.

Pictures, and more particularly colored ones, have a great fascination for all, and the children more especially. Most of the stories the children know are learned from pictures; and every picture affords some subject for their calculations. The pictures of the walls are often the most vivid form of their childish imaginings, and give color to the pictures they themselves create. The designs and repeats are so many parts in their scheme of calculation, and the more intricate they are, so much the more interesting are they.

Children live much in a world of "make believe;" and the prettier and gayer the figures and pictures on the walls are, the gayer will be the people of their world, and the easier will be the figures to follow with which they calculate.

313 CORCORAN BUILDING.

POLICE METHODS FOR THE SANITARY CONTROL OF PROSTITUTION

in Some of the Cities of Germany.

By FREDERIC BIERHOFF, M. D.
New York.

Attending Physician, German Dispensary, Dermatological Department; Corresponding Member of l'Association française d'urologie, etc.

(Continued from page 359.)

LEIPSIG.

The regulations governing this city are very similar in character to those in force in the city of Berlin.

Leipzig, one of the most important industrial cities of the German Empire, the principal manufacturing city of Saxony, and the seat of command of the nineteenth army corps, has a population of one half million, including a garrison of six thousand men.

As is the case in all of the larger German cities, the number of prostitutes is out of all proportion to the population. I was unable to obtain an idea of even their approximate number. Houses of prostitution are not allowed, and those women who give themselves up to public prostitution are inscribed at police headquarters and examined by the physicians appointed to this duty by the police authorities. I have it upon reliable authority that no examinations whatever are made for gonococci at police headquarters, and that an examination to discover their presence or absence during the prostitutes' stay at the hospital is entirely at the option of the attending physician. The same authority also informs me that the methods in use are superannuated and antiquated. Certainly an inspection of the city hospital where these women are confined soon proves this statement, for I found the institution filthy and the attendants exceedingly slipshod and careless. I did not witness the mode of examination, for I was informed by the same authority that it would prove exceedingly unsatisfactory. The regulations governing the public prostitutes, who are under police control, are as follows:

REGULATIONS FOR THE BEHAVIOR OF THOSE FEMALES SUBJECTED TO THE CONTROL OF THE MORALS' POLICE IN THE CITY OF LEIPSIG.

For those females sojourning in the city of Leipzig given to public prostitution, who are, by virtue of para-

graph 361, special division 6, of the National Penal Code, to be placed under the control of the morals police, the following regulations apply, which hereby go into force in place of the similar regulations of the 12th of November, 1886, with the addendum of the 24th of October, 1889, which are hereby suspended.

The females in question are forbidden:

1. To look out of the windows of their rooms, so that they may be perceived from the outside.

2. To live in rooms the windows of which are not covered with thick curtains, to prevent a view from without.

3. To live in ground floor apartments.

4. To excessively or conspicuously illuminate their dwellings during darkness, or to affix colored lanterns or other conspicuous marks to the same.

5. All loud singing, playing of musical instruments, loud laughter, and such other conduct in their rooms as might disturb the peace or annoy neighbors.

6. To permit the entrance to their dwellings of young, dependent persons, such as apprentices and scholars of the educational institutions of this city.

7. To shelter, under any circumstances, male persons for the night, and to permit such to enter their dwellings between the hours of two and seven a. m., as well as secretly (that is, without the permission of the police) to shelter females in their dwellings.

8. To arrange drinking bouts, and the giving of drinks to men in their dwellings.

9. To live with landlords who rent to single men—furthermore, to live with the owners of public resorts, particularly saloon keepers, as well as to serve in such resorts as waitresses or servants, and similarly to act as saleswomen in drinking resorts.

10. To pass the night outside of their dwellings, particularly with men, and to pass the night as the guest of other females who are suspected of public prostitution.

11. To stand in front of, in, or behind the entrance doors, as well as to stroll in front of the house.

12. To entice males, whether by words or sounds, or through signs and gestures, such as winking, smiling, sharply looking at, etc., as well as to give their visiting cards or photographs to males.

13. To wear conspicuous or indecent clothing, to smoke cigars or cigarettes, as well as to walk, or stand, or sit in the company of a so called lover, or with a number of females who are subjected to these regulations, upon the streets, squares, or at other public places.

14. To stroll about in a conspicuous or aimless manner upon the streets, squares, and promenades, and the streets of the suburbs, particularly to walk up and down repeatedly, in pairs, except for some particularly valid reason; to walk conspicuously slowly and to look about frequently, and this as well in the daytime as particularly at night, after the beginning of the illumination of the streets.

15. To walk upon and be upon the streets of the city during the later hours of the evening and night, from nine o'clock on. (It is, however, permitted them to pass through the streets in a closed cab, even after this hour.)

16. To drive in open cabs, or equipages, and to ride upon the public bridle paths.

17. To sit upon the benches placed upon the public promenades.

18. To enter the Rosenthal, Johanna Park, and Scheibepark, as well as to use the promenade paths of the city forests, and to rove about in the latter.

19. To visit the race course at the time of the races.

20. To enter the municipal theatres, the municipal as well as other museums, public art exhibitions, the new and the old Gewandhaus, and, similarly, the zoological garden.

21. To visit the parquet, the first balcony and the boxes in the Carola Theatre, and the boxes and reserved seats in the circus.

22. To visit military parades and the public concerts, as well as to frequent public restaurants and pastry shops.

IT IS PERMITTED:

1. The women standing under the control of the morals police may be permitted to visit public balls, as well as the public civic masque balls, under the condition that the female named shall appear at the same with a half mask, and in inconspicuous and decent masquerade dress. The police authorities, however, reserve the right to prohibit the admission of these females to certain resorts upon the occasion of balls and civic masque balls.

2. Those females who are placed under the morals police control are permitted to follow public prostitution only in the dwelling reported by them to the police.

3. It is not permissible for more than two females who are under the control of the morals police to rent a dwelling from one landlord, or upon one floor. Furthermore, each such female must rent at least one room for herself alone, with a separate bed. In case several such females live in one house, then the common dwelling of two or more thereof in one room of this house is forbidden. No other contracts than those relating to the payment of rent, or possibly of board money, particularly such by virtue of which the prostitute might enter into a position of possible dependence upon the landlord, may exist between the above parties.

4. Those females who are under the control of the morals police are obliged to pay into the sick benefit fund of the prostitutes, which is under the management of the police authorities, according to the more definite statutes of this fund of the 4th of January, 1884, an entrance fee of 3 marks and a weekly contribution of 50 pfennigs each. They are, furthermore, obliged to submit, at least once every week, to a police medical examination, and to present themselves on stated week days, during the forenoon, at the place of examination appointed specially for this purpose, and that in cleanly clothing and underwear. Should they not present themselves voluntarily, which they may, furthermore, do more than once a week as soon as they believe the need thereof to exist, then they are to be summoned thereto with the information that they will, in case of an unexcused absence or other nonappearance at the right time, have to expect to be at once arrested, and furthermore, to be punished by imprisonment.

Upon their request the examination of individual prostitutes will be made at special times, and in such cases the prostitutes must pay, in addition to the weekly assessment of 50 pfennigs, a special fee of 1 mark for every examination into the sick fund of the prostitutes.

5. Those females who are found, upon police examination, to be syphilitically diseased, or to have a purulent discharge, or condylomata, or to have any other contagious disease, or who are found otherwise to be very dirty, are to be referred to the city hospital for further examination, treatment, and cleansing. Should a female notice upon her person signs of the presence of such a disease, then she must, without delay, notify the police physician, or the police authorities, of this fact.

6. In addition to those police medical examinations prescribed in paragraph 4, an inspection of the state of health of females who are placed under morals police control may also take place whenever any signs of syphilitic disease are present. A similar police inspection of the state of health may also be made upon those females who are not placed under the control of the morals police, when some report is required, and when, after investigation, the suspicion seems warranted that

the person in question is following a loose and immoral mode of life.

These persons are similarly, in the presence of syphilitic disease, to be referred to the hospital for treatment. Upon request, however, the treatment may be followed under conditions, and according to the judgment of the police department, in her private dwelling.

7. Those females who are placed under the control of the morals police must give that police official of the police authorities who is entrusted with that duty their names, place of birth, and dwelling exactly. They must also give him notice within twenty-four hours of any change in their residence, as well as of a release from legal confinement, from a workhouse, from the hospital, or the lying-in asylum. In a similar manner notice is to be given of an intended removal from here previous to its being carried out, and their return to Leipzig is to be reported within twenty-four hours thereafter. No change is hereby made in the obligation of landlords in general to give notice to the police of females taking quarters with them from that as specified in the regulations of notification for the city of Leipsic, of the 4th of December, 1890.

8. The dwellings of females standing under morals police control are to be inspected frequently during the day, as well as in the evening and night, by the executive officials of the police authorities, for the purpose of the effectual carrying out of this control, and the females in question have, therefore, to permit, at any time, entrance to their dwellings to the officials entrusted therewith. They have, in general, to refrain from any disobedience, refractory, or ungovernable behavior toward the executive officials of the police board.

9. The police board reserves the right on grounds of public morals to forbid the dwelling in specified houses or specified streets of females standing under morals police control, or also to compel them to move out of a previous dwelling when, because of their actions, the neighborhood or adjoining residents of the house are annoyed, or because any other grounds for justified complaints are given. The females in question must obey the orders of the police board in this regard at once, and without objection.

10. Any one committing a breach of one or another of the preceding regulations will be punished with imprisonment, according to paragraph 361, subdivision 6, of the National Penal Code.

LEIPSIC, February 20, 1891.

THE POLICE BOARD OF THE CITY OF LEIPSIC.

BRETSCHNEIDER.

Addendum to the regulations of the 20th of February, 1891, for the behavior of females placed under the morals police control in the city of Leipzig.

Under partial suspension of the regulation contained in No. 22 of part I of the foregoing regulations, the following is hereby ordered:

It is forbidden those females standing under morals police control to visit the public civic masquerade balls. Breaches of this prohibition will be punished with imprisonment, according to paragraph 361-6 of the National Penal Code.

LEIPSIC, December 12, 1903.

THE POLICE BOARD OF THE CITY OF LEIPSIC,

BRETSCHNEIDER.

DRESDEN.

Dresden, the capital of Saxony, and the principal city of the kingdom, has over one half million inhabitants, including eleven thousand men in its garrison.

This city, like all the other cities of Saxony, forbids the existence of regular houses of prostitution. In other words, prostitution comes under the head-

ing "free." It is a fact, however, that houses of prostitution *do* exist, unknown to the police, and that the *Portier*, or doorkeeper, of any hotel in the city will, upon request, furnish the address, with even the cards, of inmates known to him—for a consideration. As soon as the police, however, get any knowledge of a house of prostitution, either through denunciation by neighbors or through the medium of their secret agents, the house is raided and the inmates arrested. The "free" prostitutes are permitted to live in apartments, however, under the regulations which will be referred to later.

In spite of the large number of inhabitants in this city there are only three hundred prostitutes inscribed upon the police lists. The number of clandestine prostitutes—those not living under the control of the police—is not known, and not even an approximate figure could be furnished me by those in authority. It is entirely out of proportion to the number of those standing under control.

I will say, before going any further, that in no city which I visited were the regulations for the examination of the prostitutes under control so thorough, and so scientifically carried out as in this city, and that the facilities for the care and treatment of the diseased prostitutes were only surpassed by those of the city of Nuremberg. I will further state that the examining physician on duty, upon the day of my visit, informed me that, during the three months which had elapsed since the modern scientific methods of examination had been introduced, the number of cases of gonorrhoea among the inscribed prostitutes had fallen off over 33 per cent. While I admit that this is probably a small percentage of the cases of disease occurring among the prostitutes, since so small a part probably live under control, it is still, to my mind, a most powerful argument in favor of microscopical examination for the existence of gonorrhoea among the prostitutes, and for thorough and scientific examinations.

The rules for the arrest of those under suspicion of prostitution are practically the same as those in force in the cities previously referred to. Only those women who, by their behavior, give rise to the strong suspicion that they are following prostitution as a trade, are arrested. A woman coming from another city, or from the city of Dresden itself, whose intention it is to follow the trade of prostitution, needs only to state that fact to the police authorities, and to place herself upon the list of those prostitutes standing under police control.

The examination of the prostitutes occurs daily, at police headquarters, and is conducted by two specialists in venereal and skin diseases, each of whom is on service three hours weekly, on alternate days. The prostitutes are examined at weekly intervals, for the existence of syphilis, chancroid, and gonorrhoea. Every two weeks, at least, a microscopical examination is made of the urethral and cervical secretions, and where the suspicion of gonorrhoea exists, the examinations may be repeated at each visit, and the visits may be ordered to be made daily. Every week an examination of the cervix is made with the speculum. Upon the first examination of any prostitute, or upon her examination after arrest on the suspicion of prostitution, or where for some reason or other she has not been examined for a

long time, as for instance, upon her return after an absence from the city, she must fully undress, and is examined from head to foot. Similarly, also, upon their release from the hospital, or from arrest in a penal institution, a complete examination is also made. During menstruation, the urethral secretion only is examined bacteriologically. All instruments in use at the examinations are sterilized by boiling. The regulations governing the women under police control are similar in tenor to those of the other cities. They are as follows:

UNDER DATE OF NOVEMBER 1, 1896.
REGULATIONS FOR THOSE FEMALES IN THE CITY OF
DRESDEN PLACED UNDER MORALS POLICE
SUPERVISION.

For those females in Dresden who are placed under morals police supervision, the following regulations are in force from the present date—under suspension of the rules of July 1, 1894, passed upon by the royal police direction:

1.

Those females who are placed under morals police supervision may not take residence where it seems undesirable on general morals police grounds, and where this is denied them, in individual cases, by the royal police direction. It is particularly forbidden to take permanent dwelling in inns, and upon property in which a public bar exists; in the vicinity of churches, schools or other public educational institutions or barracks, as well as in or with a family to which youthful persons, up to the age of sixteen years, belong.

2.

It is not permitted that more than one female, standing under police supervision, shall live on one floor, or with a single landlady; nor may more than one to four such females reside in the same house. Every such female must rent at least one room for herself alone, with a separate bed. Should a number of such females live in one house, then the common occupancy of one room of this house by two or more of the same is forbidden.

3.

It is furthermore forbidden them:

1. To look out of the window of their own or a strange dwelling. The windows of their own dwellings are, at all times, to be so closed, by means of thick curtains, that it shall be impossible to look through them from without.

2. To remain in front of, at, in, or behind their house door, as well as upon balconies, terraces, or other places which look upon the streets or squares of the city.

3. To entice males in any manner.

4. To wander about in a conspicuous or aimless fashion upon the streets, promenades and squares of the city and suburbs, in particular, in so far as this may express itself through walking up and down, repeated standing still without a particular reason, conspicuously slow walking, and repeated looking about.

5. For more than two females placed under these regulations to walk together upon the streets, promenades and squares of this city.

6. To repeatedly visit the same saloons, dance and concert halls, pastry shops, cafés, etc., upon one and the same day, as well as to change from one of these places to another.

7. To promenade upon the Reichs-, Prager-, and Seestraße, the Altmärkt and the Schlossstrasse upon the one hand, as well as the König Johannstrasse, the northerly side of the Altmärkt, and the Wilsdruffer strasse on the other hand.

8. To sit upon the benches placed upon the promenades, streets and squares of the city.

9. To remain in any public saloons, dance and concert halls, pastry shops, cafés, after eleven o'clock at night.

10. To have any relations with lovers (so called Louis) in or without the city of Dresden.

11. To wear conspicuous or indecent or male attire, as well as to smoke cigars or cigarettes upon the streets, promenades, or squares, or in public places of amusement.

12. To shelter females in their dwellings at night.

13. To permit dependent young persons, as for instance, scholars, apprentices, cadets, etc., to enter their dwellings, and to permit them to reside therein, as well as the arranging of drinking-bouts, or the serving of spirituous liquors at all, to males in their dwellings.

14. To excessively illuminate their dwellings in the evening, or to have loud singing, playing of musical instruments, or other conspicuous or disturbing behavior in these rooms.

15. To keep servants or attendants of any kind under the age of twenty-five years.

16. To enter:

a. In both the Royal Court Theatres, the first and second parquets, the parquet standing room, the parquet boxes, the first and second balconies.

b. In the Residenz Theatre, the parquet, including the parquet standing room, and the pit standing room, the orchestra and parquet boxes, the first balcony, and the balcony of the second tier.

c. In the Victoria Salon on the Waisenhausstrasse, the parquet, the proscenium boxes, and the boxes of the first tier, and the tunnel restaurant.

d. In the circus (also in those of the suburbs of Dresden) all the boxes and the reserved seats.

17. To bicycle upon the streets and squares of the city.

18. To drive in open wagons, and in street cars within the city.

19. To take part in the corsos occurring in this city.

20. Admission to the summer concerts at the Waldschlösschen on the Schillerstrasse.

21. To visit the military guard mounts, as well as the military drill grounds.

22. To visit the Brühlsche Terrasse including the restaurants and exhibition buildings there existing.

23. To visit the following resorts:

a. The middle, so called large, park of the royal garden.

b. The city restaurant of the Waldschlösschen, on the Sophienstrasse.

c. The Gewerbehau on the Ostra Allee.

d. The Helbig restaurant on the Theatreplatz.

e. The establishment Königsbrueckerstrasse 10.

f. The Hippodrome on the Vogelwiese, and the restaurant therewith connected.

g. The Stadt Café at the Zwinger.

h. The Café Central on the Schlossstrasse.

i. The Restaurant Albrechtstrasse, 41.

k. The Tivoli, Wettinerstrasse 12.

l. The Wienergarten, Grosse Klosterstrasse.

m. The restaurant belonging to the zoological garden of this city.

n. Edward Krafft's real Bavarian Bierstube, König Johannstrasse 11.

o. The English Garden, Völkersbühlstrasse 20.

p. The hotel and restaurant Deutscher Herold, Sophienstrasse 2.

q. The Restaurant Fischhaus, Grosse Brühlstrasse 16 and 17.

r. Wein Restaurant of A. Marchi & Co., Seestraße.

13. ground floor and first floor

s. The hotel, baths, and Kurhaus, Albertshof, Sedanstrasse 7.

t. Café Hamnbadhof on the Bismarckstrasse.

u. Saloon, Kleine Kirchgasse 2.

- w. The saloon of the Löwenbräu, Moritzstrasse 1-B.
- x. The saloon Frauenstrasse 12.
- y. The establishment Kaiser Palast, Amalienstrasse 1.
- z. The hotel and restaurant Wettin, Zwingenstrasse 23.
- aa. The Central Theatre, in the Waisenhausstrasse, the theatre café connected therewith, the theatre keller, and all rooms belonging thereto.
- bb. The restaurant Der Hirsch am Rauchhaus, Scheffelstrasse 19, and Webergasse 24.
- cc. The pastry shop of Kreutzkamm, Altmarkt 14.
- dd. The Kaiser Café, corner Prager and Wienerstrasse.
- ee. The König Albert Passage, Wilsdrufferstrasse 8.
- ff. The exhibition palace and the grounds belonging thereto, on the Stübelallee.
- gg. The wine restaurant, Waisenhausstrasse 19.
- hh. The restaurant Pschorrbräu (formerly Stadt Rom), corner of Neumarkt and Moritzstrasse.
- ii. The cycle track on the Pfotenhauerstrasse, and the restaurant belonging thereto.

4.

It is permitted to every female, placed under these regulations, to present herself as often as she wishes for the medical police examination. She is, however, pledged to do so at least once every week, and that upon that day set for her by the royal police direction; to appear for this purpose clean and neat, as well as in clean underwear, and to behave herself quietly and decently in the examination room, as well as in the waiting room of the same. These examinations occur daily, at eleven o'clock a. m., with the exception of Sundays and holidays, at police headquarters, and are free of charge. House examinations are no longer permitted until further orders.

5.

Every absence from the police medical examinations without a sufficient excuse, which latter is to be presented to the Sitten division of the royal police direction, timely upon that date upon which the female in question is to present herself, as well as other action which aims to evade the medical police examination, the concealment of a syphilitic disease, or any deception of the police physician, will have as a result not only the most emphatic punishment, but also, according to the conditions, the immediate arrest of the female by the police, for the purpose of beginning proceedings against her for punishment.

6.

The careful observation of their state of health is made the duty of those females standing under morals police supervision. As soon as she notices symptoms pointing toward a contagious disease upon herself, particularly syphilis or scabies, or is not thoroughly certain concerning her sexual health, she must bring this to the attention of the police physician, or one of the officers of the morals police supervision. The medical treatment, in her dwelling, of a female suffering with an infectious venereal disease is absolutely not permissible. Furthermore, the patient is at once to be delivered to the city hospital of this city.

Upon her release from the hospital, even when the person in question was in the hospital for other ailments, she must at once, at the latest within twenty-four hours, personally report at the morals division of the royal police direction, and deliver her certificate of release.

A similar report, within the same period of time, must be made when such a person has been released from legal arrest, from the city workhouse, from the lying-in hospital, and the deaconesses' institution, or from other institutions, and when the rearrest of the person in question by the police has not followed.

7.

Should a female who is placed under morals police control change her residence in the city, she must report this, in person, within twenty-four hours, accompanied by the production of the certificate of report, to the morals division of the royal police direction. Should she absent herself from Dresden for more than twelve hours, or should she remove entirely, then she is to report this fact in person, in a similar manner, before her departure.

8.

Similarly, the person in question must, upon her return to Dresden, report in person, within twenty-four hours, at the same place, and present herself again for a regular police medical examination, or report at the above mentioned place the possible reasons which prevent the same, or her grounds for objection, within three days after the date of her return. It is the duty of all executive officials to see (particularly those officials of the royal police direction who are entrusted with the morals police supervision) that these regulations are carried out, and they are empowered, at any hour of the day, evening, or night, to make such inspections as they may hold to be necessary of the dwellings of the females subjected to these regulations. The latter are required positively to avoid any disobedient, refractory or ungovernable behavior toward these officials, as well as to the police physicians and the office personnel of the morals division.

9.

Breaches of one or the other of these regulations included in the preceding paragraphs, one to eight, as well as of such regulations as may be issued, in the future, by the royal police direction, for the alteration or completion of the same, will, without indulgence, be punished with imprisonment, according to paragraph 361-6 of the National Penal Code.

ROYAL POLICE DIRECTION,

LE MAISTRE.

The examinations of the prostitutes who are under control in the city of Dresden are carried out at police headquarters. The rooms set aside for this purpose are on the top floor of the beautiful building which serves as police headquarters, and are large, airy, and light, although, since they are just under the roof, somewhat warm in the summer time. They are lighted, both from the top by a series of skylights, and from the side by large windows, glazed with ground glass panes. They consist, first, of a large waiting room, which contains a series of benches, for the prostitutes who are to be examined on a particular day. Entrance to this room is furnished by means of a special doorway and stairway, leading from the ground floor to the waiting room. In this room is seated the police official, who is on duty for the day in question, to look after the control books, and to preserve order in the waiting room. Opening out from this room is the examining room. Along one side of this room is a series of small alcoves, which serve as dressing rooms for the women who are to be examined. These are separated from each other by wooden partitions, and each is closed in front by a curtain. In each alcove there is also a chair, as also the necessary clothes hooks. In these alcoves the women who are undergoing the first complete examination are enabled to undress, so that the examining physician may make a complete inspection of the surface of the body, other than that which would be possible upon the examination chair, without the woman's being subjected to the

gaze of her fellows. The necessary full inspection of the body of the prostitutes, upon later examinations, is also made in these alcoves. The women then pass over to the examining chair, where the female attendant gives them whatever assistance may be necessary. This female attendant must also be present during the entire examination of every female who is to be examined. The woman takes her place upon the examining chair, and the inspection of the external and internal genitals is made, with, if necessary, the microscopical examination of the secretions. The inguinal glands, abdominal wall, anal region, etc., are inspected. In addition to this, of course, the inspection of the mouth and throat, hands, etc., takes place. Should the woman be found to be healthy, then note of this is made upon her book, and she is allowed to leave, which she does by a separate door of exit, leaving by a separate staircase. Should she be found diseased, she is held at headquarters until the completion of the examinations, and then those found infected are transported to the city hospital.

The regulations governing the physicians' work are as follows:

SERVICE REGULATIONS FOR THE CONTROL PHYSICIANS APPOINTED BY THE ROYAL POLICE DIRECTION.

A.—GENERAL.

1. Control physicians are medical officials of the royal police direction of Dresden, without being servants of the State (*Staatsdienereigenschaft*), and bear the official title "Police Physician."

2. Their number is placed at two.

3. The term of service for the control physicians shall be, for the present, three years.

In isolated cases, the control physician may be left in office for a longer period than three years.

During the duration of service, each party thereto shall have the right to give three months' notice. A control physician may also be dismissed; without notice, in case of gross neglect of duty, dishonorable behavior outside of his duties, or upon being held (*Verfall*) for criminal examination. A claim for pension cannot be made from the position of a control physician.

4. The salary for each of the control physicians shall be 1,500 marks annually, and is to be paid in monthly installments of 125 marks, in advance, at the cashier's office of the royal police direction, on the first of each month.

5. In case of prevention from service, or leave of absence, the two control physicians are to substitute for each other.

6. The control physicians are obliged:

a. To examine each of the females who are under morals police supervision of the royal police direction, regularly, once a week, for the determination of their sexual state of health.

The examination must take place in the quarters of the royal police direction set aside for this purpose, and upon the days and hours to be specified by the proper authorities.

At the examinations the control physicians shall make use of the modern expedients, according to scientific standpoints. Possible requests for new supplies, or the replenishing of materials, are to be handed in, in writing, to the superintendent of division D.

Concerning the examinations in detail, see under B. b. To examine, for the presence of sexual diseases, those males or females brought before them, and to enter the findings in the proper journal of the records.

c. To render a competent opinion in all cases in

which their department of service considers this necessary or desirable.

d. To treat, free of charge, upon their request, such executive officials as may be suffering with skin, or venereal diseases.

7. In the interest of the service, all unofficial relations with prostituted females are to be avoided by the control physicians.

8. All private medical treatment of the prostitutes is forbidden to the control physicians, except where there is danger in delay.

9. Any ungovernable behavior of the prostitutes, or prisoners, toward the physicians, as well as their refusal of examination, uncleanness, etc., are, in the interest of the physicians themselves, at once to be reported, through the official on duty, to the authorities.

10. The control physicians shall appear, at intervals to be specified, to make report to the president of the royal police direction.

Particular occurrences they are to report to him at once.

B.—SPECIAL DIRECTIONS.

1. At the examination of prostitutes and female prisoners, the purpose is to determine the presence of the following diseases:

a. Soft chancre, which must take place through simple inspection.

b. Gonorrheal diseases: On the one hand these are to be determined by the observation of the ordinary clinical signs; on the other hand, by means of bacteriological examinations. The bacteriological examination of the secretions is not necessary in all cases. The necessity and practicability thereof depend entirely upon the nature of the individual case.

Bacteriological examination must be demanded:

h. In all females who come for the first time to the medical police for the examination of their sexual state of health.

z. In all females who are to be delivered to the city hospital, by the police physicians, because of gonorrheal disease, or disease which leads to the suspicion of gonorrhea.

j. In all female persons whose sexual state of health is to be determined upon the request of the authorities.

The frequency of the single bacteriological examinations of the prostitutes depends upon the opinion of the control physicians, who will thereby aim to diminish the danger of infection through the prostitutes to the attainable minimum.

As points for the taking of secretions come under consideration the vagina, urethra, cervical canal, and, in particular instances, also the anus and the various gland ducts.

The secretions may only be taken by means of an instrument through whose use an injury of the examined female is excluded.

The taking of secretions is to be performed in the most careful manner, and the unnecessarily deep insertion into the urethra of the instrument to remove secretion is particularly to be avoided.

c. SYPHILITIC DISEASES: For their determination, the skin and the visible mucous membranes, as well as the palpable lymphatic glands, are to be subjected to a regular inspection and palpation.

d. In addition to these sexual diseases and their possible sequelae, such as buboes, papillomata, etc., attention is also to be directed to such other diseases as may similarly be transmitted through intercourse, such as scabies, phtheiriasis, molluscum contagiosum, etc., tuberculous and tumorous diseases of the sexual organs.

2. Those females suffering with any diseases noted under the preceding headings, a, b and c, are to be referred to the city hospital, by means of reference formula, upon which the disease is to be noted in abbrev-

viations, in the Latin language. In the presence of the diseases mentioned under "d," the transference to the city hospital depends, according to the danger of transmission, upon the opinion of the control physicians.

3. If it is not possible to determine with certainty the nature of the disease at the examination, then the control physician may have the suspected person brought before him upon the next or the following day for reexamination.

Should, however, such a delay appear to be connected with danger, then he may also, with the statement of the suspicion of disease, refer the suspected person to the city hospital.

4. The result of each individual examination of the prostitutes is to be noted regularly upon the control cards, according to date and findings.

ROYAL POLICE DIRECTION.

Dresden, March 31, 1906.

(To be concluded.)

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXV.—How do you prevent contraction in the scars of burns? (Closed August 15, 1907.)

LXVI.—How do you make an early diagnosis of pregnancy? (Answers due not later than September 16, 1907.)

LXVII.—How do you treat delirium tremens? (Answers due not later than October 15, 1907.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXIV has been awarded to Dr. Austin Rogan, of Johnstown, N. Y., whose article appears below.

PRIZE QUESTION NO. LXIV.

THE TREATMENT OF INFLUENZA.

By AUSTIN ROGAN, M. D.,

Johnstown, N. Y.

As there is no specific serum treatment the treatment for influenza resolves itself into (1) prophylaxis; (2) general measures; and (3) measures and remedies to combat the distressing symptoms of the various types, i. e.: (a) Respiratory (coryza, bronchitis); (b) digestive (nausea, vomiting, tormina, diarrhoea); (c) nervous, meningitic, typhoidal (cephalalgia, tinnitus, neuralgia, myalgia, prostration); (d) complications (pneumonia); and (e) convalescence.

1. *Prophylaxis* consists of (a) isolation, and (b) disinfection. Liquor alkalinus compositus in warm aqueous solution (1 to 4) may be used for nasal douche and mouth wash; sputa can be received on cloths and burned; feeding utensils and linen (soiled) should be boiled for fifteen minutes; at-

tendants must exercise care in handling infected articles, and soak hands in a 1 to 60 solution of carbolic acid from two to five minutes, preceded by washing with green soap; room and fomites should be thoroughly disinfected by formaldehyde gas after patient is able to leave his room and discard the fomites.

2. General measures comprise hot bath or hot mustard foot bath; rest in bed, quiet, subdued light; to be avoided are cathartics and solid food. A tablet of morphine (gr. $\frac{1}{4}$) and atropine (gr. $\frac{1}{100}$), every two hours should be given till patient feels comfortable.

3. Measures and remedies to combat various types: (a) Respiratory: Coryza: Nasal douche to be followed by:

B. Menthol, gr. xx;
Albolene, 5i-ii.

M. S.: Use in hand atomizer as directed.

Bronchitis:

B. Menthol, gr. x;
Spirit of chloroform, 5ss;
Compound tincture of benzoin, 5i.

M. S.: One teaspoonful to an ounce of boiling water, envelop head and contain with a large towel. Inhale vapor for 15 minutes three times a day.

Sinapisms externally over chest.

For protracted bronchitis:

R. Terpin hydrate, 5ss;
Vanilla extract, 3ii;
Alcohol, aa 5iii;
Glycerin, aa 5iii;
Syrup, q. s. ad..... 5vi.

M. S.: One tablespoonful three times a day.

(b) Digestive type: For nausea, vomiting, tormina, diarrhoea, administer the morphine and atropine of general measures, hypodermatically, same dose, same time.

Wash out the stomach; sprinkle finely chopped ice with brandy, and give a teaspoonful every fifteen minutes.

R. Creosote, Att. x i;
Powdered acaia, 5ii;
Lime water, 5ii.

M. S.: One teaspoonful every hour for vomiting.

Sinapism to the epigastric region. Hot water bag, or turpentine stupes externally on abdomen.

(c) Nervous type: This is the most interesting type. To associate influenza solely with a respiratory or digestive catarrh is wrong, for neither is constant; but that which is, yet does not obtrude itself so manifestly in the large majority of cases, is the profound prostration and depression of the nervous force.

Meningeal form: Intense cephalalgia, photophobia, tinnitus, vertigo, insomnia, delirium, high fever, dyspnoea, irregular pulse, cyanosis, etc. Treatment: Quiet; subdued light; no quinine; cold coil or ice cap to the head; tepid sponge baths of water and alcohol when temperature is 104° F. or over.

B. Fluid extract of ergot, 5ss.
Give 10 min. for two or three doses, for tinnitus and vertigo.

R. Tinct. digitalis, aa 5ii;
Tinct. hyoscyam, aa 5ii;
Tinct. cardamoni comp., 5i;
Chloralis, 5iv;
Potassii bromidi, 5i;
Syrup, q. s. ad..... 5iv.

M. S.: One half teaspoonful, to be repeated hourly, for insomnia.

"Typhoidal" form: (Affects the weak, old, neuropaths, and sufferers from chronic maladies.) As weakness and exhaustion are written in large letters all over these cases, the chief indication is stimulation.

"Stimulation, a little while.

Stimulation, long.

Stimulation all the time.

Stimulation, strong."

Useful stimulating measures to be remembered are: Champagne, wine, or whiskey, 3i-iv every four hours; tinct. capsici, Mv-x , every three or four hours; spiritus ammoniæ arom, 3ss every four hours; spts. æther. comp., 3i every four hours; strychnine, gr. $\frac{1}{15}$, every two hours till effective; hot saline rectal injection, 110° to 120° F.; apply heat externally to extremities and trunk.

Neuralgic form: (Various neuralgiæ, pleurodynic stitches, myalgia, muscle neural pains.)

R Codeine sulphate, gr. xii;
Acetphenetidin, 3iss.

M. et Div. in Caps. No. xii.

S.: One every 2 hours for pain.

(May be used as a substitute for morphine and atropine, mentioned under general measures.)

R Fluid extract of belladonna, }
Chloroform, } 3i 3i

M. S.: Shake and apply locally with camel's hair brush three times a day. Hot applications over painful area.

(d) Complications: Influenza pneumonia is to be treated on general principles with supportive measures and sufficient stimulation as indicated above.

(e) Convalescence: This, after all, is the most important phase of influenza, particularly the profound depression of nervous energy from which even the young recover so slowly.

We will not concern ourselves with any theoretical speculation as to whether the toxins of influenza produce a retrograde chemical change in the intracellular protoplasm of important ganglionic cells by vitiating their natural nutriment, whereby the inherent vital reserve of the cell nucleus is insensibly sapped to provide for deprivation of cellular sustenance, but it cannot be gainsaid that pre-existing organic defects and infirmities, especially neurasthenic conditions and tuberculous tendencies will be emphasized. The chief indication is rest. The ideal prescripion contains a prolonged vacation for mind and body and a change of scene, with large doses of sunshine and fresh air, and nourishing food. Strychnine, gr. $\frac{1}{15}$ to gr. $\frac{1}{10}$, every two hours, or three times a day before meals to suit the exigencies of the case, is sufficient medical tonic. Additionally pil. phosphor. 1 or 2, three times a day after meals, may be serviceable in selected cases.

Summary

1. Quarantine, isolation, and disinfection.
2. Rest, quiet, subdued light.
3. No cathartics, no quinine, no solid food.
4. Supportive measures and sufficient stimulation.
5. Combat especially distressing symptoms.
6. Tablet of morphine (gr. $\frac{1}{15}$) and atropine (gr. $\frac{1}{150}$) most useful of all in large majority of cases.
7. Codeine sulphate (gr. $\frac{1}{15}$) and acetphenetidin

(gr. viiss) may be substituted for it, according to the preference or prejudice of the attendant.

8. Most important of all is the convalescence.

18 SOUTH WILLIAM STREET.

Dr. Edmund Newell Huff, of Englewood, N. J., remarks:

In influenza our treatment should be guided by the functional disturbances present and the organs involved in each individual case. The attack may involve the respiratory and nervous systems especially, and in some cases the urinary or alimentary systems, each requiring appropriate treatment.

There is no specific treatment by drugs. Depressing drugs as the coal tar products should be avoided if possible on account of the great depression already present as characteristic of the disease.

Upon first seeing the patient we should ascertain his condition, especial attention being given to the organs which may later become involved, namely, circulatory, respiratory, and urinary organs. By this examination our future treatment and prognosis is guided and made much simpler.

Our treatment should be supporting and stimulating using drugs with care and as indicated after our treatment of the first stage as given later.

The diet should consist of soft or liquid food, while temperature is above normal; hydrochloric acid dilute may be added in five to ten minim doses to aid digestion.

Upon first seeing the patient, if he is not already in bed, he should be ordered to bed, after taking a hot bath, if it seems advisable in the case. Upon going to bed he should be given a Dover's powder, five to ten grains, and calomel, two to five grains, followed in the morning by a saline. Begin now with quinine sulphate, grains three, every two to four hours. For headache try to relieve by ice cap to head; if very severe acetphenetidin grains, three to five, may be given every four hours until relieved. If no other remedy is indicated or no complications arise continue quinine until convalescence is well established, lengthening the interval as convalescence occurs.

Some of the symptoms which may require treatment and the method of their treatment are as follows: Severe body pains may be relieved by sodium salicylate in five to ten grain doses, or salicin alone or with quinine.

Nasal and respiratory irritation may be relieved by a spray of:

R Cocaine, gr. v-x;
Menthol, 3i-ss;
Water, q. s. ad. 5iv.

M.

Or a gargle of:

R Sodium salicylate, 5iv;
Glycerin, 5i;
Water, q. s. ad. 5iv.

M.

Cough may require turpentine stupe to chest, mustard plaster, or some expectorant or sedative as:

R Ammonium chloride, 7i-ii;
Syrup of marshm., 5iv;
Compound mixture of glycyrrhizic, 5iv.

M.

Or ammonium carbonate, gr. j-ij, or to lessen cough something as follows:

R Heroin hydrochloride,	gr. 1-24 to 1-12;
V or combined with:	
R Ammonium chloride,	5v.
Syrup of squill,	5iv.
Syrup of iodu,	5iv.
Water, q. s. ad	5iv.

M

High temperature may be combated best by sponging or cold wet packs. Internally by aconite or veratrum viride, head symptoms by strychnine sulphate, gr. $\frac{1}{60}$ to $\frac{1}{30}$, as stimulant, when failing. In aged use spirit of nitroglycerin.

Pneumonia requires the best of care and treatment by stimulation from the beginning, as it is very fatal on account of depression present. The nervous symptoms or delirium may require sedatives, such as bromides. The nausea, vomiting, and diarrhoea require the usual treatment in such conditions and care to exclude typhoid fever. Indeed the complications and results following influenza are so many and varied as to be exhaustive, but the main ones are as indicated before.

The patient should be made to stay in bed until the temperature is normal, at least. Also extreme care should be exercised, and the patient cautioned against overexertion and exposure in an early convalescence or a light case, as a relapse may occur with very regrettable results. Convalescence may be aided by tonics. If possible, the patient should have a change of air and scene as to some seaside or mountain resort.

Stringent measures may seem hard to the patient, but the physician's final and general results are much better and in the end satisfactory to the patient.

Dr. H. S. Mathewson, of Cleveland, O., states:

Influenza may be a fatal disease and should therefore be treated with the respect it deserves. The patient in all cases should be put to bed and forbidden to leave his bed without permission. Divided doses of calomel, followed by a saline, should be administered, and the patient kept on a liquid diet until the subsidence of the fever. For the disease, give a capsule containing $2\frac{1}{2}$ grains of acetphenetidin and $2\frac{1}{2}$ grains of quinine, every three hours, during the day and at night if the patient be awake. Watch the heart, give cardiac stimulation only when necessary, and continue the specific medication until the fever disappears. The mouth should be kept clean by use of an alkaline mouth wash, to prevent reinfection, and the bowels should be moved daily.

When the temperature has reached and remained normal for two days, increase the diet and get the patient up if the action of the heart is good. It is during convalescence that sudden attacks of heart failure are apt to occur, and special watchfulness should be exercised during this period. To combat the mental depression and muscular weakness so often seen in this class of patients a tonic mixture containing iron, quinine, and strychnine, should be given.

In a series of fifty consecutive hospital cases of influenza treated in this way there were no fatalities and no complications. The shortest stay in the hos-

pital was four days, the longest stay sixty days, the average stay for the fifty cases being 11.2 days, counting both the day of admission and the day of discharge; the patients, upon discharge, were able to resume work.

Dr. L. C. Freeny, of Pittsville, Md., says:

Three forms of influenza are generally considered in the textbooks: (1) Catarrhal; (2) gastrointestinal; (3) nervous. It is very rare to see them sharply defined, and here we shall consider them as a whole, taking up the treatment as symptoms present themselves in the average case.

When I see a case during the first few hours of attack I give a mixture of aconite, spirits of nitrous ether, and a solution of potassium citrate, with the latter in the dose of x gr. This is taken every two hours while the fever is high; later as the occasion arises. I also direct the patient to use a nasal douche of Dobell's solution every three hours, in the belief that it prevents markedly the catarrhal troubles usually seen, and with the hope that it will prevent the severity of the infection. Finally, on going to bed, the patient takes a x gr. Dover's powder and x gr. of quinine sulphate, and stays in bed for two days.

The diet should be light while the fever lasts, and consist of milk or broths. Afterward when the patient is able to take some solid food, egg nog or milk punch should be given liberally.

As a prophylactic measure disinfection of the nasal and bronchial secretions should be practised. While there are many good disinfectants, the following has the advantages of not ruining linen, is efficient, very cheap, and always accessible:

R Common salt,	oz. i;
Carbolic acid,	oz. ii;
Water,	oz. ii.

If, however, the case goes on without abatement for forty-eight hours, or if not seen until that time has elapsed, it is my custom to give:

R Salol,	gr. v;
Acetphenetidin,	gr. v;
Camphor monobromate,	gr. ii.

M. One powder every three hours.

When the patient is overwhelmed by the infection I give with this $\frac{1}{30}$ strychnine sulphate in pill form. Constipation if present calls for laxatives.

I do not believe now that Dobell's solution or any other local treatment to the nares is of any benefit, and simply worries and harasses the patient. For the bronchitis seen now, ammonium hydrochloride, v gr., and heroin hydrochloride, $\frac{1}{12}$ gr., every two hours, to effect.

In those cases where the nervous symptoms predominate the acetphenetidin, camphor monobromate, and heroin mentioned will often be all that is needed. When they are not sufficient, the bromides in the triple combination usually suffice. They may be combined with hyoscyamus and cannabis indica if nervousness is particularly troublesome, or if there is vertigo.

The intestinal form is more uncommon than the catarrhal or the nervous type. Here a brisk cathartic, such as a two grain dose of calomel, followed by a saline, is to be employed first. We can, in a majority of cases, then employ zinc sulphocarbolate and salol in x gr. doses of each, every two hours, until

diarrhoea abates, which will usually occur within twenty-four hours. These failing, I have recourse to the old lead and opium pill, than which there is nothing better in my experience.

It may be mentioned in passing that these cases must often be distinguished from typhoid fever.

In the distressing depression of mind and body after the acute symptoms are over, champagne is of great service. The cost, though, is generally prohibitive, and when cost is an item I use egg nog and milk punch liberally. A general tonic is indicated and if possible a change of scene and rest.

The many and oftentimes dangerous sequelæ of this disease cannot be anticipated. Watchful care is necessary, and symptoms must be met as they arise.

(To be concluded.)

Therapeutical Notes.

Guaiaicol Ointment for Mumps.—Ragorzi, in the *Bulletin général de thérapeutique*, advises the following:

R Guaiaacol, 10 parts;
Petrolatum, 10 parts;
Wool fat, 10 parts.

M. To be applied night and morning. The parts to be covered with a gutta percha sheet and a bandage.

Hay Fever.—Dr. E. Fletcher Ingals, of Chicago, writes: The prescription for hay fever in the department of Therapeutics in *The Journal of the American Medical Association*, July 6, 1907, page 84, and credited to me, I am unable to remember as having recommended at any time, for it certainly is objectionable in several ways: (1) I have not tested resorcinol in this connection; (2) the adrenalin chloride, one half grain to two ounces, would be very irritating in most cases of hay fever; and (3) the boric acid I do not use in this connection, as I find the sodium biborate much better. I have found the following prescription very useful in some cases and think it well to try it in every case:

R Cocaine hydrochloridi, gr. iiss;
Sodii boratis, gr. v;
Suprarenalinis (1:1,000), 3i;
Glycerini, 5ss;
Aque camphoræ, ad, 3i.

M. Sig: Use as a spray to the nose four or five times daily, or oftener, if needed.

Journal of the American Medical Association, August 10, 1907.

Glyceryl Nitrate in Mental Diseases.—Rémond and Voivenel (*Le Progrès médical*, June 1, 1907), acting upon the hypothesis that certain cases with psychical disorders are accompanied by increased arterial tension and constriction of the cortical vessels, made some trials of glyceryl nitrate, controlled by ophthalmoscopic examinations. In a hysterical woman, forty-eight years of age, who complained of intense facial neuralgia, with psychical disorder, the administration of six drops a day (taken in three doses), of the following solution, caused both the neuralgia and mental disorder to disappear in three days:

R Spirit of glyceryl nitrate, 1℥, 50 grammes.
Tincture of opium, 7.50 grammes.
Peppermint water, 15.0 grammes.

M.

In a second case, with anxiety and melancholia,

with marked precordial pain, the same treatment caused the angina to ameliorate in three days and to disappear in a week; while the mental condition also greatly improved.

General Anæsthesia Produced by Scopolamine with Chloroform.—Vignard reports the results of thirty-eight cases of anæsthesia with scopolamine. In most cases an injection was given of scopolamine hydrobromide (0.001 gramme, or gr. $\frac{1}{64}$), with morphine hydrochloride (0.01 gramme, or gr. $\frac{1}{6}$) dissolved in a gramme of sterilized water. In five cases only half this dose was given; in three others the milligramme of scopolamine was given without the association with morphine. The injections were given, about three quarter to one hour before the time of operation. In no case was more than 2 milligrammes injected. In no case was anæsthesia complete, or sufficient for surgical operation, so in all cases he added to the injections the inhalation of chloroform, which was carefully dosed. In every case excellent results were obtained. There was suppression of fear, suppression of the period of excitement, rapid onset of anæsthesia, diminution of nausea and of vomiting. The diminution in the quantity of chloroform required is noteworthy, and is one of the chief advantages of this method.

Chronic Rheumatism and Thyroid Insufficiency.—An interesting observation by Acciorte (*Gazette médicale d'Orient*, May, 1907, and *Revue de thérapeutique médico-chirurgicale*) was reported upon a case of a young woman, of twenty-eight years, who complained of subacute and chronic rheumatism, and at the same time presented symptoms of myxœdema. In seeking for the cause of the hypothyroidism, it was learned that the patient had been subjected to several séances of x ray treatment in order to relieve her of hairs upon her chin and on her neck. It was upon this region that the x rays were applied. Soon after the beginning of the treatment, the patient became obese, and after the twelve séances the rheumatic symptoms appeared, which soon became general. The treatment had produced atrophy of the thyroid body. The patient was given treatment by thyroid extract, and after a considerable time the symptoms of rheumatism disappeared. From this observation the author drew the conclusion that certain cases of rheumatism may have for their origin some functional disorder of the thyroid gland, and may, in fact, manifest themselves as the only symptom of hypothyroidism. Consequently, we should try the thyroid treatment, not only in those cases of chronic rheumatism associated with other signs of hypothyroidism, but also in obstinate cases of rheumatism, which are entirely free from any other sign of insufficiency of the thyroid.

The Parathyroid Glands and Tetany.—Leischner reported to the Imperial Royal Society of Physicians of Vienna (May 17th) the results of experiments made upon rats, with regard to the effects produced by the transplantation of the parathyroid glands. When one gland was dissected free and replaced in the wall of the abdomen, between the peritoneum and the muscle, or in a pocket in the rectus muscle, no symptoms were produced; but when both glands were transplanted, transitory symptoms of tetany appeared. When the parathyroids were

afterwards again removed, the animal soon presented the symptoms of tetany and cachexia. The histological examination of the transplanted glands did not show any morphological alteration. In another series of experiments he found that the parathyroid gland could be successfully transplanted from one animal to another of the same species. He directed attention to the importance of these results in their application to human surgery. Since removal of the parathyroids inevitably leads to tetany, it is advisable, in all cases of thyroidectomy, to see that the parathyroids are not removed in the mass; and when this is found to be the case, they should be immediately transplanted and imbedded in the rectus muscles of the abdomen. In discussing the subject, von Eiselsberg said that out of 449 thyroidectomies for goitre, which had been done at his clinic in the last four years, he had only observed two cases of grave tetany, and in both cases this accident was successfully met by administration of dry thyroid extract. In one case of tetany of long standing (twenty-seven years), von Eiselsberg transplanted, into the abdominal wall, a parathyroid gland taken from another patient who had been operated upon for goitre. As a result of this procedure, the tetanic symptoms decidedly improved. The patient from whom the parathyroid was taken did not present any symptom of parathyroid insufficiency.—*La Presse médicale*, June 15, 1907.

The Diuretic Effects of Cold Applications to the Skin.—Dubois and Butruille (*Echo médical du nord*, June 2, 1907, and *Revue française de médecine et de chirurgie*) call attention to the diuretic effect of cold baths in febrile conditions, and to the results of experiments made by Lambert, of Nancy, upon young persons in full health, who found that in normal individuals the cold baths, more or less prolonged, also caused considerable augmentation of urine. These authorities determined the fact that applications of the ice bag to the abdomen or thorax, for periods of five or ten minutes, produced, in fourteen cases out of seventeen experimented upon, a very marked increase in the quantity of urine secreted during the time the ice was applied. This was determined by fixing a catheter in the bladder, and collecting the urine every five or ten minutes. It was also noticed that a greater secretion amounting to diuresis took place after the application of the ice. This phenomenon was always observed. These observations were repeated and always gave the same results. These results confirm those which the physiologists had already obtained in man; but as they were conducted with all the precision of a positive experiment, they are much more demonstrative.

Barium Chloride as a Heart Tonic and Diuretic.—From the investigations of Schedel, in 1903, made upon patients suffering with grave cardiac lesions, this observer stated that barium chloride was even superior to digitalis, in regulating the pulse and blood pressure and increasing the functional activity of the kidneys. Following this publication, a number of other clinical observers gave the result of their personal experience with this drug, in which, while the action as a heart tonic was admitted, the authors refused to recognize the same action

as digitalis. Recently Pesci (*La Riforma medica*, Naples, April 6, 1907, and *La Clinique*, Paris, July 26, 1907) has given the conclusions derived from further investigation, as follows: (1) Barium acts as a muscular excitant; (2) the therapeutical dose of barium chloride is 20 to 25 centigrammes (grs. iii-iv) daily; which quantity in man produces an increase in the arterial tonicity; (3) toxic doses exercise a profound action upon the myocardium and arrest the heart in systole; (4) its influence is exercised directly upon the muscular fibre without the intervention of the nervous system. In ordinary doses, according to medications, barium chloride is perfectly tolerated by the system, and may be given in the therapeutical dose for ten days at a time. The dose may even be increased from 0.20 to 0.25 to 1.50 or 2 grammes daily, without causing nausea or vomiting, like caffeine; nor gastrointestinal disturbances, like digitalis; nor renal troubles, like calomel and the balsams. The author calls attention to a possible danger of unduly increasing the blood pressure. During its administration its effects should be watched so as not to cause too great vascular tension, and especially large doses should not be given when the myocardium is weak. The diuretic effects of the drug were very noticeable in fifteen cases of pleuritic effusion, in which Pesci considers barium chloride to be the best, or most inoffensive, diuretic.

Liquid Air in Dermatology.—Whitehouse (*Journal of the American Medical Association*) thinks that liquid air is destined to have a very wide range of usefulness in the therapeutics of cutaneous disease. If it were not for the fact that we already have means at our disposal which are always accessible, that possess many of the properties of liquid air, and can fulfil its indications quite as well, or even better in many instances, this might be so. For local anaesthesia, the treatment of abscess, bubo, boils, carbuncles, ulcers, warts, and various other conditions in which extravagant claims were early made for this agent we have other far more convenient methods of equal or greater efficacy. In pigmentary, hairy and vascular naevi, angioma, lymphangioma circumscriptum, lupus erythematosus, lupus vulgaris, and epithelioma (unaccompanied by lymph gland invasion), however, we have in liquid air a remedy which will often give us better results than we have been in the habit of getting by other means. For practical use liquid air is kept in what is called a Dewar bulb, which is a double bulb of glass, one blown inside the other, the space intervening being a vacuum. The surfaces of these bulbs are silvered, and this, together with the separating vacuum, retards the radiation of heat; the whole is incased in cotton wool or thick felt to prevent further radiation. It should be applied on a cotton swab which can be adapted to any form desired, and the elements governing the effects produced are: (1) The degree of saturation of the swab; (2) the accuracy of contact; (3) the amount of pressure exerted; and (4) the duration of the exposure. On a thorough appreciation of these four elements, coupled with correct judgment as to the interval between exposures, success and failure depend. As a rule, the slower the method the better the result.

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THE SEVENTH INTERNATIONAL ZOOLOGICAL CONGRESS.

We publish to-day a brief account of the Seventh International Zoological Congress, which was held in Boston from August 19th to August 24th. The close relation between zoology and medicine is now admitted on all hands. Since the publication of Darwin's *Origin of Species*, the latter science has received much light from the former. It is only necessary to refer to the departments of embryology, bacteriology, anatomy, and physiology to find examples of problems of interest to the physician which have been worked out in the lower animals. And, as of more recent development, mention may be made of problems in human pathology which could not be understood until animal experiment pointed the way. For example, the various stages of caryocinesis, the basis of normal histology, embryology, and pathological histology, have been determined solely by observations upon the lower animal forms.

Of particular interest to physicians, some of the papers read in the section in cytology and heredity and in the section in embryology may be mentioned. The paper by W. Dantchakoff on the development of the blood elements in dog embryos, that by A. Maxinow on the development of the blood elements in mammalian embryos, that by G. N. Calkins on the conjugation of *Amaba proteus*, that by Maximilian Horzow on the earliest steps of placentation and on the earliest development of the embryo in man, that by S. P. Gage on a four week human embryo, and

that by L. Loeb on the experimental production of the maternal part of the placenta may be mentioned.

It was gratifying to note the attendance at the congress of a number of Americans who are engaged in teaching the fundamental branches of the science of medicine in the undergraduate medical schools. Such attendance indicates that in future the medical student will receive instruction based on the facts of zoology, and that he will not merely be expected to know the facts of human anatomy, physiology, and pathology, which are frequently inexplicable without the assistance of comparative studies. As a practical example of the use of the lower animals in the instruction of medical students we may refer to the courses on operative surgery given at the Medical Department of the Johns Hopkins University in which dogs are used as patients.

A NOVELTY IN OBSTETRICAL MECHANICS.

Dr. A. F. A. King, of Washington, is a man who has shown acuteness of reasoning in various departments of medicine, though his chief sphere of activity has been that of an obstetrician. In the August number of *Surgery, Gynecology, and Obstetrics* he presents us with a very interesting article entitled *New Methods of Version in Transverse Presentations*, being a paper which he read before the recent annual meeting of the American Gynecological Society. It deals essentially with the efficiency of the squatting posture as an aid to external version in cases of transverse presentation.

He says that some years ago, in the case of a young woman whom he was attending in her first confinement, the presentation was of a shoulder. He stood facing the foot of the bed, and directed the woman to come and kneel there, placing her hands upon his shoulders for support. He does not say what induced him to give this direction. The woman obeyed, and exclaimed with the first pain that the child was "coming out." This he did not believe, but he soon found that she was right; in two or three more pains the child was born, delivery taking place by the breech. At that time he had not sufficiently thought out the mechanical action of the squatting posture to lead him to observe whether or not the woman adopted any particular form of squatting.

Since then he has made something of a study of the squatting posture. He remarks that the natural mode of squatting is asymmetrical, that is, with one foot in advance of the other. The forward foot rests flat on the supporting surface, but the other one touches it only by its anterior portion. Great pressure is exerted on the abdomen by the flexed thighs in symmetrical squatting, but in asymmetrical squatting the pressure is very great on the part of the

thigh corresponding to the posterior foot. If the child's head lies on that side, it is almost sure to be forced up and the presentation converted into one of the breech. Hence Dr. King lays down this rule: "Let the woman kneel only on that knee corresponding with the side to which the child's head is directed."

Delivery in the squatting posture, as we are all aware, is the prevalent mode among certain primitive peoples. Of course they do not have recourse to it with any definite idea of modifying the presentation, but we may well imagine that by adopting it they avoid serious results in the few cases of transverse presentation that naturally occur. In all probability it would not derange the normal progress of delivery in a frank presentation of either the cephalic or the pelvic pole; consequently it could do no harm in any case. As a routine procedure, it is of course too undignified for civilized women to consent to, and probably they would often object to it in cases of transverse presentation. Dr. King points out, however, that it may be imitated with the patient lying on her back by forced flexion of the thigh on the abdomen. He has been able to present reports of a few cases in which the device has proved efficient, and it certainly seems worthy of extensive trial.

CHRONIC CARRIERS OF TYPHOID FEVER.

It has become known, chiefly through the studies of Kayser, Conradi, and Müller, that the typhoid fever organism may persist for a considerable length of time in the human body after an attack of the fever, and these investigators have reported on certain chronic cases of this order, the patients being chronic carriers of the disease for years, although not suffering any inconvenience themselves by reason of their infection. Soper has reported a case in the United States and there are probably many such.

In order to determine more accurately just how many there are, Kayser has undertaken an extended research of all the typhoid fever patients in Strassburg who were sick from the spring of 1903 to that of 1905, the results of which he has just published in the *Arbeiten aus dem kaiserlichen Gesundheits-amte*, xxv, 1. During this time 248 patients had typhoid in the city of Strassburg, of whom twenty-nine died of the disease, one disappeared, and one committed suicide. Of the 217 remaining, he was able to obtain trace of and make careful bacteriological examinations of the feces and urine in 101, thirty-three men, forty-seven women, and twenty-one children. In three of these patients he obtained positive results.

The first patient, a man, sixty years of age, had a

paratyphoid fever (group B) in September, 1903. The same bacillus was found in his feces in February, September, and December, 1906; at least three years after the illness. The second, a woman of forty years, had typhoid fever of the classical type in August, 1904. In December, 1905, the organism was obtained in the stools, but later examinations in January, February, and March, 1906, were negative. A third individual, a woman of twenty-six years, had typhoid fever in August, 1904. In December, 1905, the stools showed the presence of the organism, although the urine was negative. Three months later the search was negative throughout.

On the basis of these findings Kayser proposes that the feces and urine of all patients who have had typhoid fever be examined at least several months after their convalescence. Such tests should be carried out systematically, at least three complete examinations being made. Chronic carriers, for there are such, should be subjected to special supervision.

THYREOID EXTRACT IN INCONTINENCE OF URINE.

The function of the thyroid body is summarized by Hertoghe (*Bulletin de l'Académie royale de médecine de Belgique*, xxi, 4) as follows: The thyroid gland presides over growth. It supports the physical heat in us at the point which is most convenient for our conditions of existence. It regulates the assimilation and the destruction of nutritive materials. It is indispensable to the muscular and cerebral functions, and is intimately connected with all transmission of nervous impulses. It is charged with the support of our protective membranes, epidermis and mucous and glandular epithelium. Furthermore, the first symptoms of thyroid insufficiency are of the trophic order, and they are characterized in short by an abnormal fragility, a too rapid desquamation, of the cellular tissues which isolate us from our exterior environment. He describes his ideas of the function of the gland during pregnancy and labor and ascribes certain of the pathological states met with during pregnancy to thyroid insufficiency.

He then goes on to allege that nocturnal incontinence of urine in young children and adolescents is due to thyroid impoverishment. He describes several cases in which the use of thyroid extract was followed by improvement or cure. He points out that children who suffer from incontinence are almost always undersized, and that they present the infantile habitus in varying degrees—improperly placed teeth, nasopharyngeal adenoids, flat chests, and emaciated and slender extremities. Such pa-

tients are often flat footed and their feet have an offensive odor, their gait is stiff, they suffer from pains in the thighs and from sciatica produced by the cold and moist surroundings in which they lie at night. The systematic examination of the urine in these cases shows an abundant deposition of the cells covering the free surface of the mucous membrane of the bladder. Hertoghe, consequently, recommends the treatment of nocturnal incontinence of urine with thyroid extract. In children beyond two years of age he gives three five grain tablets each week and adds also from three to five grains of potassium iodide and bromide daily.

The treatment of incontinence of urine is not very satisfactory. It is our custom to advise circumcision if the prepuce is adherent, after trying the effects of forcible reduction and daily cleansing. We adopt all kinds of dietetic measures, such as a very light supper for the patient, without fluid, waking the child up late in the evening and having him empty his bladder, and the routine administration of tincture of belladonna in ascending doses. In spite of all attempts at correction along the lines just described patients keep on with their nocturnal incontinence until finally they give up the attempt to cure the defect. The method of treating this complaint with the combination of thyroid extract and potassium iodide and potassium bromide merits consideration and trial.

THE CLASSIFICATION OF MILK.

The Bureau of Animal Industry of the Department of Agriculture has recently issued in the form of a pamphlet entitled *Sanitary Milk Production* a number of essays on various aspects of the milk supply of cities, with special reference apparently to the city of Washington. Among them is one by the chief of the bureau, Dr. A. D. Melvin, on Commercial Classes of Milk. He believes that a division of milk into three classes will prove beneficial, for it will facilitate efficient supervision and assist the consumer in securing clean and uncontaminated milk.

Class 1 is as defined by the Milk Conference appointed by the Commissioners of the District of Columbia. It includes only milk produced at dairies subjected to periodical inspection and to frequent analyses of the products. The cows producing it must be properly fed and watered, free from tuberculous and other communicable diseases, and free from conditions likely to cause the milk to deteriorate. They are to be housed in clean stables, properly ventilated, and to be kept clean. All persons who come in contact with the milk must exercise scrupulous cleanliness and not be harboring the germs of typhoid fever, tuberculous disease, diph-

theria, or any other infectious disease liable to be conveyed by the milk. All precautions must be taken to avoid infection in drawing the milk, and it must immediately be strained, cooled, put into sterilized bottles, and kept at a temperature not exceeding 50° F. until it is delivered to the consumer. Milk certified by the health officer of the District of Columbia (which Dr. Melvin classes as 1 a) should not contain more than 10,000 bacteria in a cubic centimetre and not be more than twelve hours old when it is delivered.

Class 2 is defined as "clean raw milk from healthy cows, as determined by the tuberculin test and veterinary physical examination, the cows to be housed, fed, and milked under good conditions, but not necessarily equal to the conditions provided for Class 1," the bacteria not to exceed 100,000 in a cubic centimetre when the milk reaches the city. Class 3 includes milk below these standards, and Dr. Melvin thinks that it should be clarified and pasteurized at central plants under the personal supervision of an officer of the Health Department. The temperature of this milk should not exceed 60° F. when it is delivered at the pasteurizing plant. All milk of unknown origin should be included in this class. "No dairy farm should be permitted to supply milk of a higher class than that for which the permit has been issued," though the same man may own and operate more than one dairy farm and be permitted to produce on one of them milk of a higher grade than the permit for another of them authorizes him to do.

THE DOMESTIC FLY.

It is well known to members of the medical profession that the domestic fly is exceedingly active in the transmission of disease, but it is to be feared that the general public has as yet nothing like an adequate appreciation of the fly's pestiferous activity. We are glad, therefore, that at last the lay press has taken the matter up. Last Saturday the *New York Herald* gave its readers an excellent editorial article on the subject. "At no time of the year," says the *Herald*, "is the fly more of a nuisance and a danger than now, and few mortals there are that may not be persuaded to be his sworn enemy anywhere, everywhere, and every time!"

It is doubtful if the fly is of the least use as a scavenger; he drops his load. Having intruded his feet in tuberculous sputum or typhoid fever dejecta or some other noisome and revolting material, he makes haste to deposit a part of his spoils on your butter. He is an unclean creature and he spreads the seeds of pestilence. He is far more of a menace to human health than the mosquito, for he has no restricted repertoire. Both of all sorts is his and

he distributes it industriously; and filth is apt to contain morbid matter. If he would only drown, it would be some consolation, but after prolonged submersion in milk, coffee, or the like he speedily revives and is ready to go at his nefarious work anew, having perhaps in the mean time poisoned the liquid which ought to have done him to death.

It is not alone as a distributor of pathogenic germs that the fly proves inimical to man's health, though doubtless in that capacity he is the most malignant. By his interference with sleep in the early morning hours he unquestionably exerts a lowering effect on the vitality and renders the organism a readier prey to the germs of infectious disease, besides robbing us of that serenity which is essential to good digestion and to proper dealing with the affairs of life. So far as we can see, the fly is an unmitigated nuisance, and we are ready to join in the cry *delenda est musca*.

Obituary.

SENECA D. POWELL, M. D.,
OF NEW YORK.

Dr. Powell, a well known New York surgeon, died at his country home, in Greenwich, Conn., on Saturday, August 24th. He was a native of Alabama, and served in the Confederate army through the civil war. He was recognized as a surgeon of ability, but probably he was most widely known for his demonstration, several years ago, of the action of alcohol as an antidote to carbolic acid.

News Items.

The Children's Seashore House for Invalid Children, at Atlantic City, N. J., held donation day on Tuesday, August 20th.

The Board of Health of Cheltenham Township, Pa., has organized. Mr. Elmer E. Garrett is president, Mr. William H. Murphy secretary, and Dr. M. K. Nieffer is health officer. The other members of the board are Mr. H. B. Harmer, Dr. A. T. Clayton, Mr. John Stahr, and Dr. H. D. Johnson.

Personals.—Dr. M. M. Jones has been elected superintendent of the Georgia State Sanitarium for the Insane, at Milledgeville, to succeed the late Dr. T. O. Powell, whose death occurred on August 10th.

Professor Raphael Blanchard, of the Faculté de médecine de Paris, and editor of *Archives de parasitologie*, who is in the United States attending the seventh international zoological congress, was entertained informally in Newport, R. I., on Wednesday, August 21st, by Dr. H. R. Storer, at his residence on Washington Street. Dr. Henry Ercroft, Dr. Douglas P. A. Jacoby, Dr. Edward V. Murphy, Dr. Henry J. Knapp, and Mr. A. O'D. Taylor, of Newport; Mr. John Storer, of Boston; and Dr. John M. Swan, of Philadelphia, were also present.

Scientific Society Meetings in Philadelphia for the Week Ending September 7, 1907:

Monday, September 2nd, Philadelphia Academy of Surgery; West Philadelphia Medical Association; Northwestern Medical Society.

Wednesday, September 4th, Association of Clinical Assistants of Wills Hospital.

Thursday, September 5th, Obstetrical Society, Medical Society of the Seashore, Dispensary; Northwest Branch Philadelphia County Medical Society.

Friday, September 6th, Kensington Branch Philadelphia County Medical Society.

The Mississippi Valley Medical Association will hold its thirty-third annual meeting at Columbus, Ohio, on October 8, 9, and 10, 1907, under the presidency of Dr. H. Horace Grant, of Louisville, Ky. Dr. George F. Butler, of Chicago, will deliver the address in medicine, and the address in surgery will be given by Dr. Frank D. Smythe, of Memphis, Tenn. The preliminary programme as announced is as follows: Dr. I. A. Abt, Chicago, Ill., Urinary Infections in Children; Dr. Charles J. Aldrich, Cleveland, Ohio, The Psychoses of Pneumonia; Dr. M. A. Austin, Anderson, Ind., The Kidney Surgically Considered; Dr. Carl Beck, Chicago, Ill., Gastric Ulcer; Dr. M. R. Burker, Chicago, Ill., When Should Gastric Ulcer be Treated Surgically? Dr. A. D. Barr, Jersey City, N. J., The Relation of Metabolic Ferments to Metabolism; Especially in Diabetes Mellitus and Tuberculosis; Dr. Charles E. Barnett, Fort Wayne, Ind., Vesicourethral Vaginal Fistula; Dr. J. E. Camadady, Hansford, W. Va., Treatment of Pus Tubes; Dr. T. D. Crothers, Hartford, Conn., The Relation of the Doctor to the Alcoholic Problem; Dr. George B. Evans, Dayton, Ohio, Local Anesthesia vs. General in Anorectal Surgery; Dr. George W. Finley, Brazil, Ind., Gastroenteritis; Dr. Frank W. Gavin, Canton, Ohio, Medical Inspection of Public Schools; Dr. A. E. Halstead, Chicago, Ill., Cancer of the Thyroid Gland; Dr. M. L. Heidingsfeld, Cincinnati, O., Some Clinical and Differential Features of Syphilis, as Demonstrated from Lantern Slides and Wax Models; Dr. Earl Harlan, Cincinnati, Ohio, The Frequent Interdependence of Dislocated Kidney, Gallbladder Trouble, and Appendicitis; Dr. Marc Ray Hughes, St. Louis, Mo., Anomalies of the Stigmata of Degeneracy; Dr. G. Frank Lydston, Chicago, Ill., Plastic Work on the Urethra—A New Operation; Dr. Harold A. Miller, Pittsburgh, Pa., Pregnancy Complicated by Pulmonary Tuberculosis; Dr. J. B. Murphy, Chicago, Ill., Pleuritis and Its Surgical Aspects; Dr. C. M. Nicholson, St. Louis, Mo., Primary Abdominal Pregnancy; Dr. Curran Pope, Louisville, Ky., The Value of Physiotherapeutic Methods in Chronic Diseases; Dr. D. C. Payton, Jeffersonville, Ind., Tuberculosis of the Bones of the Feet, with Its Treatment; Dr. Charles A. L. Reed, Cincinnati, Ohio, Important but Frequently Disregarded Clinical Phases of Movable Kidney; Dr. Merrill B. Ricketts, Cincinnati, Ohio, Treatment of Stump in Appendectomy; Dr. H. H. Roberts, Lexington, Ky., Gastric Ulcer; Dr. Albert E. Sterne, Indianapolis, Ind., Radical and Palliative Operations for Cerebral Hemorrhage; Dr. Mark D. Stevenson, Akron, Ohio, Purulent Conjunctivitis in Infants and Adults; Dr. George P. Sprague, Lexington, Ky., Drug Addictions; Dr. George B. Twitchell, Cincinnati, Ohio, Internal Rotation and Lacerations of the Perineum; Dr. Frank B. Walker, Detroit, Mich., Treatment of Inguinal Hernia in Children; Dr. Edwin Walker, Evansville, Ind., What We Can Not Do with Purgatives; Dr. A. U. Williams, Hot Springs, Ark., Some Cases of Reinfection with Syphilis; Dr. C. E. Briggs, Cleveland, Ohio, Volvulus of the Entire Mesentery of the Small Intestine, with Report of a Case; Dr. Sanger Brown, Chicago, Ill., Medicolegal Notes; Dr. J. Rawson Pennington, Chicago, Ill., The Sigmoidal Factor in Pelvic Diseases; Dr. Bernard Asman, Louisville, Ky., Cancer of the Rectum; Dr. Robert C. M. Lewis, Marion, Ohio, Neuroses of the Bladder; Dr. Hugh F. Lorimer, Chillicothe, Ohio, The Early Diagnosis of Gallstones.

The International Congress on Tuberculosis.—The next International Congress on Tuberculosis will be held in Washington, D. C., from September 21 to October 12, 1908. The scientific work of the congress will be done in seven sections: First, the Section on pathology and bacteriology, Dr. William H. Welch, of Baltimore, president. Second, the section on the clinical study and therapy of tuberculosis, Dr. Vincent Y. Bowditch, of Boston, president. Third, the section on surgery and orthopaedics, Dr. William H. Mayo, of Rochester, Minn., president. Fourth, the section on tuberculosis in children, ætiologie, prevention, and treatment, Dr. Abraham Jacobi, of New York, president. Fifth, the section on hygienic, social, industrial, and economic aspects of tuberculosis, Mr. Edward T. Devine, of New York, president. Sixth, the section on state and municipal control of tuberculosis, Surgeon General Walter Wyman, president. Seventh, the section on tuberculosis in animals and its relation to man, Dr. Leonard Pearson, of Philadelphia, president.

The work of the sections will be done between September 28th and October 3rd, and during that week there will be two general meetings. The tuberculosis exhibition will be open during the entire three weeks of the congress, and a course of special lectures by distinguished foreigners and special clinics and demonstrations will be held.

The papers announced on the official programme will be printed in advance in German, French, and English, and will be distributed on the day of their presentation.

A prize of \$1,000 is offered for the best evidence of efficient work by any voluntary association since the international congress of 1905. Other prizes will be offered for the best exhibits on some, if not all, of the following subjects:

- (1) Objects useful in the crusade against tuberculosis (sanatoria, hospitals, dispensaries, educational bureaus).
- (2) Laws and ordinances for the prevention of tuberculosis.
- (3) Pathological exhibit. (4) Furnished dwellings for the poor. (5) Hotels. (6) Factory or workshop. (7) Sanatorium for wage-earners. (8) Dispensary for poor consumptives.

There will be two classes of members: *Active*, who pay a fee of five dollars, have all privileges of membership, and receive the published translations; and *Associate*, who pay a fee of two dollars and a half, do not vote, and do not receive the published translations.

The National Association for the Study and Prevention of Tuberculosis has created a special committee on the international congress, which is composed of the following members: Dr. Lawrence F. Flick, Philadelphia, chairman; Mr. Henry Phipps, New York, treasurer; Miss Jane Adams, Chicago; Mr. William H. Baldwin, Washington; Mr. Ernest P. Bicknell, Chicago; Dr. Hermann M. Biggs, New York; Dr. Frank Billings, Chicago; Dr. Vincent Y. Bowditch, Boston; Mr. E. T. Devine, New York; Mr. Livingston Ferrand, New York; Mr. John M. Glenn, New York; Dr. James C. Greenway, Greenwich, Conn.; Dr. Charles J. Hatfield, Philadelphia; Dr. Abraham Jacobi, New York; Dr. George M. Kober, Washington; Dr. Lawrence Litchfield, Pittsburgh; Dr. William J. Mayo, Rochester, Minn.; Dr. Alfred Meyer, New York; Mrs. James E. Newcomb, New York; Dr. Leonard Pearson, Philadelphia; Dr. George M. Sternberg, Washington; Dr. E. L. Trudeau, Saranac Lake, N. Y.; Dr. Victor C. Vaughan, Ann Arbor, Mich.; Dr. Joseph Walsh, Philadelphia; Dr. William H. Welch, Baltimore; and Surgeon General Walter Wyman, Washington.

The secretary-general is Dr. John S. Fulton, 810 Colorado Building, Washington, D. C., to whom all correspondence should be addressed.

The Seventh Triennial International Zoological Congress was held in Boston, Mass., August 19th to 24th. The sessions of the congress, except the general meetings, were held in the buildings of the Harvard Medical School. On Monday, August 19th, there was an informal assembly of the members and delegates in the morning. The first general meeting was held in the afternoon in Jordan Hall, New England Conservatory of Music, at which Professor R. Hertwig, of Munich, delivered an address on the Newer Problems of Cell Research. The second general meeting was held on Wednesday afternoon, at which Sir John Murray, of the Challenger expedition, delivered an address on the Physical and Chemical Conditions that Affect Marine Animals. At the third general meeting, held on Friday, Professor W. K. Brooks spoke on the question, Are Heredity and Variation Facts?

The scientific business of the congress was transacted in the following sections: Animal behavior; comparative anatomy; comparative physiology; cytology and heredity; embryology and experimental zoology; paleozoology; systematic zoology; zoogeography and thalassography; and entomology and applied zoology.

The following addresses were delivered: In the section of comparative anatomy, by Professor J. P. McMurich, of the University of Toronto, on the Problem of the Vertebrate Head in the Light of Comparative Anatomy. In the section on comparative physiology, by Professor Jacques Loeb, of the University of California, on the Chemical Character of the Process of Fertilization. In the section on cytology and heredity, by Professor C. E. McClung, of the University of Kansas, on Cytology and Taxonomy, and by Professor W. Bateson, of the University of Cambridge, on the Factors Limiting the Theory of Heredity. In the section on embryology, by Professor A. A. W. Hubrecht, of

the University of Utrecht, on the Larval Envelopes and Fetal Membranes in Vertebrate Embryos; by Professor W. Roux, of the University of Halle, on Can We Determine the Method of Action of the Typical Forces of Development? and by Professor H. Driesch, of the University of Heidelberg, on the Stimuli of Restitutions. In the section in entomology and applied zoology, by Dr. G. Horvath, director of the Zoological Department of the Hungarian National Museum, on the Relations Between the Hemipterological Fauna of Europe and North America; and by Dr. L. O. Howard, of the United States Department of Agriculture, Bureau of Entomology, on the Recent Progress and Present Condition of Economic Entomology. In the section on general zoology, by Professor C. O. Whitman, of the University of Chicago, on the Problem of Organic Development. In the section on paleozoology, by Professor C. Depéret, of the University of Lyons, on the Migrations of the Tertiary Fauna Between Europe and America. In the section on systematic zoology, by Professor T. Gill, of the Smithsonian Institution, on Systematic Zoology: Its Place and Functions. In the section on zoogeography and thalassography, by Dr. R. F. Scharff, of the Dublin Museum, on the Evolution of Continents as Illustrated by the Geographical Distributions of Existing Animals.

The social features of the congress were, as is usual in Boston, admirable in their varied extent and in the manner of their execution. The Boston local committee served luncheon every day. There was a reception at the Art Museum, on Monday evening, and Professor Alexander Agassiz, the president of the congress, gave a reception at the Hotel Somerset on Wednesday evening. There were excursions to the Arnold arboretum, to the Peabody Academy of Science, to Wellesley, to Quincy, and to various other places of historic interest in Boston and vicinity. A tea was given to the ladies by Miss Wheelock, 134 Newberry Street, on Monday.

Saturday was Harvard University Day. After an assembly in Sanders Theatre, the members of the congress inspected the museum of comparative zoology, were guided through the college grounds, and visited the Longfellow house and Radcliffe college. Luncheon was served at the Harvard Union by the University corporation, and tea was served at the Elizabeth Cary Agassiz house.

In addition to the scientific meetings and the excursions in and about Boston, many of the members of the congress visited the station of the United States Bureau of Fisheries and the Marine Biological Laboratories at Woods Hole, Mass., on Sunday, August 25th. Monday, August 26th, was spent at Columbia University, New York; Tuesday at the American Museum, New York; Wednesday at the Marine Laboratory of the Brooklyn Institute of Arts and Sciences and at the Carnegie station for experimental evolution at Cold Spring Harbor; Thursday at the New York Aquarium and the Zoological Park. Trips up the Hudson to West Point and to Yale and Princeton Universities have been arranged for.

Monday and Tuesday, September 2nd and 3rd, will be spent in Philadelphia. There will be a luncheon at the Academy of Natural Sciences, a visit to the Zoological Gardens, and a drive through Fairmount Park, terminating with the supper at the Philadelphia Country Club. Other points of interest about Philadelphia will be visited, including the rooms of the American Philosophical Society, and the University of Pennsylvania.

On Wednesday, September 4th, the delegates and members will be received in Washington at the Cosmos Club, where addresses will be given by the secretary of the Smithsonian Institution, the president of the Carnegie Institution, and the president of the Washington Academy of Sciences. The various points of interest in Washington will be visited: The National Zoological Park, the United States Department of Agriculture, and the Hygienic Laboratory of the United States Public Health and Marine Hospital Service. Excursions have been arranged to Mount Vernon and to Indian Head. Other trips have been suggested to Bermuda and to Niagara Falls.

At the same time that the meetings of the congress were being held in Boston the committee on scientific nomenclature held sessions under the presidency of Professor Raphael Blanchard, of the Faculté de médecine de Paris, editor of *Archives de zoologie expérimentale et appliquée*. The Entomological Society of America was also in session.

Among the distinguished foreigners present, in addition to those whose names have already been mentioned, were S. Apáthy, of Klausberg; L. von Graff; G. Osawa, of Japan;

S. Metalnikoff; A. Mrázek; N. Yatsu, of Japan; J. W. Van Wijhe; A. Maas, of Munich; G. Koshevnikov, of Russia; C. Gravier; C. F. Rousselet; and K. Derjugin.

The Boston local committee, to which much praise is due for the management of the congress, was composed of the following ladies and gentlemen: Mr. George H. Agassiz, Dr. C. L. Alsberg, Dr. A. E. Austin, Mr. F. W. Balch, Mr. Thomas Barbour, Dr. Henry B. Bigelow, Dr. R. B. Bigelow, Miss M. A. Bowers, Dr. J. L. Bremer, Mr. William Brewster, Dr. W. B. Cannon, Professor W. E. Castle, Dr. H. L. Clark, Dr. W. T. Councilman, Professor H. B. Dixon, Dr. Thomas Dwight, Dr. C. R. Eastman, Reverend S. A. Eliot, Mr. J. H. Emerton, Dr. H. C. Ernst, Dr. Walter Faxon, Dr. G. W. Field, Mr. W. L. W. Field, Dr. E. G. Gardner, Mr. Samuel Garman, Dr. B. I. Gilman, Dr. W. W. Goodwin, Mr. J. D. Greene, Dr. Charles Harrington, Professor C. F. Hodge, Professor Theodore Hough, Dr. Agnes Irwin, Professor R. T. Jackson, Mr. W. A. Jeffries, Mr. C. W. Johnson, Professor J. S. Kingsley, Miss Mary Kingsley, Mr. A. H. Kirkland, Dr. F. T. Lewis, Professor E. L. Mark, Professor A. D. Mead, Mr. Lawrence Minot, Professor C. S. Minot, Miss Susan Minns, Mrs. S. J. Mixer, Miss Marie Ada Molineaux, Professor E. S. Morse, Professor G. H. Parker, Miss Jane Patten, Dr. Francis W. Palfrey, Dr. John C. Phillips, Professor W. T. Porter, Dr. F. H. Pratt, Professor S. C. Prescott, Professor F. W. Putnam, Dr. H. W. Rand, Mr. John Ritchie, Mrs. E. H. Richards, Mrs. James B. Richardson, Miss Alice Robertson, Professor A. L. Roth, Professor C. S. Sargent, Professor W. T. Sedgwick, Dr. P. G. Stiles, Dr. Theobald Smith, Dr. M. V. Zyrode, Mr. W. Lyman Underwood, Dr. H. P. Walcott, Mrs. Robert A. Ware, Dr. John C. Warren, Mr. E. R. Warren, Mrs. Barrett Wendell, Professor A. W. Wyss, Mrs. H. M. Whitney, Dr. W. F. Whitney, Professor M. A. Wilcox, Miss Dora Williams, Dr. L. W. Williams, Professor C. E. A. Winslow, Mrs. C. E. A. Winslow, Dr. W. McM. Woodworth, and Dr. R. M. Yerkes.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending August 24, 1907:

	August 24.		August 17.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	153	17	68	13
Smallpox.....	2	0	0	0
Varicella.....	7	0	0	0
Measles.....	170	14	175	11
Scarlet fever.....	98	9	97	5
Whooping cough.....	16	14	18	18
Diphtheria.....	196	22	201	21
Tuberculosis pulmonalis.....	353	119	354	147
Cerebrospinal meningitis.....	10	8	5	9
Totals.....	1,003	227	926	224

Statement of Mortality of Chicago for the Week Ending August 17, 1907, compared with the preceding week and with the corresponding week of 1906. Death rates computed on United States Census Bureau's figures of mid-year population—2,107,620 for 1907, 2,049,185 for 1906:

	Aug. 17, 1907.	Aug. 10, 1907.	Aug. 18, 1906.
Total deaths, all causes.....	670	646	531
Annual death rate in 1906.....	19.58	15.98	15.52
By sex.....			
Males.....	384	362	300
Females.....	286	283	231
By age.....			
Under 1 year of age.....	234	211	171
Between 1 and 5 years of age.....	75	78	52
Between 5 and 20 years of age.....	42	32	45
Between 20 and 60 years of age.....	194	236	182
Over 60 years of age.....	125	89	81
By cause of death.....			
Infectious.....	7	10	4
Infectious diseases.....	38	47	15
Infectious diseases.....	11	9	19
Infectious diseases.....	37	63	24
Infectious diseases.....	25	30	24
Infectious diseases.....	14	13	8
Infectious diseases.....	2	6	1
Infectious diseases.....	44	39	24
Infectious diseases.....	0	1	0
Infectious diseases.....	197	176	125
Infectious diseases.....	19	27	2
Infectious diseases.....	11	28	7
Infectious diseases.....	8	13	7
Infectious diseases.....	0	6	0
Infectious diseases.....	0	1	0
Infectious diseases.....	18	19	0
Infectious diseases.....	17	33	4
Infectious diseases.....	11	3	0
Infectious diseases.....	135	129	124

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

August 27, 1907.

1. Torticollis. The Results of the Treatment of Cases of Acquired and Congenital Muscular Torticollis at the Boston Children's Hospital since 1879, By E. H. BRADFORD.
2. A Search for a Suitable Climate, By SAMUEL A. FISK.
3. A Study of Seven Hundred and Fifty Fractures of Long Bones of the Lower Extremity, with Special Reference to the Cause of Delayed Union, By LUTHER G. PAUL.
4. Habit Cure. Mental and Physical, By JOHN WARREN ACHORN.

1. Torticollis.—Bradford presents the following conclusions in regard to the treatment of torticollis as justified by the experience obtained at the Children's Hospital of Boston in the last twenty-eight years: The total number since 1879 was ninety cases, seventy-two of which were operated in. Of these seventy-two the causes were forty-three congenital, one rheumatic, three traumatic, three cervical abscess, four instrumental labor, one hematoma, one post influenza, one post measles, and fifteen not ascertained. His conclusions are: Congenital or acquired muscular torticollis may be cured. An open incision, with complete division of the two heads of origin of the sternocleidomastoid muscle, is all that is necessary, except in unusual cases. The horizontal incision below the clavicle in the line of the skin cleavage is the best to use, in that it gives adequate room and also gives the best cosmetic results. Plaster of Paris is the easiest applied, holds the head in the corrected position, and allows ambulatory treatment, and is therefore the best immediate dressing. The plaster cuirass should be worn not longer than two months. The Buckminster-Brown brace, Thomas collar, or wire collar should be worn for an average of four months following the removal of the cuirass. It is best to operate on cases between the ages of two and twelve years, to insure a good result, and prevent permanent bony deformity of the face and head.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

August 24, 1907.

1. The Opsonic Index and the Tuberculin Test in Diagnosis and Treatment of Early Tuberculosis in Children, By THOMAS MORGAN ROTCH and CLEVELAND FLOYD.
2. The Diagnosis of Anemia, By RICHARD C. CABOT.
3. The Treatment of Anemia, By S. J. MELTZER.
4. Staining of Pure Fats and Lipoids by Scharlach R and Sudan III, By LEON K. BALDAUF.
5. The Method of Determining the Total Amount of the Faecal Bacteria by Weight, and Its Clinical Significance, By J. DUTTON STEELE.
6. Diffuse Carcinoma of the Stomach, Esophagus, and Duodenum, By HENRY A. CHRISTIAN.
7. The Diagnosis of Kidney Insufficiency and the Treatment of Uremia, By OLIVER T. OSBORNE.
8. The Physician and the Newspaper, By E. E. MUMGER.
9. The Operation of Gastrojejunostomy and Its Physiological Effects, By HERBERT J. PATERSON.
10. Anatomy of the Palate, Normal and Cleft, By TRUMAN W. BROPHY.
11. What Should Be the Attitude of the Profession Toward the Hygiene of School Life? By RICHARD COLE NEWTON.
12. The State Control of Inland Waters, By H. M. BRACKEN.
13. Stream Pollution and Its Prevention, By X. G. GOODNOUGH.
14. Sewage Purification by Septic Tank and Chemical Precipitation, By GEORGE T. MOORE.
15. Factors in the Production of Coagulation Necrosis, By D. H. BERGEY.
16. The Pathology of Middle Ear Suppuration, By HENRY OLIVER REIK.

1. The Opsonic Index and the Tuberculin Test.—Botch and Floyd think that the early diagnosis of tuberculosis in children is more important to-day than ever before on account of the increased facilities for a cure and the possibility in this stage of preventing the spread of the disease, and also because a quiescent process may be prevented from becoming an active one. Tuberculin is a valuable diagnostic agent in early tuberculosis, but when not used properly is dangerous, and in inexperienced hands may bring disaster. The opsonic index may be of great aid in the early recognition of tuberculosis, especially when tuberculin cannot be given on account of temperature or prostration. The use of the opsonic index may give some indication for the control of the dose of tuberculin used for diagnosis as well as for its therapeutical effects.

2. The Diagnosis of Anæmia.—Cabot observes that in the diagnosis of anæmia it is essential to take account of all the facts in the case. The ætiological factors and the data of general physical diagnosis are as important as the hæmatological findings. Especially is this true in the types of anæmia known as secondary. There are but two important types of anæmia, if we are to distinguish by blood examination alone. To the first type (the small cell type) belongs the anæmias secondary to hæmorrhage, malaria, nephritis, and other diseases which lead to increased destruction of red corpuscles. So far as the blood picture is concerned, chlorosis is identical with the types just mentioned. It is distinguished wholly by the absence of ætiological factors and by the age and sex of the patient. Pernicious anæmia usually, but not invariably, can be recognized by the blood picture alone. If the data of blood examination are combined with those obtained by a careful history of physical examination the diagnosis is one of the clearest and surest in medicine. The most important single fact in the blood examination is the great reduction in red corpuscles, with a relative increase in the amount of hæmoglobin per corpuscle (large cell type of anæmia). The parasitic anæmias are not always to be recognized by blood examination, but present no difficulties of diagnosis if the eggs of the responsible parasites are sought. Myelophthisic anæmia is easily recognized by the evidences of its cause and offers no difficulties in diagnosis.

4. Staining of Pure Fats and Lipoids by Scharlach R and Sudan III.—Baldauf concludes that the so called prote'd soap compound of Klotz is not a true chemical combination, but a mixture made up mainly of fatty acids with small amounts of calcium soaps and globulin. Sudan III and Scharlach R stain substances of fatty nature only when they are in fluid or semifluid. As oleic and butyric acid, triolein, tributyrin and lecithin are in this state at room temperature, they form a group to which must be limited the application of microchemical methods.

9. The Operation of Gastrojejunostomy and Its Physiological Effects.—Paterson states that a certain amount of bile and pancreatic juice enters the stomach after gastrojejunostomy, but the amount is small and has no injurious effect. The acidity of the gastric contents is markedly diminished, usually about 30 or 35 per cent. This is due partly to a diminution of the total chlorides secreted, and partly to the partial or complete neutralization of the free hydrochloric acid by the duodenal bile and pancreatic juice, and probably also to earlier stimulation of the pancreatic secretion, and compensatory earlier fall of the gastric secretion. In gastric ulcer cases the removal of anæmic tendencies of the pylorus likewise tends to diminish the total acidity. Gastric digestion is unimpaired but not lost after gastrojejunostomy. The motility of the stomach, if normal before operation, is for practical purposes unimpaired. Gastrojejunostomy is, therefore, not a dramatic operation. Its beneficial effects on gastric ulcer

are due to the diminution of the acidity of the gastric contents. Gastrojejunostomy has no material effect on the metabolism of the human body, the percentage of nitrogen and fat absorbed being within the limits observed in individuals who are apparently healthy. This chemiopathological evidence is supported by evidence of clinical experience.

10. Anatomy of the Palate, Normal and Cleft.—Brophy says that the causes of congenital cleft palate are: (1) Heredity; and (2) mechanical force exerted by the lower jaw against the upper jaw in embryo. In congenital cleft palate in young infants, the full amount of tissue is developed to form a normal palate; the defect is due to failure of union. General debility of the mother in early months of gestation may be a factor, prenatal impressions possibly, but evidence is not conclusive. The treatment should consist in closing the separated bones within three months after birth, when the bones are soft and easily bent and moved into correct position. The hard palate should be closed before the lip operation. The lip operation should follow within three months after the bones have been united. The soft palate to be operated on last, preferably when the patient is about fourteen to sixteen months old.

12. The State Control of Inland Waters.—Bracken reviews the State laws referring to the control of inland waters. The subject of pollution of streams was thoroughly discussed at the conference of State and Territorial Boards of Health with Surgeon General Wyman at Washington, May 23, 1906. In response to a roll call of States represented at this conference the condition in the various States is shown as follows: Colorado, State board has control; Delaware, State board has control; District of Columbia, health department has no control; Florida, only advisory powers; Kansas, only advisory powers; Louisiana, no control; Maine, no control; Maryland, no control; Massachusetts, State board has control; Michigan, no legal control; Minnesota, State board has control; Missouri, no control; Nebraska, no control; New Jersey, State has control, but only partially under State Board of Health; New York, State health department has control; North Carolina, advisory control only; North Dakota, no control; Ohio, State board has control; Porto Rico, State board has control; Rhode Island, has control over water supplies but not over sewage disposal; Tennessee, no control; Utah, no control; Vermont, State board has control; Virginia, no control; Washington, no control; Wisconsin, State board has control. From this review of conditions in various States it will be seen that provisions for the protection of inland waters is nothing new. The question involved at the present time is whether such protection shall be through civil action or criminal prosecution. The general trend seems to be to place the protection of such waters under the control of sanitary authorities, and to anticipate in their protection rather than to wait until pollution has taken place before action is begun.

13. Stream Pollution and Its Prevention.—Good-nough observes that all streams which drain populated areas are affected in a greater or less degree by the wastes of human life and industry, the effect of which may be said in general to be proportional to the density of the population within the watershed. This rule is subject to many exceptions, since it makes a great difference whether sewage is discharged into a stream directly or finds its way there only after passing through the soil. Manufacturing wastes also may greatly injure the condition of a stream, especially by diffusing sewage, and such wastes often cause the direct and indirect trouble in the most seriously polluted streams. In general the discharge of wastes into a stream tends to be also considerable of the flow of the stream, during the direct season, seasonally, or so much as are called the dry season, in the town to be sewered. Good-nough

smaller dilution may not be objectionable in some cases where the stream is unaffected by other wastes. On the other hand, an allowance must necessarily be made in most cases for the growth of the town and an increase in the quantity of sewage; and it is not usually desirable to allow the discharge of sewage into a stream at all unless the dilution is somewhat greater than the amount indicated. Other conditions also may have a material and perhaps a decisive influence in determining whether the sewage of a given town may be discharged into a stream or not.

14. Sewage Purification by Septic Tank and Chemical Precipitation.—Moore remarks that while the number of chemical combinations and devices for using them in treating sewage are too numerous to mention, practically the only ones used on a large scale at the present time are those depending on lime, with either sulphate aluminum or iron sulphate as precipitants. In this country iron sulphate with lime is used almost exclusively. That a satisfactory effluent can be obtained by properly treating sewage with chemical precipitants has never been denied. By using a sufficient amount of lime and iron sulphate and allowing proper time for sedimentation the resulting effluent is usually all that could be desired. All odors and tastes are removed, and by combining the use of copper sulphate or chloride of lime the samples taken have been found to be free from colon bacilli and all similar organisms. The chief and most serious objection to any chemical precipitation method has been the cost. For, in addition to the original cost of the chemicals, the disposal of the resulting sludge adds considerably to the expense of the operation. In some instances the wastes may run as high as fifty tons per million gallons of sewage, although in many cases it is not more than half this amount. While it is true that a very large percentage of the sludge is water, it requires considerable time and money to get the water out, and the "press cake" is at present of little if any value. When some one devises a profitable use for the sludge from chemical precipitation the chances are that the method will be more widely employed. But the septic tank under ordinary conditions where there are no trade wastes calculated to retard bacterial action, is well suited to remove a considerable percentage of the suspended matter in sewage. It requires a small amount of space, can be cheaply operated, and the difficulty of disposing of the stored matter can probably be readily overcome. There seems to be no reason why careful attention to the time sewage is in the tank, with probably some minor changes in construction, should not enable such a system to run for years without being cleaned. The septic tank should not, however, be considered in itself a complete method of properly disposing of sewage, but should be followed by some process which will expose the effluent to further bacterial action in order that the result be what it should.

MEDICAL RECORD.

August 24, 1907

1. Landmarks in the Biliary and Pancreatic Ducts; Physiological, Anatomical, and Pathological.

By BYRON ROBINSON.

2. Report of Two Hundred Charity Cases of Pulmonary Tuberculosis Under Sanatorium Treatment at Los Angeles, From 1903 to 1907. By W. JARVIS BARLOW.

3. The Local Treatment of Cancer. By ROBERT BELL.

4. Perforating Gunshot Wounds of the Pleura and Lung. By HENRY ROTH.

5. The Modern Therapy of Cystitis.

By MARTIN W. WARE.

6. The Difference of the Middle Ear. By ALBERT BARDES.
7. The Relationship Between Chorea Minor and Tic. By WILLIAM W. GRAVES.

2. Report on Two Hundred Charity Cases of Pulmonary Tuberculosis Under Sanatorium Treatment at Los Angeles from 1903 to 1907.—Barlow describes the

methods adopted at the Los Angeles sanatorium, and says that running a sanatorium in this way does not make as favorable a report as a statement made from one where only early cases are admitted; but from the humanitarian standpoint and in view of the campaign against the spread of tuberculosis his report will, to its favor, bear critical investigation. That 46.2 per cent. of the advanced and far advanced clinically recorded, or second and third stages anatomically, could, after being entirely incapacitated, so improve as to go home, resume their duties, and many become wage earners, is worthy of recognition. The subsequent history of these will be interesting for a later day. Many are known to have become worse and died, some are living in tents in the country, others after six to twelve months are still doing light work for an existence. The great difficulty lies in the fact that many of these patients must necessarily return to their wretched surroundings and life of privation. If, on the other hand, this difficulty could be removed and the same patients kept under proper supervision with sufficient means for their care many could go on and reach an arrested condition. If financial conditions and housing capacity enabled us to give these patients indefinite sanatorium treatment, the ultimate results would seem to justify the care of these undesirable cases.

4. Perforating Gunshot Wounds of the Pleura and Lung.—Roth thinks that gunshot wounds of the pleura and lung, caused by small calibre projectiles, are comparatively benign injuries. Conservative treatment is the best prophylactic against sepsis, and is the *sine qua non* of success. Only the exceptional cases require active interference. Care of the wound of entrance and exit, and the treatment of the primary symptoms, will demand immediate attention. Transportation should be avoided, but if unavoidable it should be done quickly and with the utmost care. Examination with a probe or finger has been the cause of many mishaps; it is useless and should be scrupulously avoided. If bleeding is not profuse, the external wound and surrounding area should be thoroughly cleansed, under the strictest aseptic precautions, and protected with a sterile gauze dressing, held in position by strips of adhesive plaster. The patient should then be turned on his side, to locate the wound of exit; this, when present, should be dealt with similarly to the wound of entrance. Should the bullet be felt under the skin, it may be removed at once or at some later time; but search for it, unless it is within easy reach, is to be avoided. The chest should be immobilized with a tight bandage, adhesive plaster, or plaster of Paris. The patient should be placed on his back, with the head raised, and absolute rest, both physical and mental, provided for. A hypodermic injection of morphine will relieve the distressing cough and allay fear and anxiety. If the patient is very much prostrated, saline enemata or hypodermoclysis will prove of great benefit. Oxygen may be of value in alleviating dyspnoea. Ordinarily, nothing more is necessary. The patient reacts from the shock, the dyspnoea and cough subside, and recovery takes place without any complications. This may occur even where the primary symptoms are very alarming, and it is best not to be in too great haste to interfere. As it is very difficult in the beginning to judge of the gravity of the injury, constant and careful observation is very important. Immediate surgical interference may be demanded by very profuse external or internal bleeding and the resulting anaemia and asphyxia. In gunshot wounds external bleeding is rarely marked, but if present, it may be continuous or intermittent. It may be caused by injury of an intercostal artery, which may necessitate exploring of the wound, followed by ligature or tamponing. The bleeding point may be ligated by dividing and separating the periosteum from the lower and inner surface of the rib and passing a ligature on a

curved needle around the artery. At times, resection of the overlying rib may be necessary. Injury of the internal mammary artery will demand double ligation, above and below the wound. This will require a horizontal incision between the costal cartilages, about a finger's breadth from the sternal margin. If the hemorrhage is from the large vessels of the lung the patient will die before active measures can be adopted. Where hemorrhage is very alarming, but not rapidly fatal, thoracotomy may be necessary. Hernia of the lung, if present and recent, should be replaced at once.

6. Tuberculosis of the Middle Ear.—Bardes states that a positive diagnosis of tuberculosis of the middle ear can be made only by finding the tubercle bacilli in the aural discharge, or better still in the granulation tissue of the middle ear. It is difficult to find the tubercle bacilli in a well established aural discharge for the reason that a pyogenic infection usually becomes engrafted upon a tuberculous, and the organisms of the former process multiply with such rapidity that they soon predominate over the tuberculous to such an extent that the finding of the tubercle bacilli becomes a matter of uncertainty and difficulty. The tubercle bacilli are more apt to be found in the residual discharge of the middle ear than in that which escapes from the ear. Whenever the germs cannot be demonstrated in the discharge or in the tissues of a suspected tuberculous ear, the debris should be injected into the peritoneal cavity of a guinea pig, and if tubercle bacilli are present the animal soon develops tuberculous peritonitis. The treatment is that of the disease in general, and is both prophylactic and active. Seen in the early stage, and before the destruction is well under way, a great deal can be accomplished by removing as much as possible of the diseased tissue and encouraging the sluggish granulations to a healthy reaction. Free drainage is essential, and to secure it it may be necessary to convert the small perforations into one large opening. By this procedure the diseased area can be stimulated and often made to heal by the application of a 5 per cent. solution of lactic acid or a 10 per cent. solution of chromic acid. In stubborn cases the curette should be used to remove the softened mass of tuberculous tissue, and then the part should be dusted with iodoform. Irrigations should be employed as sparingly as possible, a solution of lysol 1 to 200 being the best.

BRITISH MEDICAL JOURNAL

August 10, 1907

1. The Progress of the Medical Man, By F. TAYLOR.
2. The Occurrence of Epileptoid Attacks in Tachycardia and Bradycardia, By F. H. CLARKE.
3. Bilateral Lesion of the Auditory Cortical Centre: Complete Deafness and Aphasia, By F. W. MOTT.
4. The Prevention of Valvular Disease, By R. CATON.
5. Theory and Technique of Orthodiagraphy: A Demonstration, By P. C. FRANZ.
6. A Case of Depression of Parietal Bone in a Newly Born Infant: Trephining on the Twelfth Day. Recovery, By I. NEWTON.

2. Cardiac Epileptoid Attacks.—Clarke states that attacks of tachycardia or bradycardia may last for hours, days, or weeks. After a variable interval the heart tends to become exhausted, and irregularity occurs—in short, heart block takes place. Stops are felt in the radial pulse, and concurrently nervous symptoms arise which vary from the slightest feelings of sparks flashing before the eyes or the waving of a sheet before the patient, to severe epileptiform convulsions, with loss of consciousness. Yet such attacks are most certainly not epileptic. From his study of such cases the writer concludes that tachycardia is a pure neurosis, characterized by a great increase in auricular contractions from disturbed nervous influences. After a time, from over exertion fatigue of conductivity of the band of His occurs; missed impulses result, causing longer

or shorter delays in the ventricular contraction. When these delays are sufficiently prolonged, cerebral anæmia is caused, followed in due course by the nervous symptoms described. Tachycardia being a neurosis, it is, like other neuroses, commonly recovered from. The condition may persist for years, and recovery may be complete, or relapses may take place from time to time. In bradycardia we cannot be so hopeful, the ventricular pauses being due to serious structural changes in the band of His. Sclerosis of the vessels, fatty degeneration of the fibres, and an abnormal increase of fibrous tissue in the bundle have all been found. The condition is never recovered from, and the chances of sudden death from prolonged cessation of the ventricular contraction should not be forgotten. Life in true bradycardia is rarely prolonged for more than three or four years. As regards treatment, rest, both physical and mental, so far as possible, is of the greatest importance. The head should be kept low and the foot of the bed raised. Any deviation from health, such as indigestion, constipation, gout, rheumatism, etc., should be attended to. Massage may also be employed. Bromides have no effect in tachycardia, either in lowering the pulse rate or in controlling the fits. Nerve tonics, such as valerianate or oxide of zinc, seem to do good. Strychnine, atropine, and alcohol are better avoided. In bradycardia strychnine hypodermically, with heart tonics such as digitalis or strophanthus, are sometimes helpful. Potassium iodide apparently brought about recovery in one case.

4. Prevention of Valvular Disease.—Caton holds that in cases of recent cardiac lesion, due to rheumatism and other causes, much may be done to promote recovery, providing the patient and doctor have patience and perseverance. In acute rheumatism and most of the pathological states in which valvulitis occurs, we can secure a large measure of rest and of the conditions favorable to heart repair, if we take sufficient trouble. Pain and fever are lessened by the use of adequate doses of some salicyl compound, if acute rheumatism be the cause, or if it be not, by other appropriate measures; the utmost quiet and rest, both of body and mind, is insisted on; a light diet is given; if there is not enough sleep, a gentle sedative. Full doses of sodium or potassium iodide are given, three or four times a day, with two objects: (1) To aid absorption; and (2)—of much more importance—to lessen the volume of the blood and diminish blood pressure within the circulatory system, just as we give it in aneurysm. Secondly, there are certain nerve channels through which, in all probability, we can directly influence and stimulate the vasomotor nerves of the heart without exciting the muscle fibres—namely, the first four dorsal nerves in their distribution between the clavicle and the nipple. These nerves are closely associated with the heart, as shown by the phenomena of angina pectoris. Small disks of cantharides plaster, which blister almost painlessly in three or four hours, are applied here one by one. The effect of the first group of measures is to slow the heart and diminish its amount of work as far as it can be done. The organ is given the greatest amount of work that is practicable, and is offered the opportunity of self cure. The second measure stimulates the curative activity of the part, just as in a rheumatic joint a small blister removes with great rapidity both pain and inflammation. Of the two measures of treatment, the prolonged period of rest is by far the most important; without that, the other is of small avail. The rest must continue for six or eight weeks, or even longer. By degrees the cardiac murmur lessens, becomes intermittent and at length vanishes. The patient rises from his bed without any murmur and with the immense blessing of a normal heart for the rest of his life.

5. **Orthodiagraphy.**—Franz describes a method of clinical examination on which is called orthodiagraphy, and which serves to determine with accuracy the outlines of the heart by x rays. Its theory is as follows: If a source of light casts a shadow of an object on a plane surface (called the plane of projection), two different kinds of projection must be distinguished: 1. The rays are parallel and the size of the shadow is equal to that of the object. Such is only the case with sun rays. 2. The central projection, where the rays are divergent, and the shadow is magnified. Of the x rays emanating from a vacuum tube there is one that is perpendicular to the plane of projection. A pencil is rigidly fixed to the tube, so that it marks where that ray falls. If now the heart be outlined with that ray, the pencil will correctly mark such outline. The writer describes the apparatus used, and the measurements and calculations to be carried out in order to obtain information as to the general size and position of the heart.

LANCET.

August 10, 1907.

1. General Surgical Anesthesia (III). By F. W. HEWITT.
2. Experimental Researches on Specific Therapeutics (III). By P. EHRLICH.

3. Bodily Posture and Cardiac Physical Signs. By W. GORDON.

4. Further Researches Into the Etiology of Carcinoma: Note Upon Certain Histological Features of Carcinomatous Tumors Revealed by an Improved Ammonio-Silver Process.

By W. F. ROBERTSON and M. C. W. YOUNG.
5. A Study of the Conditions Producing the Anomalous Reaction Not Infrequently Met With on Testing Urine for Sugar with Fehling's Solution. (III).

By F. W. PAVY.
6. A Method of Amputation at the Ankle Joint Which Leaves the Heel Intact. With a Report of Two Cases Operated Upon and Shown at the Clinical Society of London, April 24, 1907.

By C. G. WATSON.
7. A Suggestion for the Radical Cure of Femoral Hernia.

By J. S. PEARSON.
8. A Case of Streptococcic Septicæmia: Treated by Wright's Method with a Vaccine Made of Organisms Obtained from the Patient's Blood, the Inoculations Being Controlled by the Opsonic Index: Recovery.

By W. G. SUTCLIFFE and H. W. BAYLY.
3. **Posture and Cardiac Signs.**—Gordon has studied the influence of bodily posture on cardiac physical signs, and concludes that in most cases the change from the erect position to the recumbent: 1. Raises and narrows the normal cardiac dulness. 2. Makes the first heart sound duller and the second sharper, thus producing the classical "lub dup." 3. Diminishes the anteroposterior diameter of the chest. 4. Markedly narrows the dulness of an enlarged heart. 5. Increases the loudness and area of audibility of (a) "hæmic murmurs," both at the base and the apex; (b) mitral and tricuspid regurgitant murmurs; and (c) aortic stenotic murmurs. (Some of these murmurs may be only audible in the recumbent posture.) 7. Leaves unaffected the murmur of aortic regurgitation. 8. Increases the loudness of the accentuated pulmonary second sound. 9. Makes more marked the reduplication of the reduplicated second sound. (In some cases the reduplication is only heard in the recumbent posture.) 10. Causes the partial or complete disappearance of the cardiac dulness in certain cases of cancer in their later stages. Taking all these facts into consideration the writer submits that no description of the cardiac physical signs can be regarded as complete which does not include a statement of the position of the patient at the time of

4. **Ætiology of Cancer.**—Robertson and Young report the results of their examinations of carcinomatous tumors by means of a new method of staining—an improved ammonio-silver process. A few years ago one of them with H. Wade published a paper in which it

was contended that carcinomatous tumors are ætiologically related to a special protozoan organism, capable of being demonstrated in such tumors and of being cultivated from them. The general result of the new investigations here reported has been to obtain much additional evidence of the occurrence of special intranuclear bodies of the nature of those previously described, to show that structures morphologically identical with the *Spirochæta micrograta* of Löwenthal can be demonstrated in human carcinomata and to confirm the previous observation of the occurrence of small nucleated bodies, evidently of amœboid character, in such tumors. The great activity of the polymorphonuclear leucocytes is looked upon as a manifestation of a phagocytic action directed against a specific parasite.

5. **Anomalous Reactions with Fehling's Solution.**—Pavy, after an exhaustive discussion of the sugar reaction given by urine when tested with Fehling's solution, states that the degree of concentration of the urine constitutes a main factor in determining the extent of sugar indication presented. The great value of Fehling's solution is that the sugar normally present in urine escapes being revealed, except under the existence of special circumstances. Assuming that a slight reaction is given, the question is, does it constitute an exaggerated normal reaction or is it the result of an abnormal condition? This question can only be scientifically answered by means of a test meal. If two or three hours after a plentiful allowance of starchy matter and sugar has been taken there is no effect produced upon the urine, it may be concluded that nothing abnormal exists.

LA PRESSE MEDICALE

August 3, 1907.

1. Studies in Regard to the Gastric Secretion.

By ALBERT FROUIN.
2. The Iodotannic Preparations, By ALFRED MARTINET.

August 7, 1907.

1. The Relations of Uric Acid and the Puric Bases to Alimentation and Morbid Conditions, By H. LABBE.

2. When Should a Crushed Leg Be Amputated? By M. GUIBE.

2. **When Should a Crushed Leg Be Amputated?**—Guibe says that the theoretical rules for guidance are easily given, but practically the question is at times very difficult to answer as regards particular cases. The presence of the following three conditions he gives as indications: (1) Multiple comminuted fractures of the bones; (2) mangling or removal of the skin; (3) crushing of the deep soft parts, muscles, vessels, and nerves.

LA SEMAINE MEDICALE.

August 7, 1907.

French Congress of Alienists and Neurologists, Held at Geneva and Lausanne, August 1 to 7, 1907.

BERLINER KLINISCHE WOCHENSCHRIFT.

July 29, 1907.

1. Studies in Regard to the Nervous System of Syphilis, By E. MEYER.

2. New Contribution to the Concentration of Immune Bodies in Diphtheria Serum,

By L. BRIEGER and M. KRAUSE.
3. Meningococci Spermatocystitis. A Contribution to the Pathology and Bacteriology of Epidemic Cerebrospinal Meningitis,

By L. PICK.
4. Neuralgia, Myalgia, By G. PERITZ.

5. Gangrene of the Scrotum, By KETNER.
6. Syphilitic Family Histories from South America,

By E. ROTHSCHEID.
7. Concerning the Influence of X Ray Diagnosis Upon the Recognition and Treatment of Fractures Which Involve the Elbow Joint,

By M. COHN.
1. **Nervous System of Syphilis.**—Meyer investigated the condition of the nervous system in seventy-

four syphilitics, one of whom was in the primary stage, sixty-one in the secondary, and twelve in the tertiary. Among the sixty-one in the secondary stage he found one who acquired nervous troubles in only three, pre-existing nervous troubles, mainly hysteria, in nine. In the latter syphilis had frequently exacerbated the condition. 2. Among the patients who were not subjectively nervous there was comparatively often an increase of the general nervous irritability, yet in a portion of the cases the effect of the mercurial treatment or of drink must be considered. 3. There were five cases which with some probability suffered from an organic nervous disease. A comparatively large number of observations showed slight pupillary differences, sometimes with rather slow reaction, and pathological examinations alone can answer positively the question whether syphilis does or does not in its first stage cause organic, even though transient, changes.

4. **Neuralgia, Myalgia.**—Peritz presents very fully the distinctive diagnosis between myalgia and neuralgia. Some of his points are, in myalgia tenderness of one or more muscles in the painful region, hyperalgesia of the skin over these tender muscles; an injection of a small quantity of sterile salt solution into a muscle proves painful if the muscle is inflamed, but not painful if it is not inflamed; frequently patients who have myalgia complain of paræsthetic symptoms, rather frequently the affected muscle show a weakness in their action, the character of the pain is different from that of neuralgia, and the topography is different. He presents an illustration in which is delineated the places of predilection for the myalgic disease of the muscles.

5. **Gangrene of the Scrotum.**—Kettner reports a case of gangrene of the scrotum which occurred from an unknown cause in an apparently healthy man, thirty-five years of age. The testicles were left bare after the tissue had sloughed.

7. **The Influence of the X Rays Upon the Recognition and Treatment of Fractures About the Elbow Joint.**—Cohn points out the great advantages furnished by the x rays in the delineation of fractures which involve the elbow joint and the guidance thus given in the treatment.

DUBLIN JOURNAL OF MEDICAL SCIENCE

August, 1907.

1. Report of the Rotunda Hospital.
By E. HASTINGS TWEEED, ARTHUR HOLMES and ROBERT J. ROWLETTE.

2. A Case of Acute Metastatic Gonorrhœal Myositis, with Remarks on the Diagnosis and Treatment of this Affection.
By CHARLES GREENE CUMSTON.

3. Blackwater Fever.
By CHARLES J. MCNEIL COSTELLO.

2. **Metastatic Gonorrhœal Myositis.**—Cumston, of Boston, remarks that although the diagnosis of gonorrhœal myositis is sometimes more or less delicate, the same cannot be said of its treatment. In the first place, judging from the literature on the subject, it may be inferred that massage is to be absolutely proscribed. Camphor liniment and methyl salicylate do not appear to give any marked results, but tincture of iodine appears to have given some relief in certain cases. However, in the majority it has been without effect, and consequently may, we think, be discarded. Sodium salicylate, antipyrine, and potassium iodide taken by mouth appear to have no action, and have, in fact, caused gastro-intestinal upsets. On the other hand, if quinine is taken several times a day at the dose of ten drops, appears to have some soothing, although no curative, effect. The author believes that quinine has a connection with injections of mercurial ointment, will shorten the course of the inflammation, and that it may be administered in the form of a suppository. It may be given either by the rectum or by the mouth, and may be combined with rubber dam or by local baths given three or

four times daily, the diseased member being retained in the water for an hour.

3. **Blackwater Fever.**—Costello, of Northern Nigeria, West Africa, in speaking of the precautions against blackwater fever, observes that persons who live in those parts of tropical Africa, or other places, in which this disease occurs, ought never to make light of fever, however small, but should, as soon as a premonitory sign of fever, or fever itself, shows itself at once go to bed for treatment. In the interpyrexial periods prophylactic measures should be adopted in the form of quinine regularly taken, also a tonic, consisting of iron, to improve the quality of the red blood corpuscles. The individual should try as far as possible to avoid excessive exposure to the sun or rain. It must be borne in mind that blackwater fever occurs in England amongst subjects who have been previously living abroad in a blackwater area, and consequently people ought to be informed of this fact and put on their guard against contracting chills, especially when changing from a tropical to a temperate climate on the voyage homewards. Moreover, they should be advised not to fail to take quinine and a tonic if necessary while on leave.

THE JOURNAL OF HYGIENE.

April, 1907.

1. On Meteorological Factors in the Ætiology of Acute Rheumatism.
By M. GREENWOOD and T. THOMPSON.
2. Some Experiments with Fluorescein as an Agent for the Detection of Pollution of Wells.
By J. McCRAE and P. G. STOCK.
3. On Variations of the Meningococcus and Its Differentiation from Other Cocci Occurring in the Cerebrospinal Fluid.
By J. A. ARKWRIGHT.
4. On the Absorption of Antibodies from the Subcutaneous Tissues and Peritoneal Cavity.
By J. H. SMITH.
5. The Acid Coagulation of Milk.
By C. REVIS and G. A. PAYNE.
6. Canine Piroplasmiasis. VI. Studies on the Morphology and Life History of the Parasite.
By G. H. F. NUTTALL and G. S. GRAHAM-SMITH.
7. Action of the Colors of Benzidine on Mice Infected with Trypanosoma Dimorphon.
By C. M. WENYON.
8. On the Larval and Pupal Stages of Anopheles Maculipennis, Meigen.
By A. D. IMMS.

3. **Variations of Meningococcus.**—Arkwright states that Gram negative cocci obtained from the cerebrospinal fluid are not always true meningococci, even in cases of meningitis. Slight differences between different races of meningococci occur, especially as regards their growth and activity in sugar media and on gelatin. The meningococcus is not easily killed by cold, therefore its rapid death in lumbar puncture fluid and post mortem material must be due to some other cause. The means by which the meningococcus is carried from the diseased to the healthy can hardly be such as to involve drying.

4. **Absorption of Antibodies.**—J. H. Smith, of Copenhagen, remarks that antibodies in general are absorbed very slowly from the peritoneal cavity in lower animals, and from the subcutaneous tissues in man and animals. Absorption from the latter is not complete until at least two to three days have elapsed. The amount of antibody present at any one time in the general circulation after intraperitoneal or subcutaneous injection is very much less than the amount injected. Clinically, in urgent cases of disease, to inject antibodies subcutaneously is not only to lose two to three days' time before the full action can be obtained, but to reduce the amount of action that the dose injected can have. By intravenous injection the

5. Acid Coagulation of Milk.—Revis and Payne

occur in milk, do not possess the definite-compositions of those that have been formed with casein after its separation from milk, as described by Söldner for lime salts, and Slyke and Hart for lactates of casein, but that the proportions of calcium triphosphate and lactic acid in combination with the casein are at any moment before the milk coagulates the result of a sort of equilibrium between the casein and the total lactic acid present, and that at the moment of precipitation of the casein, the calcium triphosphate has been practically completely eliminated, and the combination with lactic acid has reached a maximum.

7. Color Treatment of Trypanosomiasis.—Wenyon says that soon after the injection of the color into mice, distorted forms of trypanosomes appear in the blood. The proportion of these forms increases, and finally the trypanosomes disappear completely from the blood if the color is sufficiently active. What becomes of the trypanosomes between the time of their disappearance and the relapse is not known. It is a question allied in many ways to the relapses in some diseases, for instance in relapsing fever, where the disappearance of the parasites from the blood is probably due to some substance present in the blood, which is active against these parasites. As regards the benzidine colors, *Trypanosomus dimorphus* is more resistant than the other trypanosomes. In testing the action of atoxyl and arsenic he obtained for the former a result of only two days, and for the latter, in the form of sodium arsenite, a result of six days. *Trypanosomus dimorphus* has thus proved more resistant to all forms of medication that have hitherto been tried, than other trypanosomes. The only drug which promises success being the naphthalenediamine disulphonic acid 2736 + benzidine (named alpha). So far this color has only been tried in mice and here only gives successful results when given in repeated doses. It still awaits trial in larger animals, where it is hoped that still more successful results may be obtained.

THE EDINBURGH MEDICAL JOURNAL

August, 1907.

1. On Abdominal Pain, and Especially on Pain in Connection with "Ileus," By K. G. LENNANDER.
2. Three Cases of Fatal Strychnine Poisoning, By HARVEY LITTLEJOHN and T. W. DRINKWATER.
3. A Case of Aneurysmal Disease, with Observations, By CECIL F. BEADLES.
4. A Case of Rupture of Herniated Bowel by Sudden Contraction of Abdominal Muscles, By ALEXANDER MILES.
5. Thomas Sydenham, the English Hippocrates, By W. H. COUPLAND.

1. Abdominal Pain.—Lennander remarks that in estimating abdominal pain, and especially pain in connection with lesions causing the symptoms of ileus, one has briefly to remember that pains do not originate within the abdominal organs which are supplied only by the sympathetic cord and the tenth nerve; that, on the contrary, all pains originate in the abdominal wall, more especially in the parietal serous membrane and subserous connective tissue, which are innervated by the cerebrospinal nerves. Every stretching of the parietal attachments of the stomach and intestines, *i. e.*, of the mesenteries, as well as of adhesions to the abdominal wall, is very painful; the same applies to the displacement or stretching of the parietal serous membrane in relation to the muscles or aponeuroses of the abdominal wall. Most of the lesions causing obstruction are at first attended by increased and, as a rule, irregular peristalsis. Chemically different substances, such as the contents of the stomach, gallbladder, bowel, or of an abscess, when they come into contact with a healthy or hyperæmic parietal peritoneum, give rise to severe pain; and even that form of acute peritonitis which goes under the name of "peritoneal irritation"

greatly increases the sensitiveness of the parietal serous membrane. The sensitiveness of the parietal peritoneum increases at the same rate as the inflammation, but decreases again when the inflammation has reached a certain degree, and may ultimately in many cases cease.

THE GLASGOW MEDICAL JOURNAL.

August, 1907.

1. The Really Useful in Electrotherapeutics, By H. LEWIS JONES.
2. Notes on Some Tumors of the Cæcal Region, By J. HOGARTH PRINGLE.
3. Sarcoma of the Nose, By WALKER DOWNIE.
3. **Sarcoma of the Nose.**—Downie says that the successful treatment of cases of sarcoma of the nose depends on two things: 1. The early recognition of the condition. 2. Radical removal of the new growth where that is possible. The author does not speak of the treatment of those cases of sarcoma originating within the antrum, in the body of the superior maxilla, or in the sphenoid, as the invasion of the nose is of secondary importance in those cases. Where the new growth, however, is wholly intranasal—having its origin in the lateral masses of the ethmoid, the middle turbinal, or the nasoantral wall—it should be removed through the nares by punch forceps, curettes, etc., followed by the free use of the electric cautery. The repetition of such operative procedures may be necessary time and again until the affected structures are extirpated. These procedures are only possible, perhaps, in the minority of the cases met with, chiefly because the gravity of the condition has not been recognized in its early and curative stage. When the disease is recognized early and is treated in this fashion, the prognosis will be more than favorable. Where the septum is involved, and where the area from which the new growth springs is widespread, its eradication may be made more easy and more satisfactory by having recourse to Rouge's operation.

Proceedings of Societies.

AMERICAN SURGICAL ASSOCIATION.

Twenty-eighth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. DUDLEY P. ALLAN, of Cleveland, Ohio, in the Chair.

(Concluded from page 377.)

Acquired Diverticulitis of the Large Intestine.—Dr. WILLIAM J. MAYO had prepared this paper in collaboration with Dr. L. B. WILSON and Dr. H. Z. GIFFIN, all three of Rochester, Minn. It was stated that diverticulitis of the colon was essentially confined to the sigmoid, and was usually due to the pressure of the hardened feces against the mucous membrane, which herniated through defects in the musculature. The weakness of the intestinal wall, which permitted this, might be congenital or acquired. Fæcoliths formed in these little pockets and gave rise to infection and suppuration, or to tumor formation, constituting the disease. As a rule, only a few inches of the bowel was involved, although an enormous number of diverticula might be exhibited in this space. The patients were usually obese and over forty-five years of age. The physical evidences of the disease would be found in the middle and lower left quadrant of the abdomen. A tumor frequently existed with attacks of obstruction of the bowels, or attacks of peritonitis.

The cases seen by the three authors belonged to the three clinical groups: (1) Those cases in which the intraperitoneal abscess formed with spontaneous evacuation into a neighboring viscus, or was evacuated externally by means of operation; (2) those cases giving

rise to acute or chronic obstruction necessitating operation; (3) those cases in which the symptoms were mild and recovery occurred spontaneously. Five of their specimens, secured by resection, enabled accurate pathological study. The disease was usually mistaken for left sided appendiceal abscess, or cancer, and a large number of the cases reported as cures of cancer by resection of the intestine were really cases of diverticulitis. It required microscopical study to tell the difference. The milder cases were supposed to be fecal impaction. The surgical treatment of diverticulitis of the colon depended upon the condition present. First, localized suppurative cases should be treated by free drainage; if in conjunction with the infective process acute obstruction of the bowels developed as in the cases reported, a temporary artificial anus should be made, and if necessary after the infection had subsided, the involved colon might be resected. Second, if a considerable tumor was present and the symptoms did not show a tendency to disappear it was better to make a primary resection of the affected part of the bowel before abscess and fistula supervened rendering patients prolonged invalids.

Dr. L. B. WILSON, of Rochester, Minn., by invitation, demonstrated ten large drawings made from sections of specimens. The diverticuli could be plainly seen after the external inflammatory coat had been dissected off. There was always pocketing of the mucosa due to defective muscular fibres, but in only one case was there a true diverticulum. A hardened fecalith might or might not be present in the diverticuli. It was possible that the true diverticuli might have been congenital, but this view was hardly tenable. The inflammatory reaction was due to leakage through the diverticuli walls, and it was in excess in those cases in which fecoliths were present.

The Diverticulum Ilei as a Cause of Complete Intestinal Obstruction.—Dr. FREDERICK H. GERRISK, of Portland, Me., read this paper. The investigation of the diverticulum ilei had been carefully made, and although it had not ceased to attract attention, more light should be thrown on this subject. The object of this paper was to present a unique case. The patient was seen March 23, 1906. He was a man, twenty years old, who, for four days, had had no defecation in spite of all purgatives, although he passed a little mucus and blood. The large intestine was empty, but the small intestine was distended. Diagnosis was given as intestinal obstruction near the ileum. An operation was performed with median incision. The obstruction was found in the ileum caused by the diverticulum attached to the free edge of the intestine passing below, then upwards through an opening in the mesentery, the distal end being attached to the abdominal wall, the exact point of attachment could not be seen. The diverticulum ilei was about ten centimetres long and about as large as the intestine from which it sprung, but it was not adherent to the intestine. The diverticulum and the appendix were removed, and the patient recovered. Evidently the condition was of short standing. We cannot disregard these cases in the present state of our knowledge. The mortality is high, and is so because the treatment is not prompt. Competent surgical help cannot be called too soon.

A Consideration of the Etiology of Certain Cases of Left Sided Intraabdominal Suppuration.—This paper was presented by Dr. GEORGE E. BIRWING, of New York. He gave the history of six cases. The first was a female patient who had had pain, tenderness, and rigidity in the left inguinal region. Sudden in onset with moderate fever the mass was well defined. The operation revealed intraperitoneal abscess of foul smelling pus. The adhesions were dense, and no effort was made to break them up. Recovery followed. Case II was similar. Case III, male, sixty years of age, had been con-

stipated for years and for the last four weeks had had severe pain with fever, which subsided, but returned. There was a large, smooth, elastic mass without rigidity or tenderness in the left inguinal region. Exploratory laparotomy showed a large abscess with creamy, odorless pus. Convalescence was satisfactory. These cases suggested diverticuli of the sigmoid. Congenital diverticuli had been known for years, but the acquired form has been neglected. Probably internal intestinal pressure could account for it. Case IV was similar to the preceding three. Case V seemed to establish the relationship. A male patient, forty-five years of age, had always been of good health. He had sudden nausea and restlessness, followed by pain, which continued three days, when his temperature was 103° F., pulse 110. There was a mass in the left iliac fossa. Operation found abscess containing one ounce and one half of pus and fecal extravasation. Patient recovered. Case VI, male, fifty-four years of age. Evidence of peritonitis with severe pain about umbilicus and localized in left inguinal region. On third day operation was performed. When the abdomen was opened pus welled up, and at the bottom of the abscess was found a fecal concretion and diverticulum. Although he rallied well, the patient died on the third day.

Dr. S. J. MIXTER, of Boston, recalled two cases of acute perforation following diverticuli of the colon. He saw one case in which there was an abscess from the cecum to the mesentery resembling abscess of the appendix. Every one had seen cases which closely resembled malignant disease. He had seen two cases in which the abdomen was opened and closed with bad prognosis. Later these patients went to quacks and were cured.

Dr. ELLSWORTH ELIOT, of New York, reported a case of a child, six years old, in which the walls of the abscess were formed by the sigmoid.

Dr. REGINALD FITZ, of Boston, said that the diverticuli of the colon were not unusual in the presence of concretions. The shape of the feces was an important point in the diagnosis. The patients were usually fat. He saw one of the cases to which Dr. Mayo referred to in consultation with Dr. Morris Richardson, but their diagnosis was carcinoma. Yet he could not understand the splendid physical condition of the patient. Dr. Gerrish's case reminded him of an autopsy upon a person who had had an umbilical fecal fistula due to patency of the vitelline duct from embryonic life. The liability of this source of intestinal obstruction was an important feature. These fine threads spreading across the intestine were sometimes omphalomesenteric remains.

Dr. GEORGE TULLY VAUGHAN, of Washington, D. C., had seen several cases of abscess in the left side of the abdomen. The appendix could be exonerated. In one case of hernia he found the colon in the inguinal canal in which diverticuli with fecal concretions were present.

Dr. HARVEY CUSHING, of Baltimore, stated that in the cases in which there was widening of the bowel after resection in dogs diverticuli had occurred.

Dr. C. B. DE NANCREDE, of Ann Arbor, Mich., had treated several cases, but had been unable to ascertain the cause.

Dr. WILLIAM MAYO believed he was fortunate in getting these cases so early. He thought that if surgeons should go over the symptoms of resection of the bowel carcinoma some would find diverticuli in the colon. Diverticuli of the colon might occur at any point in the circumference of the gut.

Dr. L. B. WILSON observed that the best reports of such cases had been reported by Beers about a year ago.

Dr. FREDERICK GERRISK said that he was well aware that Meckel's diverticulum occurred in 2 per cent. of

all cases, but the method of strangulation as he reported it was unique.

Dr. GEORGE BREWER, of New York, was satisfied that carcinoma might originate from ulceration of the colon.

Some Considerations of the Surgery of the Brain, by Dr. S. H. WEEKS, of Portland, Me., was read by title.

Recent Modifications of the Gasserian Ganglion Operation.—Dr. HARVEY CUSHING, of Baltimore, presented two papers. He stated that tic douloureux and spasmodic tic were closely correlated. In motor tic he severed the facial nerve and did an immediate anastomosis with the spinal accessory nerve. Such an operation he performed in May, 1902. The patient presented showed almost perfect restoration of function of the seventh nerve. The movements of the shoulder were not associated with movements of the face, and the patient had almost perfect emotional control. The arm could be raised with little or no associated movements. There was little or no shoulder droop. He believed it was far superior to the hypoglossal anastomosis. A case of Gasserian neurectomy was of six weeks' standing. He observed that the ganglion operation was a simple one after proper preparation, but should not be undertaken by the general surgeon without the preliminary work. Results were brilliant in so far as relieving pain was concerned. We should be sure that it was a major neuralgia we were dealing with. He did not consider that the risks were great. He no longer extirpated, but did an evulsion of the sensory division of the root. The scar was almost invisible.

Dr. S. J. MIXTER, of Boston, said that he hesitated to discuss Dr. Cushing's cases and his remarkable results, and regretted that there was not more said about the operation. This operation was always a dangerous one and no two cases were exactly alike. The choice of a method should depend largely on the operator's experience. His cases had been satisfactory and had gone three or four years without a recurrence of pain. He used an injection of osmic acid usually before section of the nerve, then cut the first and second branches. He considered his operation safer than that of Dr. Cushing's.

Dr. ALLAN STARR, of New York, considered the results Dr. Cushing had shown in the motor tic the best he had ever known. He believed that the cause of trigeminal neuralgia could be found in the changes in the Gasserian ganglion, and that the division of the peripheral nerves was futile. In every case he would have advised the early radical operation, and preferred that the root of the nerves should be torn out of the pons. He went to the root of the matter and cut off the nerve from the conscious centre.

Dr. S. H. WEEKS, of Portland, Me., stated that he first cut the nerve distal to the ganglion and lifted the ganglion up and cut it out.

Dr. HARVEY CUSHING, in concluding the discussion, said that he was convinced that the ganglion is the seat of the entire disease. An operation which failed to permanently sever the connection between the ganglion and the brain would not be crowned with success.

Early Operation Upon the Nerves in Ischemic Paralysis.—Dr. LEONARD FREEMAN, of Denver, Colo., read this paper. He stated that ischemic paralysis was almost always due to tight bandaging or improperly applied splints. When the circulator was cut off the muscles would die in eight hours. The result of muscular death was similar to rigor mortis. The real process of ischemic paralysis began several days after the injury. The fingers became flexed and might dig into the palms. Just how much the nerves were concerned was not clear. The condition might disappear if the splints were loosened promptly or might develop into a chronic form from cicatricial tissue contraction when the nerves

would be pinched and irregular. Above the point of pressure they were soft and swollen. The skin became bluish and glazed. The hand might become a nuisance, and the patient would ask for an amputation. It was fair to presume that the difficulty began in the muscles. Massage and electricity might relieve it. If the nerves remained injured the muscles would not improve. In every case of ischemic paralysis he first treated it by massage and electricity. If the lesion was purely muscular it would improve, but the tendons might need lengthening. If improvement did not begin promptly an early operation should be done before the nerves were beyond repair. An early operation was neither difficult nor dangerous, and by all means should be urged. When the nerves were caught in cicatrices or between bones the indication was plain. A good plan was to expose the nerves above the point of compression and follow them down and dissect them out. In order to prevent recurrence it might be necessary to lift the nerve out and put it into a new bed. He cited three cases.

Dr. WILLIAM MAYO, of Rochester, Minn., remarked that Volkmann's cases in 1875 were the first to be reported. Here we had a condition for which a good operation was offered. This was a distinct advance in surgery and he wished to thank Dr. Freeman for this contribution.

Dr. B. F. CURTISS, of New York, had one case of ischemic paralysis. There was slow, but complete recovery. After relieving the tension by shortening the bone the muscles softened up very much. He approved of this operation.

Dr. JOSEPH D. BRYANT, of New York, had seen a number of these cases, but the results had not been gratifying. He wished to know how early surgical interference was indicated.

Dr. LEONARD FREEMAN, in concluding the discussion, said that he could not answer Dr. Bryant's question without further experience. If in a few weeks of passive massage and electricity they did not improve he would consider an operation.

A Case of Acute Blastomycosis with Rapid Generalization, the Lesion Closely Resembling Round Celled Sarcoma, by Dr. W. B. COLEY, of New York, was read by title.

Dr. W. H. CARMALT, of New Haven, Conn., was elected president.

Book Notices.

Die Impotenz des Mannes. Für Aerzte dargestellt. Von Dr. ORLOWSKI, Spezialarzt in Berlin. Würzburg, 1907. Pp. 78.

In this pamphlet the author speaks of the abnormal impotence of man to copulate, the *impotentia coeundi* (on seventy-three pages), while the incapability to generate, the *impotentia generandi*, is only referred to in a general way (on five pages). He asserts that his statistics have taught him that in the etiology of somatic impotence the colliculus hypertrophy is the leading cause. The diagnosis as well as the therapy should only be undertaken with urethroscopy. The writer advocates as treatment caustic installations of silver nitrate, endourethral faradization, and the use of the psychrophore. The anatomy and physiology of the *potentia coeundi* are treated as an introduction, the following chapters being taken up by general remarks on impotence, somatic impotence, colliculus hypertrophy and impotence, the anomalous loss of semen and sexual neurasthenia, psychic impotence, treatment of impotence, and the *impotentia generandi*. It can be seen that the author has given the subject a thorough

discussion, although very condensed. His statements as to etiology and treatment are open to be challenged.

A Textbook of Practical Therapeutics, with Especial Reference to the Application of Remedial Measures to Disease and Their Employment Upon a Rational Basis. By HORAT AMORY HARE, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Twelfth Edition, Enlarged, Thoroughly Revised, and Largely Rewritten. Illustrated with 114 Engravings and 4 Colored Plates. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. ix-18 to 939.

The author has availed himself of the opportunity that has been afforded by the eighteen months that have passed since the last edition of the work was published to give it a thorough revision and to include a number of the recent advances in therapeutic procedure. Among these are the value of sodium citrate in feeding bottle fed babies, of calcium lactate in hæmophilia, hæmorrhagic oozing, and urticaria, of citric acid to prevent thrombosis in typhoid fever, and of some new drugs, the usefulness of which had not been proved when the last edition of the work was published.

Besides the author's revision, Dr. G. E. de Schweinitz has revised the articles on the treatment of the common diseases of the eye, Dr. Barton Cooke Hirst those on diseases of the puerperal period, and Dr. Edward Martin those on antisepsis, gonorrhoea, and syphilis. The book maintains its excellent standing.

The Essentials of Histology, Descriptive and Practical. For the Use of Students. By E. A. SCHÄFER, LL. D., Sc. D., F. R. S., Professor of Physiology in the University of Edinburgh. Formerly Professor of Physiology in University College, London. Seventh Edition. Philadelphia: Lea Brothers & Co., 1907. Pp. 507. (Price, \$3.50.)

The seventh edition of this work maintains its excellent reputation as a guide for students in laboratory work. The text is divided conveniently into fifty lessons, so that the instructor can arrange his course satisfactorily. It is well printed, on thin paper to decrease the size of the volume, and many of the illustrations are in colors.

The Technics of Operations Upon the Intestines and Stomach. By ALFRED H. GOULD, M. D., of Boston. With 190 Illustrations, Mostly Original, Several of Them in Colors. Philadelphia: W. B. Saunders Company, 1906. Pp. 302.

Following a description of the structure of the intestines and the stomach and their blood and lymph supplies, the author gives the results of experimental research that he has made in conjunction with Dr. F. B. Harrington and Dr. F. T. Murphy on repair following the use of the segmented ring, the plain suture, the Murphy button, and the elastic ligature. Perhaps this chapter could have been preceded appropriately by the third chapter, which describes the anatomy at greater length.

The second chapter describes suture materials, needles, tying knots, sutures, and clamps.

The fourth chapter is devoted to operations upon the intestines, and details the methods of end to end, of lateral, and of end to side intestinal anastomosis, and several methods of colostomy.

The fifth chapter describes the various operations upon the stomach.

The author has aimed to include the standard operations upon the intestines and the stomach, but has had no intention of giving a description of all of the methods in vogue.

The work is admirably illustrated and includes seven colored plates from Sobotta's *Atlas and Textbook of Human Anatomy*. It will be of great practical value to all surgeons.

Biographic Clinics. Volumes IV and V. Essays Concerning the Influence of Visual Function, Pathologic and Physiologic, Upon the Health of Patients. By GEORGE M. GOULD, Author of *An Illustrated Dictionary of Medicine*, Editor of *American Medicine*, etc. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 375 and 399. (Price, \$1.00 a volume.)

In volume iv the author writes on the cause, nature, and consequences of eyestrain, and on the influence of that condition, inferred from their writings, with one exception, on Balzac, Tchaikovsky, Flaubert, Hearn, and Berlioz. There are chapters on the etiology of astigmatism, on failures in ophthalmic practice, and on the eyestrain origin of epilepsy.

Volume v includes no biographical inferences, but there are some twenty-three essays on eyestrain in various phases. It would seem that the author might be equally convincing if he wrote with less acrimony and innuendo, as the general profession does not believe that there is any conspiracy against him or the school of practice of which he is such an active exponent.

Practical Fever Nursing. By EDWARD C. REGISTER, M. D., Professor of the Practice of Medicine in the North Carolina Medical College, Editor of the *Charlotte Medical Journal*, etc. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 352. (Price, \$2.50.)

The author thinks that a nurse must have some knowledge of the disease and its medical treatment before she can care for a fever patient intelligently, and that she must know something of the pathological processes that are going on within the body in order to understand the cause and significance of many of the symptoms. He has, therefore, included in this work a description, as nontechnical as possible, of the pathology, prognosis, and treatment of the different fevers.

The first section of the book discusses the sick room, the utensils employed in treating a fever patient, and the causes, symptoms, and prevention of fevers. Eighty pages are devoted to typhoid fever, including a résumé of the etiology, pathology, symptomatology, diagnosis, prognosis, and treatment. Similarly each of the febrile processes is described with a detail that might seem to impose on a nurse information which, while it will increase her efficiency if used intelligently, is particularly within the domain of the physician. A book of three hundred and twenty-eight pages of text on fevers must give considerable technical information, and it seems that this detail results in prolonging the training of the nurse without materially enhancing her efficiency for the particular work that is expected of her.

The Abdominal and Pelvic Brain. With Automatic Visceral Ganglia. By BYRON ROBINSON, B. S., M. D., Author of *Practical Intestinal Surgery*, Landmarks in Gynecology, etc. Hammond, Ind.: Frank S. Betz, 1907. Pp. 671.

The solar, or epigastric, plexus is the "abdominal brain," and the cervicouterine ganglion is the "pelvic brain," because a brain is an apparatus that is capable of reception, reorganization, and emission of nerve forces, according to the author.

The book is a study of reflexes, or disturbances that are produced in parts more or less remote from points of local irritation, and that are observed clinically as: "(1) Peripheral (reflex, infective) irritation; (2) indigestion; (3) malnutrition; (4) anemia; (5) neuritis." The latter is the hysteria or neurosthenia due to irritation of the abdominal sympathetic ganglia by waste laden blood.

Both the text and the illustrations are repeated frequently, and the subject is treated at a length that is likely to wear the popularity of the book.

Miscellany

Hospitals Connected with Medical Schools.—St. John Roosa remarks that it is the contention of those who maintain hospitals for teaching purposes, that the interests of the patient and of the student observing the cases with the teachers, are one and the same, that no kind of antagonism exists between them, and that the hospitals are the very best for the sick that can possibly be organized and maintained. It is almost impossible that any continued abuse, such as maltreatment or neglect, or any unkindness, would be allowed to obtain in a teaching hospital for it is under the supervision, not only of the physicians in charge, but also of the doctors and students of medicine who frequent its wards. It would be a great slander upon the physicians and surgeons who attend such hospitals to intimate that there is anything in their service which necessarily sacrifices the interests of the patient for those of the student. It is impossible that any interest of the student could be favored by anything that could be harmful to the patient, even as to the matter of being examined before a class. That very thing of itself insures, if it is necessary to insure any such thing on the part of the physician, kindly treatment, for no body of students or practitioners would ever submit for any length of time, or for repeated times, to see patients abused by physicians who were exhibiting them.—*Medical Record*, December 1, 1906.

Eye Stones.—The collection of eye stones is a dying industry. In New York the principal sources of supply are sailors who touch the Baltic Sea, and, as might be imagined, the supply is precarious. Eye stones are analogous in some respects to bezoars, as they are a concretion found in the stomach of the European crawfish. Most of the genuine eye stones, crab's eyes, crab-stones, or lapilli cancerum, are procured in the province of Astrakhan in European Russia. There appears to be some confusion regarding the nature of the eye stone, for some authorities speak of it as a concretion in the stomach of a certain crab, and others as of a peculiar shell formation which is separated from the crab at the time it sheds its shell. The former definition is the one, given in Larousse's *Dictionnaire universel* and in Meyers *Konversations Lexicon*. In Brestowski's *Handwörterbuch der Pharmazie* "Krebsaugen" are defined as calcareous concretions of lentil shape which are deposited between the external and internal covering of the stomach of river crabs. The so called crab's eyes are found fully developed at the end of the summer, as the crabs begin to shed their shells. It is noted that these concretions are absorbed into the stomach of the crab during the shedding season and there pulverized and absorbed, the dissolved calcareous substance being used, it is supposed, for the formation of a new shell. When these calcareous shells are not normally developed and absorbed it is observed that the shedding process is interrupted and the crab dies an early death.—*American Druggist and Pharmaceutical Record*, June 10, 1907.

The Way Milk is Infected.—The United States Department of Agriculture has issued a bulletin which points to the conclusion that the real danger from tuberculous cattle lies in the manner in which the germs of tuberculosis are disseminated with their feces and that it is almost entirely through this medium that milk becomes infected with tuberculosis. By a series of careful tests the Government Experiment Station in Washington, Dr. E. C. Schroeder and W. E. Cotton have demonstrated that cattle discharge germs of tuberculosis in very large numbers to the extent very often of over thirty-seven million in one day. Not only ani-

mals which show physical signs of tuberculosis, but also those so slightly infected that the diagnosis of tuberculosis depends entirely upon the application of the tuberculin test, are said to be in this manner active and dangerous sources of infection. It is pointed out that the dairymen cannot afford to use precautions, the cost of which is so great that their applications would convert their business into a philanthropic enterprise, but that without such care it is practically impossible to prevent the entrance into the milk pail of the germs of tuberculosis which have been discharged by tuberculous cattle and which are lodged on the cows and in and about the cow stables. These conclusions were reached after a series of careful tests with a number of cows which, though they had tuberculosis, were said to be in better condition than the majority of dairy cows in actual use on dairy farms. The slight infrequent cough with which they were affected would not have attracted the attention of the casual observer and might have been honestly attributed by most dairymen to dust in the air of the stable. For the most part tuberculosis would not have been suspected in the case of these animals had they not been tested with tuberculin, a test, as it is said, not usually made by the farmer until there is grave cause for the suspicion of tuberculosis. In making these tests normal fresh milk, free from tuberculosis, was soiled with about as small a mass of feces as would enter the milk in a dairy stable in which average cleanliness was observed. This milk was then injected into guinea pigs, and it was found upon post mortem examination that sixteen of the forty-six killed had developed tuberculosis. It is concluded from these researches that milk from tuberculous cows with unaffected udders is free from infection until it has become contaminated with feces or some other material that contains tubercle bacilli from the outside of the cows or from their environment. It is not believed that tubercle bacilli are eliminated with the milk from tuberculous cows unless disease of the udder or structures connected with it is present. This conclusion is drawn from the present series of investigations and is supported by earlier work relative to the milk of tuberculous cows. The present investigations include only a few cows and a comparatively small number of guinea pigs. The earlier investigations extend over a dozen years, during which milk from scores of tuberculous cows was injected into the abdominal cavities of hundreds of guinea pigs. The observations made are said to definitely show that the frequency with which milk contains tubercle bacilli is greatly underestimated, especially when it is milked in the customary way from tuberculous cows with healthy udders, or from entirely healthy cows in a tuberculous environment. As no means are known by which it can be determined when cattle become dangerous to the health of persons or animals, every cow affected with tuberculosis must be regarded in the opinion of the government experts as positively dangerous. In view of the undoubted presence of tuberculosis in a very large number of cattle, whose owners have no cause to suspect that this is so, it is urged that every cow should be periodically tested with tuberculin. Every cow that reacts and thus shows that she has tuberculosis should at once, regardless of her general appearance or condition, be removed from use as a dairy cow and from all contact with dairy cattle or healthy animals.

Insignia of the Medical Department.—L. sends the following letter to the editor of *The Army and Navy Journal*: Very distinctive and interesting is the insignia of the Medical Department, the caduceus. It is an insignia of long standing, tested for centuries, keeping its place up to the present time. In the earliest Greek

art the caduceus was but a plain magic wand, with no ornamentation. Adorned with laurel reeds it represented victory. Later, as a mass of pleasant traditions grew up concerning the power of that wand, and about the gods who carried it, the custom of representing the wand with two serpents twined about it gained a foothold, the serpent being typical of wisdom. The son of Apollo, Æsculapius, a personification of divine powers that healed the wounds and cured the diseases of mankind, was not the only god carrying the caduceus as his symbol of authority. Mercury, on one of his errands from Olympus, saw two snakes fighting. Since it fell to him to settle such disputes, he caught the snakes up, twisted their tails together and twined them about his staff. Thus, slowly, the caduceus was developed from a plain wand to one ornamented with snakes. In later mythology, when the other attributes of Mercury were diminished, and that of his office as messenger for the great gods of Olympus was magnified, it became customary to represent him in art wearing winged sandals and a winged fillet about his head. It was a most natural thing, then, later to add the spreading wings to his staff and thus complete the idea of his swift passages here and there upon the errands of his father, Zeus. It can readily be seen how the wand with its serpents and wings representing magic powers in earth and air could be well taken by the ancient as an emblem of healing. The serpents wound around the staff are more significant than would seem. "Wise as serpents" is proverbial; this wisdom is supposed to have enabled the creeping serpents to search out vegetable bodies having healing powers. The poetry of the conception has led moderns to use the same emblem. The men of the middle ages, when all healing was thought to come about only through the agency of incantations and various charms, when the world was half pagan—those men of mixed temperament used the caduceus as the sign of healing art. From millennium to millennium, from century to century, from decade to decade, from year to year, the caduceus kept the first place to indicate medical efficiency. Could there be a better emblem for the Medical Department of the United States Army?

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, Public Health and Marine Hospital Service, during the week ending August 23, 1907.

Smallpox—United States			
Places	Date	Cases	Deaths
California—Oakland	July 1-31	1	1
California—San Francisco	Aug. 1-10	1	1
Tellaha—General	June 1-30	193	1
Iowa—Keokuk	Aug. 1-10	2	1
Louisiana—New Orleans	July 1-31	2	1
Louisiana—Shreveport	Aug. 1-10	1	1
Massachusetts—Boston	Aug. 7-11	1	1
Michigan—Detroit	Aug. 12-17	1	1
New Jersey—Newark	Aug. 1-10	2	1
New Jersey—West Hoboken	Aug. 9-11	1	1
New York—New York	Aug. 4-10	1	1
Utah—Salt Lake City	July 1-31	5	1
Washington—Spokane	July 28-Aug. 3	1	1
Washington—Tacoma	Aug. 1-10	2	1
Smallpox—Foreign			
Austria—Gallitz	June 23-July 13	9	1
Austria—Vienna	July 21-27	1	1
Brazil—Para	July 1-27	9	2
Brazil—Pernambuco	July 1-15	75	1
Brazil—Pernambuco	June 16-30	109	1
Brazil—Rio de Janeiro	July 8-14	4	3
Egypt—Cairo	July 9-22	1	1
Canada—Halifax	Aug. 4-10	2	1
Chile—Iquique	July 18-24	1	Present

China—Shanghai	July 1-13	6 foreign; 83 native
Ecuador—Guayaquil	July 21-27	1
France—Paris	July 28-27	11
Great Britain—Sunderland	July 21-27	1
India—Bombay	July 11-16	3
India—Calcutta	June 30-July 6	9
India—Rangoon	June 30-July 6	1
Java—Batavia	June 16-July 6	5
Madeira—Funchal	July 22-28	45
Manchuria—Dalny	July 7-13	2
Mexico—Mexico City	July 14-20	2
Mexico—Montreux	Aug. 2-8	8
Portugal—Lisbon	July 21-27	9
Russia—Batoum	June 24-30	1
Russia—St. Petersburg	July 14-20	2
Russia—Warsaw	July 14-20	1
Siberia—Vladivostok	July 14-20	1
Spain—Malaga	June 1-30	4
Spain—Valencia	June 22-28	14
Turkey—Constantinople	July 22-28	1

Cholera—Foreign.

China—Tientsin	Aug. 15	Epidemic.
India—Bombay	July 10-16	1
India—Calcutta	June 30-July 6	44
India—Cochin	June 28-July 6	4
India—Kashmir	June 30-July 6	42
India—Madras	Aug. 20	Subject to increase.
Japan—Moji	Aug. 23	1
Straits Settlements—Singapore	July 6-12	1

Yellow Fever—Foreign.

Brazil—Manaos	June 30-July 6	Present.
Brazil—Para	July 21-27	Present.
Cuba—Alcañanes	Aug. 19	Present.
Cuba—Cienfuegos	Aug. 15-19	Present.
Cuba—Havana	Aug. 7-13	Present.
West Indies—Trinidad—Port of Spain	July 25-31	Present.

Plague—United States.

California—San Francisco	Aug. 12-14	5
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Plague—Foreign.

Africa—King William's Town	June 23-July 6	2
Brazil—Rio de Janeiro	July 8-14	2
Brazil—Pernambuco	June 1-30	3
China—Swatow	July 1-15	Present.
Chile—Antofagasta	July 2-8	3
Chile—Pisagua	July 18-24	Present.
French Indo-China—Saigon	June 28-July 4	15
Japan—Formosa	June 30-July 13	116
Peru—Callao	July 2-17	3
Peru—Lima	July 2-10	1
Peru—Mollendo	July 11-17	1
Peru—Paiza	July 13-17	1
Peru—Trujillo	July 2-4	11
Egypt—Alexandria	July 19-Aug. 1	13
Egypt—Port Said	July 19-Aug. 1	2
Egypt—Behera Province	July 19-Aug. 1	6
Egypt—Beni Souef Province	July 19-Aug. 1	4
Egypt—Kena Province	July 19-Aug. 1	7
Egypt—Minieh Province	July 19-Aug. 1	1

Public Health and Marine Hospital Service:

List of Changes at Stations and Duties of Commissioned and Noncommissioned Officers of the Public Health and Marine Hospital Service, for the seven days ending August 24, 1907.

ADAMSON, B. G., Acting Assistant Surgeon. Granted ten days' extension annual leave, on account of sickness, from July 28, 1907.

AMESSE, JOHN W., Passed Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to Havana, Cuba, for duty in the office of the American Consul General.

BAILEY, C. W., Acting Assistant Surgeon. Granted leave of absence for ten days, from September 16, 1907.

BIRMAN, C. H., Pharmacist. Granted leave of absence for thirty days, from September 9, 1907.

CLARK, T., Passed Assistant Surgeon. Granted leave of absence for fourteen days, from August 20, 1907.

COLLINS, G. L., Assistant Surgeon. Granted leave of absence for one day, August 17, 1907.

HICKS, B. I., Acting Assistant Surgeon. Leave of absence granted Acting Assistant Surgeon B. I. Hicks for twelve days, from August 4, 1907, revoked.

HAYS, G. W., Pharmacist. Granted leave of absence for fourteen days, from August 17, 1907.

KINS, W. W., Passed Assistant Surgeon. Relieved from temporary duty at the Hygienic Laboratory, and directed to proceed to San Francisco, Cal., reporting to the Medical Officer in Command, Angel Island Quarantine Station, for duty and assignment to quarters.

KRECH, EMIL, Assistant Surgeon. Directed to proceed

to Ellis Island, N. Y., reporting to the Chief Medical Officer for duty.

LA GRANGE, J. B., Pharmacist. Detailed to represent the Service at the fifty-fifth annual meeting of the American Pharmaceutical Association, to be held in New York city, September 2-7, 1907.

RANSON, S. A., Acting Assistant Surgeon. Transferred from Shanghai, China, to Kobe, Japan, for duty, vice Acting Assistant Surgeon J. P. Fowler.

ROEHRIG, A. M., Pharmacist. Detailed to represent the Service at the fifty-fifth annual meeting of the American Pharmaceutical Association, to be held in New York city, September 2-7, 1907.

STANSFIELD, H. A., Passed Assistant Surgeon. Directed to proceed to San Francisco, Cal., reporting to the Medical Officer in Command for special temporary duty.

WERTENBAKER, C. P., Surgeon. Directed to proceed to Cape Charles Quarantine Station for temporary duty, upon completion of which to rejoin his station in Norfolk, Va.

Resignations

The resignation of Assistant Surgeon E. T. OLSEN was accepted by the President, effective October 12, 1907.

Acting Assistant Surgeon LINTON TURNER resigned to take effect August 15, 1907.

Pharmacist A. G. WILLIAMS resigned to take effect August 31, 1907.

Boards Convened.

The board convened to meet at Chicago, Ill., July 25, 1907, for the purpose of examining an Inspector of Immigrants, amended; Passed Assistant Surgeon B. S. WARREN to act in place of Acting Assistant Surgeon J. J. GERKINS.

A board of officers was convened to meet at Galveston, Texas, for the purpose of recommending a site for a national quarantine station. Detail for the board: Captain PERCY W. THOMPSON, U. S. R. C. S.; Surgeon J. H. WHITE, P. H. & M. H. S.; and Captain J. C. CAKES, Corps of Engineers, U. S. A. (by authority of Secretary of War). August 19, 1907.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending August 24, 1907:

ASHFORD, B. K., Captain and Assistant Surgeon. Left Washington Barracks, D. C., en route to Camp Perry, Ohio, for duty.

BOURKE, JAMES, First Lieutenant and Assistant Surgeon. Ordered to proceed to Camp Captain John Smith, Jamestown Exposition, Norfolk, Va., for temporary duty during the absence of JONES, P. L., Captain and Assistant Surgeon, upon whose return to Camp Captain John Smith, Lieutenant BOURKE will resume his duties on the transport *Kilpatrick*.

BROWN, O. G., First Lieutenant and Assistant Surgeon. Left Fort Robinson, Neb., with troops on practice march.

DARNALL, C. R., Captain and Assistant Surgeon. Left Washington, D. C., on thirty days' leave of absence.

DAVIS, W. R., Captain and Assistant Surgeon. Advanced to the rank of captain, from August 8, 1907.

FISHER, H. C., Major and Surgeon. Appointed a member of Army Retiring Board, to meet at Denver, Colo., vice First Lieutenant G. A. SCOTT, Assistant Surgeon.

HARTSOCK, F. M., Captain and Assistant Surgeon. Granted thirty days' leave of absence.

HUGGINS, J. B., First Lieutenant and Assistant Surgeon. In addition to his other duties will report for duty as medical attendant, Washington Barracks, D. C., during the absence of ASHFORD, BAILEY K., Captain and Assistant Surgeon, at Camp Perry, Ohio.

IVES, F. J., Major and Surgeon. Granted twenty-one days' leave of absence.

MACCULLOCH, C. C., JR., Major and Surgeon. Relieved from temporary duty at Fort Meade, S. D., and will return to Ancon, Canal Zone, and resume his duties with the Isthmian Canal Commission.

MURRAY, ALEXANDER, First Lieutenant and Assistant Surgeon. Ordered to report in person to PHILLIPS, J. L.,

Major and Surgeon, president, examining board, at Ancon, Canal Zone, Isthmus of Panama, for examination to determine his fitness for advancement.

NOBLE, R. E., First Lieutenant and Assistant Surgeon. Appointed member of a board to meet at Ancon, Canal Zone, Isthmus of Panama, September 23, 1907, for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion or advancement.

PHILLIPS, J. L., and MACCULLOCH, C. C., JR., Majors and Surgeons. Appointed members of a board to meet at Ancon, Canal Zone, Isthmus of Panama, September 23, 1907, for examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion or advancement.

SYNDER, C. R., First Lieutenant and Assistant Surgeon. Granted thirty days' leave of absence.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending August 24, 1907: (Orders issued by the commanding general, Army of Cuban

Pacification.)

BAKER, M. W., Passed Assistant Surgeon. Detached from the naval hospital, Boston, Mass., and ordered to the naval hospital, New Fort Lyon, Col.

HOLLOWAY, JAMES H., Passed Assistant Surgeon, Camp Columbia, Cuba, will proceed to Palmar, Province of Santa Clara, Cuba, for duty, relieving Assistant Surgeon William A. Angwin.

TAYLOR, E. C., Passed Assistant Surgeon. Ordered to the naval hospital, New York, N. Y., for treatment.

Births, Marriages, and Deaths.

Married.

CLEMESHA—CROUCH.—In Wayland, N. Y., on Wednesday, August 14th, Dr. J. C. Clemesha and Miss Jennie M. Crouch.

GURNEY—MC SHANE.—In Baltimore, Maryland, on Wednesday, August 14th, Dr. D. Egbert Gurney and Miss Mary Eleanor McShane.

MACKENZIE—O'NEIL.—In Dublin, Ireland, on Monday, August 19th, Dr. R. Tait MacKenzie and Miss Ethel O'Neil.

MILLER—SHATTUCK.—In Corning, N. Y., on June 26th, Dr. John L. Miller and Miss Lulu Shattuck.

ROBINSON—KIEL.—In Portland, Maine, on Thursday, August 8th, Dr. S. LeRoy Robinson and Miss Rena E. Kiel.

STEVENS—WHITE.—In Lewiston, Maine, on Monday, August 12th, Dr. Horace P. Stevens and Miss Emme Frye White.

Died.

BANTA.—In Paterson, New Jersey, on Tuesday, August 20th, Dr. John H. Banta, aged fifty-four years.

BEYEA.—In New York, on Sunday, August 18th, Dr. Samuel Beyea, of New Rochelle, aged forty-five years.

BRICE.—In Chester, South Carolina, on Tuesday, August 20th, Dr. J. M. Brice, aged forty years.

ENSOR.—In Columbia, South Carolina, on Saturday, August 17th, Dr. Joshua F. Ensor, aged seventy-one years.

FOSTER.—In Nahant, Massachusetts, on Sunday, August 18th, Dr. Reginald D. Foster, of Mount Washington, Md.

GRAFF.—In Pittsburgh, Pa., on Thursday, August 15th, Dr. Matthew A. Graff.

JONES.—In Kansas City, Missouri, on Tuesday, August 13th, Dr. L. J. Jones, aged eighty years.

PRENDERGAST.—In Cork, Ireland, on Saturday, August 17th, Dr. P. J. Prendergast, of Brooklyn, aged fifty-seven years.

RINEHART.—In Frizellburg, Maryland, on Sunday, August 18th, Dr. Jacob Rinehart, aged seventy-four years.

WADE.—In Wakefield, Michigan, on Tuesday, August 13th, Dr. Carter Wade.

WELTMER.—In Reading, Pa., on Thursday, August 15th, Dr. Paul E. Weltmer, aged thirty years.

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Original Communications.

REMARKS ON THE MEDICOLEGAL ASPECTS OF IMBECILITY.*

By L. PIERCE CLARK, M. D.,
New York.

Visiting Neurologist to the Randall's Island Hospitals and
Schools; Consulting Neurologist at the Manhattan State
Hospital, etc.

The¹ difference between medical and legal definitions not only introduces artificial difficulties in addition to those inherent in all that pertains to insanity, but to that of imbecility as well. Imbecility, for example, in law not only includes arrested development of mind, as in idiocy, but also dementia, or the breaking down of intellect by disease or old age. In law imbecility is to be distinguished from lunacy in that it is without delusions or lucid intervals. The legal test of the State consists in the inability of the subject to transact the ordinary affairs of life, to understand their nature and effect, and to exercise will in relation to them. The test is not altogether free from the idea that imbecility properly covers certain terminal states of insanity, especially in the senile period. For a considerable time the law held that the best single test of imbecility was founded on the inability of the individual to discriminate in the values of separate units, but imbeciles not infrequently have a prodigious calculating power without any real ability of applying it to an adequate pecuniary advantage. Neither money making tests nor mathematical calculations can be relied upon as legal or medical criteria of imbecility. Not even though a retaining ability supplements the money making test can a fast rule be established. Neither faculty is an exalted one; many imbeciles possess them in the absence of many other faculties. Furthermore, mere extravagance and mismanagement of property do not indicate imbecility any more than insanity. If, however, these acts result in loss of means of support and maintenance, legal conservation may be justified. Again, one imbecile may converse rationally upon familiar subjects and yet be incapable of much thought, judgment, or reflection. In brief, one may say that there is no general or single test of imbecility in law; the circumstances and capacities vary within extreme limits. Every case must, in medicolegal

matters, be judged upon its own merits, in which tests of memory, judgment, emotional balance, personal conduct, and morals play important parts, as in medicine proper.

The medicolegal distinction between idiocy and imbecility is quite as arbitrary as in ordinary medicine. The two states merge into one another. However, from the sociological point of view it may be said the imbecile is a much more dangerous member of society than the idiot, for the latter, by reason of his lack of voluntary attention, is incapable of forming any idea of injury of his fellow. Upon this basis one may say that the idiot is extrasocial, while the imbecile is antisocial. Any distinction upon the nerve basis of the faculty of attention must be of degree only. Some imbeciles are recognized as unreliable, mischievous, indolent, and antisocial, while others are good natured, trusty, docile, and industrious.

Once a condition of imbecility is thoroughly established before the law his status is by no means confusing. Thus an imbecile or feeble minded person can execute no contract or conveyance. He is under the legal restrictions of a minor. It is interesting to know, however, that the same view is not taken of an epileptic. He may sign any form of legal document without rationally intending to do so; the whole affair, indeed, may be forgotten at a time when he is considered sane, and yet the act may be valid.

The condition of continued epilepsy does not render the subject incompetent or irresponsible. A condition of imbecility, feeble mindedness, or dementia must be proved first. The medicolegal aspect of ordinary epilepsy concerns itself with the mental state at the time of the fit. There are many reasons why mental incompetence in epilepsy should have a broader foundation than the fit period.

The impropriety of permitting imbeciles to vote upon public questions is very manifest at times, but when such defections have not been legally declared as such no one may refuse them the franchise, and, notwithstanding imbeciles are easily led and may show improper judgment in such matters, that fact in itself can never be made a basis for such legal inquiry, for multitudes of others than imbeciles could be deprived of political rights for the same reason.

It is a curious fact that the law requires less mental power for the execution of a will than the making of a contract. Again the same degree of mental capacity is not required in making a will of small and simple property as that of a large and complicated estate. Finally, a disposing mind does not

* Read in part at a session of the American Medical Association, held at the Hotel New York, May 27, 1907.

The importance of the current subject of the programme of the American Medical Association, held at the Hotel New York, May 27, 1907, has been the subject of much discussion in the United States, particularly in the last few years, but 6,000 provided for in the twenty years of its existence for the benefit of the country.

necessarily require a sound mind. The law makes considerable distinction between important and common affairs, large and small properties, relative to the disposing power in wills.

For those of us who believe the law should recognize conditions of limited responsibility in criminal action, the just position of the Civil Code regarding limited responsibility for testamentary capacity offers a valuable and potent argument for the recognition of the former. The incapacity of an imbecile through fraud or undue influence is of much greater moment in the eyes of the law than the obvious and inherent defect itself. The mere weakness of mind in imbeciles is not in itself sufficient ground to annul the marriage contract. Laws prohibiting marriage of imbeciles and epileptics are on the statute books of New Jersey and Connecticut; such legislation, however, is not sufficient to prevent procreation by and of idiots. The idea of castration of male epileptics, imbeciles, and idiots has not materially advanced beyond academic discussion.

It remains for us to devote a few remarks to a division of our subject about which the legal aspect is less definite and fixed, that is the medicolegal status of the moral imbecile. The characteristics of such subjects of moral depravity are too well known to warrant detailing here. These individuals are often turbulent, indocile, quick to anger under slight provocation, prone to all forms of excesses, committing outrageous acts of destruction of property, and personal violence. They more or less plausibly explain away their antisocial acts. They are subjects of continued worry to their kindred and friends. They are constantly doing wrong, either by neglect, vicious intent, or foolish gratification of depraved tastes. They are incapable of sustained mental and physical application; they destroy, subvert, or unsettle everything with which they are brought into contact, and which they can harm or injure. Without attempting a more exact definition and classification of these antisocial factors we may say they are found in insane asylums existing as cases of moral insanity, cases of dementia præcox, in which nondevelopment is balanced by deterioration and paranoid states, with furors and explosive episodes; they are seen in institutions of feeble minded as cases of imbecility with moral perversion, in reform schools and prisons as incorrigibles and habitual criminals; in vagabondage as petty thieves and tramps, and, finally, among the better classes of society in homes and sanatoria for borderline psychoses and drug addiction under practical guardianship. These subjects of slighter grades of imbecility in which there is diminished responsibility are dangerous to the community, and should be early apprehended. Suitable safety measures of permanent mutual protection to the individual and society should be adopted. Humane segregation, and not punishment, should be aimed at. Those suffering from undoubted psychical affections should go to the asylums, those youthful irresponsibles whose moral deficiency is imbecilic should be placed under professional pedagogic industrial training and discipline, but not punished. None should be allowed to pass further in prison life than the reformatories and reform schools.

Here the adage of an ounce of prevention is of undoubted economic force. One of the most practical means to this end would be in our hands if we required frequent visitations of alienists to penal institutions and their insane departments. Undoubtedly alienists could profit much in dealing with the ethics of responsibility in mental disease by a closer study of criminals. The reverse suggestion regarding penologists has a like obvious application.

In conclusion we may say that the establishment of juvenile courts presages a juster and saner outlook for feeble minded children who suffer moral perversion and who come into contact with the law through the commission of criminal acts.

23 WEST FIFTY-EIGHTH STREET.

THE SCHOOL TRAINING OF BACKWARD CHILDREN IN THE NEW YORK CITY PUBLIC SCHOOLS.*

BY CHARLES EDWIN ATWOOD, B. S., M. D.,
New York,

Assistant in Neurology and Psychiatry, Vanderbilt Clinic, Columbia University; Formerly First Assistant Physician, Bloomingdale Asylum.

I should like to state at the beginning of my paper that I have no official connection with the public schools of New York; but I have been requested to interest you if possible in a department of the schools with which many of you may not be familiar; a department which is of practical interest to us all as physicians and guardians of the public health. I refer to the so called ungraded classes for the special instruction of those children who are weeded out of the normal classes for reasons of mental disability, and who are taught separately by specially selected teachers under the supervision of a special inspector. Special schools have been found useful in Germany and England for a number of years, and schools for idiots and the feeble minded have existed in France for sixty years or longer, since the time of the elder Séguin, whose classic writings on the subject form the foundation of much that has been done in this direction since. The unexcelled work of Bourneville, at the Bicêtre in Paris, also furnishes an example of what may be accomplished by the application of simple scientific principles in the proper training of even extreme conditions of brain defect.

In the United States there are nearly 2,000,000 defectives. Of these over 100,000 are feeble minded, *i. e.*, in contradistinction to idiotic, imbecile, or insane.¹ These feeble minded are increasing at the rate of more than 2,000 per annum. The percentage of these cases is greater in the United States than it is in France, England, Germany, Italy, or Austria. The proportion of these cases in New York city as a port of entry is far greater than elsewhere in the United States for reasons which it is not the province of the paper to discuss.

In Germany, under special management, in fifty-two auxiliary schools and twelve institutions, 75 per cent. of the feeble minded have become self-supporting.

In this country we have institutions and colonies

* Read before the Medical Society of the County of New York, May 27, 1907, as part of a symposium on mental defectives. Special Reports of the Census Office, etc.

for the training of the lower grades of mental defectives; but in our public school ungraded classes, we are supposed to teach and train only the backward and atypical cases and the higher grade of defectives.

The first ungraded class in New York was established in Public School No. 1, at Henry and Oliver Streets, in 1900. In 1903, similar classes were organized in Public School No. 77, at First Avenue and Eighty-sixth Street, and in Public School No. 110 on Broome Street. In 1905, many other schools were provided with ungraded classes; and last year, 1906, a pioneer teacher of these classes in New York (Miss Elizabeth Farrell), who had previously been sent abroad to study English systems of instruction, was made inspector.² The ungraded classes were from the first subdivided, for pedagogic purposes, into (1) bright truants; (2) normal children with sensory defects; and (3) children truly mentally defective. The truants, who are not defective, have been placed mostly in the truant schools of Manhattan and Brooklyn; and pupils with sensory defects are being sent to dispensaries or to family physicians for treatment. The physically defective cases after appropriate treatment gradually get back to the higher grades. The remaining children, who are mentally backward on account of inherently defective conditions of brain, continue to be separately instructed, unless they are of too low mental grade, in which case removal to institutions is lately being urged. In accomplishing such removal to institutions the school authorities are greatly hampered by the ignorance and often superstition of the parents, and not infrequently also by some of the family physicians, especially of the lower East Side, who fail to recognize the true condition and mislead the parents by telling them that the child will outgrow his disability in the proverbial seven years, or at puberty.

The population of the greater city of New York is over 4,000,000; the number of public schools, over 500; the school enrollment about 700,000, and the number of pupils considered suitable for the ungraded classes form at least 1 per cent. of these, or 7,000 children. Nearly all of these 7,000 children are foreign born, and the few who are native born are of foreign parentage. For present purposes those for whom classes have been provided are classified into low, medium, and high grade. In these classes special training, special coaching, or special discipline is required, according to grade; in the lowest grade the children are taught largely objectively, and "learn by doing;" in the other grades are pupils able to learn if given individual instruction.³

The total number of classes thus far is thirty-four. Public School No. 110, corner Broome and Cannon Streets, with 2,500 pupils, contains six classes, and the remaining twenty-eight classes are divided among as many different schools. These pupils are in the same school building with the other pupils, under the same principal, attend the same general assemblies, have the same play ground, gymnasium, and general supervision, and are taught separately for their own special needs. There is one

teacher for each class averaging fifteen pupils. She is paid more than the other teachers, and must have many all around qualifications, both of mind and heart, for the work. These teachers are excused three months of each year for selfinstruction in institutions which have schools for defectives. There are conferences of teachers each month to compare notes and to indicate the best lines of teaching as found by experience. Outsiders come in at times on invitation to the conferences, and lecture on special topics, *e. g.*, habits, sense training, phases, motor training phases, etc. There is a nucleus of a library where the meetings are held; and at the School Board a museum of things made by pupils is being established. Photographs of pupils, front and side view, are being made by some of the teachers.

Teachers for the difficult and taxing work of dealing with the backward children are selected by the inspector for natural aptitude, and the children who form the ungraded classes are those who have been observed by their teachers for a considerable time in the normal classes and in their home environment, and are finally passed upon by the inspector and a medical member of the physical training staff. The various reports are all a matter of record.

In one school visited (Public School No. 110), eight backward children were on the waiting list for the lowest grade, and six of these had landed within a year. In one of the lowest grade classes, four of the pupils seen were deaf and had to be taught to speak; one was blind, one rachitic, and one was a cretin type of idiot. Ages ranged from seven to fifteen years.

The teachers keep full card records of each case in the ungraded classes of this school, comprising what the child can do at the beginning, what its apparent needs then are and the progress that is made, if any, from time to time. Some of the low grade pupils have been tried for petty offenses in the courts.

One of the best conducted of the ungraded classes which I visited was in Public School No. 18, on East Fifty-first Street. This was presided over by a teacher who has had the advantage of training in an excellent private school for the feeble minded. The children are of the lowest grade. The day's programme arranged by this teacher, subject to great variation, is somewhat as follows: From 9 to 11:45 a. m. and from 1 to 3 p. m., with appropriate intermissions, the children pursue various tasks calculated to train the senses and to develop them on the motor side. They dust and arrange the room; name objects in picture books, and learn about their attributes; sing songs; listen to a story concerning which they may make observations; study Nature by means of a little garden, where potatoes, peas, lettuce, onions, etc., are planted by the pupils themselves in a rough box; carve simple shapes in wood; select out and match colors; have simple gymnastics; test their smelling and tasting; pursue various games under instruction to aid in selfcontrol and improve in precision of hand, eye, and ear; then there are exercises in drawing on the blackboard, counting with money, brush work with colors, modeling in clay, word pictures, Indian club and dumb-bell exercises, etc., the whole concluding with dance

² To Miss Farrell credit is due for calling me to my visit there and inspiring in the preparation of this paper.
³ See reports of School Board.

ing and marching with piano accompaniment, special attention being given to the attitude, rhythmic body movements, and mannerly deportment.

The ungraded classes of all the schools make occasional visits to museums, the aquarium, and zoological garden for objective teaching; and to Forest Hills and Bronx Park for field work. Materials from some of the museums are also loaned, so that the objects themselves may be seen and studied.

Public School No. 120, on Broome Street, is a school entirely for incorrigible boys. Many are on parole from the courts in care of the principal, and others are sent by principals of other schools as incorrigibles, who would otherwise be either suspended or sent to the Truant School. They are incorrigible on account of either faulty home conditions or defective mentality. In the first class visited there were fifteen; one boy seen had two brothers who are professional thieves; one was defective and degenerate, sixteen years old, with mentality of six. They were mostly streets boys with, as the principal expressed it, a superficial brightness. In this class the teacher selects some subject which becomes a centre of interest. At the time of my visit the subject was *The Farm*, and everything that could be drawn on the board, thought of, made, etc., pertaining to a farm, was brought up for discussion and treatment and at once awakened marked interest. Several were cutting out birds from paper; one was weaving a basket in the shape of a bird's nest. Another had three baskets already made, etc. There is a gymnasium and also a bath in this school, as in the regular public schools. In one class two boys were working in leather. In the shop the lowest grade boys were doing wood carving and carpentry.

There are nine classes in the school. Most of the pupils have no sense of right and wrong at the start. One, *e. g.*, before coming, had been learning to steal for a living and thought it no harm. Ages run from ten to fifteen years. Punishment is only by deprivation. Pupils have to earn their privileges by good behavior. The boys are of suitable age for the grammar grades, but are only able to do the lowest primary work. Some learn to count by simple methods. Others put sentences together with separate printed words, each pupil being given a picture as topic.

This school has been open two years. There are one hundred and thirty-five pupils, drawn mostly from two school districts of the down town East Side, representing ten schools, each of at least 2,000 pupils. Ten or eleven parochial schools send a few, and some boys are picked off the streets. A great many of these incorrigible boys are here fitted for remunerative employment outside. Fifty-one out of a total of about 350 (or one seventh) have been sent out; all but six have been heard from and are doing well at unskilled labor, *e. g.*, as messenger boys, telegraph boys, and various employments in department stores and down town business places.

In certain classes of the older boys court is held and offences tried, as in the Junior Republic.

There are the same school hours for the incorrigible boys as in the regular public schools, and the curriculum is carried out as far as permissible.

The boys whom they are under punishment, boys

ever, and are encouraged to try to regain favor.

As yet the physicians' examinations for the ungraded classes, while admirable, no doubt, for physical defects, are lacking occasionally in accuracy respecting mental states. Where there is any conflict of opinion respecting the degree of mental disability, it is found most practicable at present to rely on the prolonged observation of the pupils by the teachers of the normal classes (at least for the temporary placing of the pupil in an ungraded class) rather than on the brief mental examination by physicians who have not had the advantages of special training in this direction. Among the children are many who are really only suitable for institution or colony care and treatment. The inspector informs me that these cases of obvious defect are retained in the ungraded classes temporarily, with the hope of interesting the parents in their proper disposal. One pupil of this sort was a girl who had never been out of doors before; one boy had been often turned out of a normal school; several are manifest idiots; three of the latter type came from one family and were subsequently sent to an institution.

The higher grades of the feeble minded, however, form the majority of the pupils of the so called ungraded classes of the city public schools. Such cases are peculiarly likely to deteriorate unless special efforts are made to save them. Their mental processes show diminished reaction time, which is especially noticeable during stress, such as in illness or under excitement. If neglected they form an easy prey to designing street comrades and grow up to be "undesirable citizens." Their limited capacity is always shown in competition with the normal individual; but they may, by appropriate exercises and training, be made often to approach very nearly to the normal standard.

Ideal conditions do not, of course, exist as yet in the ungraded classes of the public schools. The number of pupils to each teacher is too great; equipment is inadequate; it is difficult to get suitable teachers; occasional supervision by qualified neurologists and alienists is apparently needed, etc.; but on the whole, the work done under enthusiastic teachers who have their heart in their work is simply inspiring. One can scarcely realize at first, except for a few obvious cases in each class, that one is in the presence of defectives. The conduct is so good. The attention is occupied and not distracted by the visitor. There is an eagerness to help the teacher and to participate in all exercises. Articles made are exhibited with pride, and many of the children who could not even walk or talk as they should, have learned to accomplish both to a degree at little variance with the normal.

The correction of slight deafness, near sight, anaemia, and malnutrition, and the removal of adenoids and hypertrophied tonsils have done much to increase the efficiency of many apparently backward children, but it requires more than this for the proper strengthening and development of abnormal physiological functions of the brain itself, when they exist, and it is here especially that the ungraded classes have their special function.

It is suggested that doubtful cases might be sent to neurological and psychiatric clinics for diagnosis

and suggestions as to the disposition and method or line of work most advantageous to individual cases; and where the colony or institution rather than the ungraded class seemed to the clinician a necessity, such a statement in writing, with the indorsement of the school authorities might be used in compelling the parents to pursue the necessary course to bring this about. In this way the classes would surely be rid of an unsuitable element and the pupils themselves most benefited.

From a medical and especially a psychiatric standpoint, however, the subject of instruction of the defectives in the ungraded classes of the city public schools, while organization is still in its infancy, might possibly be placed on a more secure footing if a system of regrading and classification were made periodically and with sharper lines. The organization and scope of the work should be carefully mapped out and the personnel of teachers carefully inquired into.

It is suggested that the School Board, if so disposed, might possibly derive some assistance from the cooperation of a committee from the County Medical Society, or from the Neurological Society, acting in conjunction with one or two heads of institutions, in solving some of the problems of the ungraded classes during the formative stage of this important branch of instruction; and such cooperation would meet, I am sure, with the cordial support of those who are now intrusted with the work.¹

In any event, I strongly recommend New York physicians to visit the special classes of the New York public schools, which are, all things considered, the best in the land, and study them carefully. You will be abundantly rewarded yourselves and perhaps in some way be of assistance to the noble women who are devoting the best part of their lives, in a most practical way, towards the prevention of pauperism and crime.

14 EAST SIXTH STREET.

"NORMAL" OVARIOTOMY, "FEMALE" CIRCUMCISION, CLITORIDECTOMY, AND INFIBULATION.

With Variorum Notes on the Practice of These Operations and Their Distribution in Space and Time.

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De gustibus . . . —but the proverb is somewhat threadbare. The fact, and full evidence of its reality, are, however, permanently present to the eye of the philosophical observer; that a very considerable proportion of the sum total of human misery is due to the tyrannical exactions of artificial tastes, and the unreasoned customs thereupon established. And to no eyes are the manifold phases of this characteristic of our species more frequently exposed in their primitive nakedness than to those of the physician who is gifted with the power of seeing — an accomplishment at which, we will take the opportunity of pointing out as we pass — is not nearly so widely distributed as most people seem to think. Whatever be the true explanation, the fact

is undeniable that the female form divine has, from time immemorial, been subjected to a greater variety of artificial means of modification than has that of (the coarser) opposite sex. The *rationale* of a large proportion of the procedures has not always been very obvious. But it could not well have been, having regard to the fact that the true function of woman is a question which is still in periodic receipt of copious quantities of contradictory, and sometimes acrimonious, discussion. That brilliant authoress and acutely philosophical observer of life and manners, Miss Marie Corelli, has formulated the opinion that "the true intention of woman's destiny has not yet been carried out. She is fighting towards it—but, if I may venture to say so, she is using her weapons wildly and in various wrong directions. . . . It is by captivating and cherishing to the utmost every sweet and sacred sentiment of womanhood—every grace, every refinement, every beauty; by taking her share in the intellectual world's work with force, as well as with modesty, and by showing a faultless example of gentle reserve and delicate chastity."—Such is the idea of a brilliant twentieth century representative of her sex as to woman's appropriate means and methods of becoming man's helpful and inspiring rival and companion. In the present communication, we shall meet with some of the older methods.

The greatest of dramatists has made his most accomplished gentleman to inform—in an outburst of gloomy cynicism—the most beautiful and amiable of ladies, that "God has given you one face and you make yourselves another." The late Charles Darwin would, I believe, explain all such tendencies of cosmetic taste by the competitive desire to out-shine in the eyes of men; and would, I dare hope, look upon them as a laudable effort to promote Nature's great design of permanently securing the "survival of the fittest." John Stuart Mill might, on the other hand, be quite as firmly satisfied with his own view; in regarding such ornamentation in the same light as he would the cap and bells of the jester, or the gilded collar of the favored slave—attributing all such alike to the brutal tyranny of the stronger males, to whose tastes the weaker must pander. Let us again listen to the incisive remarks of the feminine genius from whom I have already quoted, enunciated through the medium of one of her prominent (male) characters: "It is easy to understand the feeling of Marie Stuart when she arrayed herself in her best garments for her execution: it was simply the heroism of supreme vanity, the desire to fascinate if possible the very headsmen. One can understand any beautiful woman being as brave as she. Harder than death itself would it have seemed to her had she been compelled to appear on the scaffold looking hideous. She was resolved to make the most of her charms so long as life lasted." And elsewhere, we find in the pages of the same writer: "Men never fall in love at first with a woman's mind; only with her body. . . . Who marries a woman of intellect by chance? No one, and if some unhappy man does it by accident, he generally regrets it." That the peculiar and inexplicable misanthropism of woman is not one of the intellectual gifts of an all-wise, but mysterious Providence has, so far as I can ascertain, been al-

¹It was voted that a committee be appointed by the president of the society to inquire of the School Board whether they would co-operate.

ways a well recognized fact; indeed the only successful attempt that I know of which has veiled it in some temporary obscurity has been the result of the agitation for equality of rights, physical and intellectual, by the latter day apostles of the "new woman" movement. But "progress" and "population" are two irresistible factors; and the hurry and worry of the present generation, which so largely owe their genesis and development thereto, have rendered radical changes of the older social and sexual arrangements an absolute necessity. The most progressive and least prejudiced of national communities naturally gives out the healthiest echo of this movement, more especially as woman has there unquestionably attained, and been unanimously accorded, a more exalted and more highly appreciated position than she reached at any earlier stage of recorded history. And we read, some fifteen years ago, in one of its representative periodicals: "The difference between woman's thought of today and that of fifty years ago, is almost as great as that which marked the chasm between American women half a century ago and the women of the Ottoman empire. . . . Then women were naturally echoes of their husbands, and life's vision was very circumscribed. To-day in America millions of women are earning independent support, and marriage has ceased to be the only asylum for women." To this advanced stage on the now broadly open highway to a feminine elysium, the pathway of woman's pilgrimage had indeed been a long, and a narrow, and a tortuous, as well as a thorny one. And I incline to regard the several special forms of operative modifications of the female body which I am about to attempt to illustrate in the present communication as some of the more pungent prickles of its earlier stages.

I will now pass from those prefatory generalities to a closer examination of my present subject: The artificial—unnatural, unnecessary, and uncalled for—modifications of some of the female generative organs and their appendages. Allusions to the operative liberties taken by the ancient Ethiopians with the bodies of their females are occasionally met with. Strabo informs his readers: *Εἰτα κρεβάται κοῦβητι τῶν βασιλέων καὶ ἡ γυναικὶς ἀκροβυκία*. This item of information supplied by the famous Greek geographer, hopelessly crude as it is in the absence of any and all attempts at descriptive detail, is, nevertheless, sufficient to prove the state of popular tradition on this head in the time of the writer, and also of the prominence of the value at which he estimated the information thereon that he had been able to attain to. This tradition reappeared at intervals, with or without the personal corroboration of traveled witnesses down through the various centuries of the so called middle ages.

The approximately mediæval Alexander ab Alexandro tells us that: "In Arabia genus est, Creophagos solebant, quibus nondum viri, sed mulieres judæia excindi solebant, sicut de Andramite, Lydorum reg, qui primus eunuchas fecit mulieres, sermo proditus est, quo exemplo in Ægypto aliquando excindebantur." The opinions of commentators are, as might be anticipated, rather widely divergent in their expositions of these allusions. Küchenmeister would have it that they refer to

circumcision of the female—in both Strabo's text and that of Alexander ab Alexandro. The great majority of ethnologists (Morand, Diemberbroek, Murat, Hyrtl, et al.) have, however, pronounced decidedly in favor of the view that the somewhat ambiguous diction refers—at least in the case of the latter author—to the operation of "normal ovariectomy." With this exposition the present writer unhesitatingly concurs.

In the course of his investigations of the conditions of female life in India, Roberts ascertained that ablation of the ovaries was a procedure of time honored antiquity in that country. And he had opportunities of examining physically some of the unsexed persons who had been subjected to this operation in early life. These specimens were about twenty-five years of age, perfectly healthy, strong, and muscular. The mammary glands had remained wholly undeveloped, and the normal growth of pubic hairs was conspicuously absent. The pubic arch was exceedingly narrow, and the vaginal orifice practically obliterated. The whole pubic area showed a want of the usual subcutaneous fatty deposit. The menses had never appeared, and there seemed to be no sexual desire. (Dr. Roberts had no opportunity of seeing the operation performed.)

The natives of Australia—the aboriginal New Hollanders, one of the most primitive and least intelligent (we have often been told) of the surviving races of mankind—were found by Micklucho-Maclay to practise artificial removal of the ovaries. The procedure was usually adopted for the utilitarian purpose of creating a supply of prostitutes, who should thus be enabled to minister to their professional functions without danger of burdening the existing population by unnecessary increase. (A curious antipodal forecast of the then remotely future "race suicide" of the most advanced twentieth century civilization!) Certain other considerations were taken as practical motives to the operation in some cases. For instance, the naturalist explorer, MacGillivray, found a native ovariectomized female at Cape York who had been subjected to the operation because she was born dumb. It was deemed desirable—from the standpoint of public economy—to obviate the danger of her bringing into the world a series of dumb descendants; the defect being looked upon as hereditary, even to an indefinite succession of generations. (Further anticipations of the modern laws of transmitted physical features—especially the defective ones, and of recent agitation against the procreation of their species by the physically unsound and degraded!)

Ever since the pronouncement of the malediction which followed Eve's use of the forbidden fruit, the sorrows and dangers of childbed have necessarily formed one of the special terrors of the thorny pathway of the pilgrimage of human life. And the procedures referred to show that long before modern oophorectomy became, in the hands of the skilled gynæcological (and aseptic) surgeon, a proceeding of comparatively little danger in the crowded centres of civilization, preventive (operative) measures had been utilized, sometimes, perhaps, on a much larger scale than we now suspect. Of the details of these primitive operations, no reliable descriptions have descended to us, nor is it at all like-

ly that they will be ever attainable. With regard to the amount of danger, the question might even be raised, whether, when performed with clean hands and instruments, and conducted throughout (sequelæ included) with moderate general care, the risk in an open breezy country locality would have been much greater to life than that of parturition occurring in a metropolitan hospital in the pre-Listerian days of the sanitation and hygiene of those institutions. Those who have become acquainted with the practice of our great lying-in hospitals only within the period subsequent to the date of the truly glorious surgical revolution effected by the united genius and philanthropy of the octogenarian giant of our profession, require a very active imagination to enable them to picture to themselves the dangers of childbed in those institutions in the first half of the past century. When that progressive age was in the enjoyment of its 'teens, the characteristics of one of Dublin's most successful obstetricians was thus chanted by the erratic poet physician, Brennan, in his noted periodical, the *Milesian Magazine*:

"Come next, dull Dr. Labatt, O!
Come next, dull Dr. Labatt, O!
How is it so
You kill the doe,
Where'er you catch the rabbit, O!"

This native poet was, indeed, notoriously cynical in his rhyming records of the practice of his contemporary professional brethren; but there is no doubt that the mortality of our maternities at that date formed an appalling contrast to what it has lately been reduced in the best institutions; and also, that their terrors were not confined to their own precincts, but radiated from them to all parts of the city and neighborhood. And, in dismissing this section of my subject, I am reminded of the debt of never ending gratitude which humanity must always continue to owe to the pioneers of antisepsis.

The growth of hairs which characterizes the circum-pudendal region is so constant and familiar an object that its presence is expected in all mature individuals. Accordingly, something of a surprise and shock is caused to most on learning that, over a considerable section of the habitable globe, one of the most important factors in the personal decoration of the female form is to remove them as completely as possible. With the Mohammedan lady after marriage it is a necessity, not merely of cosmetic decency, but of strict religious duty, to get rid of them altogether. The depilatory which is said to be most generally used for this purpose is one prepared from equal parts of arsenic sulphide and slaked lime, made into a paste with rose water. The important ceremony does not become essential till after marriage.

In curious contrast to such practice is that of the females of certain tribes who inhabit the coast of Guinea, who carefully remove all pubic hairs as fast as they appear, before marriage, but afterwards allow them to grow without further attempt at extermination.

The Tonga Islanders regard the pubic hairs as the special perquisite of the devil, and make it an item of religious ceremonial to keep them continuously removed at all periods of life.

According to Colombat de l'Isère, and other competent observers, the females of the northern countries of Europe have, as a rule, the vulvar sinus placed further back, and the uterus lower down in the pelvis than have those of the southern nations.

The peculiar conditions of limb under which the Chinese ladies are obliged to live are said to have the effect of causing an unusual degree of development of the mons Veneris and greater labia. On the other hand, the Bush woman and Hottentot female are distinguished by the slight prominence of the characteristic features of this region; development of hairs, of labia majora, and of mons Veneris. In this respect they show an approximation to the anthropoid apes, among which the orang utan alone betrays a tendency to the formation of labia majora. The labial appendages of the Hottentot female have been celebrated ever since the days of the Dutch traveler, Wilhelm Ten Rhyne, in whose *Schediasma de promontorio bone spei* (1686) we find the statement that: "*Feminae hottentotice hoc sibi a cæteris gentibus peculiare habent, quod pleræque earum dactyliformes, semper geminas e pudendis pendentes, productas scilicet nymphas gestent.*" The "apron" thus formed was afterwards found by Blumenbach and other anatomical authorities to consist of the hypertrophied nymphæ. Those women were accused by the French traveler, Le Vaillant, of using artificial means for the development and forcible elongation of this anomalous outgrowth, as they found that its prominence made them proportionately attractive (!) to the other sex. A somewhat analogous hypertrophic development of the præputium clitoridis has been observed to characterize the female population of Bechuana-land, sometimes attaining a length of eighteen millimetres, or more.

Some imaginative naturalists have seen in the elongation of these genital appendages in the Hottentot female a resemblance to that of certain of the floral appendages in the Pelargonium and, to a less marked degree, in some other flowers, the upper petals of which are much larger than the lower; probably so arranged by Nature for the special protection of the reproductive organs from the scorching African sun. The greatest elongation of the nymphæ measured by Barrow amounted to five inches, and it is said to increase up to old age. Le Vaillant indeed states that it is only the more coquettish of the Hottentot girls who are incited by vanity to practise artificial elongation of the nymphæ and labia majora. They rub and pull these parts with gradually increasing force; and when the artificial elongation has attained to a certain extent, they effect their purpose more satisfactorily by hanging weights to them. Some of the more privileged young females of those tribes spend several hours a day at this employment; it is regarded as one of the most important parts of the toilet of a Hottentot belle. Corresponding manipulation was found by the missionary, A. Akrensky, to be practised by the females of Basuto land; but in this case the elder maidens operated on the younger, and the daily exercise of this cosmetic function was commenced in infancy.

Duboussset found among the female natives of Bevoat a marked prominence of the lesser labia, which feature, combined with a conspicuous de-

ficiency of personal cleanliness, formed a very unattractive picture:

J'observais alors le grand développement des nymphes, dont les plis muqueux se terminaient en points, reposant à terre, sur une longueur de quelques centimètres de chaque côté du vagin, avant de se confondre avec celui-ci, à la face interne des grandes lèvres. Les deux lobes, formant ce prolongement charnu des petites lèvres, partant du prépuce semblaient dépasser la trace du clitoris, dont on ne voyait pas le renflement arrondi terminal. L'aspect de la vulve de cette fille de quatorze ans, probablement déjà déflorée, était pouissant. L'excroissance anormale, plus rouge que la peau généralement, d'un ton bistre, était recouvert d'une poussière grise rendu humide par la secretion sebacée qui s'en échappait incessamment.

Artificial elongation of the lesser labia was found by Adams to prevail in Dahomey; the King's seraglio included 3,000 members, the elect of the female inhabitants of the whole kingdom, and none need apply for admission to that sanctuary whose lymphæ had not attained the recognized standard of longitudinal production.

Another peculiar national method of personal decoration was found by Cameron to be practised by the female members of the population of the shores of Lake Tanganyika. The females had the skin of the lower part of the abdomen manipulated, with forcible stretching downward, ever since the time of infancy; so that when they arrived at puberty a cutaneous pendent curtain was formed which reached half way down the front of the thighs.

Hypertrophy of the clitoris to a very marked degree has occasionally been noticed among the females of tropical countries. Such a specimen, occurring in a negress, was examined by A. W. Otto, of Breslau, who published the results of his dissection. The affected organ measured four and a half inches in length, and one and a half inch in transverse diameter; and projecting from the vulva, it formed a complete covering for the vaginal orifice as the body lay in the supine position. We learn from the classical authorities that such a structural peculiarity was common among the female inhabitants of the borders of the Ægean Sea; and its existence has been said to underlie the sentimental attachments of the so called "Lesbian love," the ardor of which, carried to the highest degree of cultured poetic frenzy, dictated the immortal effusions of the "divine" Sappho. At least one exceedingly curious complication of this variety of "inverted" passion has been placed on record. It is given with collateral comment by Mantegazza. An active Lesbian lover was married, in modern routine fashion, to a young man in the full vigor of life. But his sexual attentions, although passively received, were not satisfying. The bride retained her lady love. One day she visited the latter, directly after her husband had had sexual connection with her. The turgent clitoris conveyed some of the adhering spermata, and a virgin conceived. Let a man was concerned, conceived, and bare! In his very interesting treatise of *Médecine et hygiène des Arabes*, Bertherand informs his readers:

Par suite de la précocité—dans la puberté hâtée par une vie sédentaire et le climat—dans la deprivation

conjugales prématurées, les organes génitaux acquièrent un développement très prononcé. Chez les femmes surtout, l'exubérance des grandes lèvres explique parfaitement la nécessité de leur excision dans les régions plus rapprochées des tropiques. Le clitoris est volumineux et très proéminent, le vagin très ample.

As further instances of this subtropical feature of the African female form, we may mention Bruce's testimony regarding that of the women of Abyssinia, and that of Mungo Park in his observations on the special characteristics of the Mandingos and the Ibboes. The latter tells us that "both sexes, whether Bushreens or Kafirs, on attaining the age of puberty, are circumcised. This painful operation is not considered by the Kafirs, so much in the light of a religious ceremony, as a matter of convenience and utility. They have, indeed, a superstitious notion that it contributes to render the marriage state prolific. The operation is performed upon several young people at the same time; all of whom are exempted from every sort of labor, for two months afterwards. During this period they form a society called *Solimana*. They visit the towns and villages in the neighborhood, where they dance and sing, and are well treated by the inhabitants." The former "lion hearted" explorer gives his observations with more illustrative detail of comment, which I purpose to quote at length afterwards.

Indeed, the general rule appears to be that the clitoris is much more prominently developed, as well as more conspicuously placed, in the female of the intertropical section of the earth's surface than it is in the person of her contemporary of the extra-tropical areas. Among the inhabitants of the shores of Lake Nyassa, Adams found that elongation of the clitoris to an extralabial projection of quite a finger's length was an anatomical incident of quite frequent occurrence.

The prominence of these external genital appendages, which is thus so much appreciated—and, accordingly, most assiduously cultivated—by the members of many tribes of the errant human family is, on the other hand, so abhorrent to the eyes and æsthetic sense of others, that they have recourse to excessively painful cutting operations for their removal, either wholly or in part. Accordingly, we possess records of the tribal operations of clitoridectomy and of "female" circumcision; both of which owe their origin and distribution to this diametrically opposite perversion of national taste, in this instance, in the direction of selfmutilation and personal curtailment. As would be expected from the crude methods and instruments employed by people of primitive habits, the latter operation very frequently involved a partial, or complete, performance of the other. One of the earliest authentic references to this procedure which appeared in our own language is that of "The Learned Job Ludolphus, author of the *Ethiopic Lexicon*. Made English by J. P. Gent. London, 1682," where after quoting from *The Confession of Claudius King of Ethiopia*: "All the books of St. Paul's learning are among us, and tell us of circumcision and the preputium; but our circumcision is done according to the custom of the country, like incisions of the face in Ethiopia and Nubia, and boring the ears among the Indians," the author proceeds:

This puts me in mind of the circumcision of females, of which Gregory was somewhat ashamed to discourse, and we should have more willingly omitted it, had not Tzagazaabus in his rude *Confession of Faith*, spoken of it as of a most remarkable custom introduced by the command of Queen Maqueda; or had not Paulus Jovius himself, bishop of Como, insisted in the same manner upon this unseemly custom. This same ceremony was not only used by the Habissines, but also familiar among other people of Africa, the Egyptians, and the Arabians themselves. For they cut away from the female infants something which they think to be an indecency and superfluity of Nature. The most impudent women that inhabit about the Cape of Good Hope still retain this custom, and for a small matter, expose themselves to the seamen. Jovius calls it *carunculum*, or a little piece of flesh. Golius, an oblong excrescence. The Arabians by a particular word called it *bedhron* or *bedhara*, beside which they have many other words to the same purpose. Among their women it is as great a piece of reproach, to revile a woman by saying to her, O *bandaron*; that is, O uncircumcised, as to call a man *arel*, or uncircumcised among the Jews. A strange thing, that only in Africa and some parts of Asia, the women should be noted for these extuberancies; for the Jewish women in Germany, being acquainted by their reading with this custom, laugh at it, as admiring what it should be that should require such an amputation.

The practice of circumcision, male and female, in Egypt and among neighboring nations and tribes, attracted the attentive curiosity of the famous Scotch explorer, Bruce, of Kinnaid; and his remarks on the subject are interesting and instructive, ethnologically and historically, even if they throw but a dim light on the physical details:

Although it then appears that the nations which had Egypt between Abraham and them, that is, were to the southward, did not follow the Egyptians in the rite of circumcision, yet in another, of excision, they all concurred. Strabo says, the Egyptians circumcised both men and women, *like the Jews*. I will not pretend to say that any such operation ever did obtain among the Jewish women, as scripture is silent upon it; and indeed it is nowhere ever pretended to have been a religious rite, but to be introduced from necessity, to avoid a deformity which Nature has subjected particular people to, in particular climates and countries.

We perceive among the brutes, that Nature, creating the animal with the same limbs or members all the world over, does yet indulge itself in a variety, in the proportion of such limbs or members. Some are remarkable for the size of their heads, some for the breadth and bigness of the tail, some for the length of their legs, and some for the size of their horns. There is a district in Abyssinia, within the perpetual rains, where cows, of no greater size than ours, have horns, each of which would contain as much water as the ordinary waterpail used in England does; and I remember on the frontiers of Sennaar, near the river Dender, to have seen a herd of many hundred cows, every one of which had the apparent construction of their parts almost similar with that of the bull; so that, for a considerable time, I was persuaded that these were oxen, their udders being very small, until I had seen them milked.

This particular appearance of the necessary appendage, at first made me believe that I had found the real cause of circumcision from analogy, but upon information this did not hold. It is, however, otherwise in the case of women. From climate, or some other cause, a certain disproportion is found generally to prevail among them. And as the population of a country has increased, they have been considered as an

object worthy of attention, men have endeavored to remedy this deformity by the amputation of that redundancy. All the Egyptians, therefore, the Arabians, and nations to the south of Africa, the Abyssinians, Gallas, Agows, Gafats, and Gongas, make their children undergo this operation, at no fixed time indeed, but always before they are marriageable.

When the Roman Catholic priests first settled in Egypt, they did not neglect supporting their mission by temporal advantages, and small presents given to needy people their proselytes; but mistaking this excision of the Coptish women for a ceremony performed upon Judaical principles, they forbade, upon pain of excommunication, that excision should be performed upon the children of parents who had become Catholics. The converts obeyed, the children grew up, and arrived at puberty; but the consequences of having obeyed the interdiction were, that the man found, by choosing a wife among Catholic Copts, he subjected himself to a very disagreeable inconvenience, to which he had conceived an unconquerable aversion, and therefore he married an heretical wife, free from this objection, and with her he relapsed into heresy.

The missionaries therefore finding it impossible that ever their congregation could increase, and that this accident did frustrate all their labors, laid their case before the College of Cardinals *de propaganda fide*, at Rome. These took it up as a matter of moment, which it really was, and sent over visitors skilled in surgery, fairly to report upon the case as it stood; and they, on their return, declared that the heat of the climate, or some other natural cause, did, in that particular nation, invariably alter the formation so as to make a difference from what was ordinary in the sex in other countries, and that this difference did occasion a disgust, which must impede the consequences for which matrimony was instituted. The college, upon this report, ordered that a declaration, being first made by the patient and her parents that it was not done from Judaical intention, but because it disappointed the ends of marriage, "*si modo matrimonii fructus impeditur id omnino tollendum esset*" that the imperfection was, by all manner of means, to be removed; so that the Catholics, as well as the Copts, in Egypt, undergo excision ever since. This is done with a knife, or razor, by women generally when the child is about eight years old.

But the French penetration of the mysterious land of the Nile in the latter part of the eighteenth century marked the dawning of a new era in Egyptology; as it did in international politics, and, indeed, in all the departments of the progressive evolution (or retrogressive devolution) of the great Western division of the human family. Many of the old hedging divinities were now ruthlessly overturned; the old time mysteries were disrespectfully exposed to the general gaze, and curiosity refused to be restricted by the limitations of tribal custom or individual prejudice. And here M. Sonnini so far overstepped the limits of his predecessors in the field that his record is, I venture to hope, worthy of the reader's perusal:

In Egypt, it is not peculiar to the men; the women also are subject to a similar nature.

This latter sort of circumcision was likewise practised by the people of ancient Egypt. It has been transmitted to their descendants alone; for those women who have been thus circumcised, with their fathers, have no power to marry, and all have their decision for the operation. I am sensible how difficult it is to treat subjects of this nature without awaking other ideas than those which occupy the naturalist in his researches; but this point of the natural history of man is, in my opinion, one of the most interesting and important.

traveler, before me, has investigated and determined it with precision. I shall confine myself to such terms as anatomy has adopted. If it be, in any case, allowable to be not very intelligible to the generality of readers, it is, no doubt, on so delicate a subject.

It was well known that Egyptian women submitted to circumcision; but authors were not agreed as to the motive of this custom. The greater number of those who have written on this practice have considered it as the retrenchment of a portion of the nymphæ, which grow, it is said, in these countries to an extraordinary size. Others, among whom is to be distinguished that illustrious traveler, James Bruce, have imagined that it was nothing less than the amputation of the clitoris, the elongation of which is, according to the same authors, a disgusting deformity. Mr. Bruce calls it excision, an expression for which his able translator has introduced into our language, and for which it is, in fact, not easy to find a proper substitute.

Before an opportunity occurred of my ascertaining the nature of the circumcision of the Egyptian women, I also imagined that it consisted in the amputation of the excrescence of the nymphæ or of the clitoris, according to circumstances, and according as these parts were more or less elongated. It is even very probable that these operations take place, not only in Egypt, but likewise in several other countries of the East, where the heat of the climate and other causes may produce too great an increase of these parts; and I had the more reason to be of this opinion, from having consulted several Turks settled at Rossetta, respecting the circumcision of their women as they gave me no other idea of it than that of a painful mutilation of this kind, the motives of which they also explained. Being, as has already been seen, great admirers of a smooth and polished surface, every inequality, every protuberance is, in their eyes, a forbidding defect. At the same time they alleged that, by one of these operations, the women lost, with the ardor of their constitution, the facility of procuring themselves illicit enjoyments. A barbarous refinement of tyranny, and the lowest degree of debasement of the one half of the human species which, by cruel means, the other half moulds to its pleasures at the will of its jealous despotism!

After these prefatory observations, he proceeds to give the reader the details of his personal experiences, the results obtained by the exercise of an enthusiastic and probably unprecedented zeal in the pursuit of knowledge:

I suspected that there must be something more than an excess in these parts, an inconvenience which, far from being met with in all women, could alone have given rise to an ancient and general practice. At length I resolved to leave no doubt upon this subject, and formed the design, which must appear sufficiently bold to any person acquainted with the inhabitants of Egypt, not of having a drawing made of a circumcised girl, but of having one circumcised in my own apartments. M. Forneti, whose intelligence and obliging disposition had so often been useful to me, had the goodness to assist me in this enterprise; and by the mediation of a Turk, who served as a broker to the French merchants at Rossetta, I succeeded in getting to my room a woman, whose profession it was to perform circumcision, and two young girls, one of whom had been circumcised two years before, and the other who was now to undergo that operation. M. Forneti, the Turkish broker, the consul's janizary, and myself, were the only men present at the ceremony.

I first examined the young girl that was to be circumcised; she was about eight years old, and of Egyptian origin. I was very much surprised to see her with a thick, flabby and fleshy excrescence, covered

with skin. This excrescence grew from above the commissure of the labia, and hung down it about half an inch. A tolerably correct idea may be formed of its size, and even of its shape, by comparing it to the caruncle pendent from the bill of a turkey cock.

The operatrix sat down upon the floor; made the little girl sit down before her; and, without any preparation, took out a bad razor and cut off the singular excrescence which I have just described. The child did not show any signs of suffering much pain. A pinch of ashes was the only topical application employed, although the wound discharged a considerable quantity of blood. The operatrix touched neither the nymphæ nor the clitoris; and those parts were not externally visible, either in this girl or in the other older one, who had already been circumcised.

Such is the nature of the circumcision of Egyptian females, and it may easily be conceived that it is a necessary operation; for this sort of elongated caruncle increases in proportion to a girl's age, and if suffered to remain, it would entirely cover the os externum. The woman who performed the operation assured me that at the age of five and twenty, the excrescence would be more than four inches in length. It is peculiar to the women of Egyptian origin; all others being exempt from it, though belonging to nations that are settled in the country, and, in a manner, naturalized.

In general, this circumcision is not deferred to the age of puberty, which takes place earlier in Egypt than in our northern climates; but the Egyptian girls are deprived of this troublesome superfluity at seven or eight years old. The women of the Said are those who are in the habit of performing this operation, which is attended with little difficulty, as the reader may have conceived. They go about the towns and villages, crying in the streets: "Circumciser! who wants a circumciser?" A superstitious tradition has fixed the period in which circumcision is to be practised at the commencement of the increase of the Nile. To find parents who would allow their daughter to be circumcised in a season so remote from that which is reckoned the most favorable, was one of the difficulties I had to surmount; it was then winter; but money removed this obstacle as well as the others.

Now if we consider the nature of an excrescence, a distinguishing characteristic of the women indigenous in Egypt, we shall discover some conformity with that which is peculiar to the inhabitants of the other extremity of Africa. Buffon was unwilling to give credit to the testimony of the only traveler who has asserted that the Egyptian women had a sort of hard skin growing above the os pubis, and hanging very low; but which they destroy by cauterization. There was, nevertheless, some truth in the account of Thevenot, and much less exaggeration than in those of the jesuit Tachard, and of Kolben, who, from imagination alone, had been led to describe the natural apron of the female Hottentots.

If this sort of natural veil be not what has been represented, it appears, at least, that its existence cannot absolutely be denied; and if it be not a general appendage to the women of the south of Africa, it cannot be contested that it is found among some of the nations inhabiting that country. A celebrated modern traveler had at first considered this conformation as fabulous, because he had not seen it in those parts which he visited; but he has since met with it among the savage Hottentots, at a great distance from the Cape of Good Hope. He has given a drawing of one of these Hottentot women; it seems to indicate an elongation of the fleshy substance which covers the os pubis; and which, in falling perpendicularly over the labia, is divided into two parts. However, Le Vailant, who considers this singularity only as the effect

of art, or, rather, a caprice of fashion, adds that it is an elongation of the labia, the distention of which is first produced by rubbing and pulling them, and afterwards continued by the suspension of weights, till they sometimes attain the length of nine inches. Had Le Vaillant bestowed a little more time in the pursuit of his observations upon a point so interesting to the natural history of man, he would probably have discovered that this extraordinary extension, which was represented to him as the effect of art, was the work of Nature alone. It is, in fact, very difficult to conceive how the superior commissure of the labia can acquire any considerable length whatever means may be supposed to be employed for that purpose. And when we reflect that at the other extremity of the same continent, there exists a people whose women have a natural excrescence, which differs from that of the female Hottentots examined by Le Vaillant only in being single, and not bifurcated; when we are assured that this excrescence is not the effect of any friction or pulling, or of any other factitious means; since the women are born with it, and are anxious to have it removed, we cannot avoid thinking that it is not confined to the Egyptian women alone, but extends from their country as far as the Cape of Good Hope, by a line which includes the tawny women only, and not the female negroes, who have no such characteristic. This conjecture acquires additional weight from the certainty we have, that the Abyssinian women undergo circumcision as well as the Egyptian; and though we have no positive information concerning the motive of this operation in Abyssinia, it is more than probable that it is a consequence of a similar conformation in both; and we have the more reason to be of this opinion, as the women who make a trade of circumcising girls in Egypt come from that part of the country which is immediately adjoining to Abyssinia.

These remarks of an original, and obviously a very earnest observer, will, I trust, be thought worthy of the passing attention of every earnest inquirer into the arcana of human nature, even if the author's ideas in matters of physical detail do not prove quite satisfying to the skilled anatomist and physiologist. They offer a good illustration, too, of another step gained in the laboriously graduated scale of the ascent of human knowledge. But the restless curiosity of the Gallic explorer of the nineteenth century has carried him far beyond the obstructions which limited precedent English, and even Scotch, observers. And an example is to be found in the research which furnished the data for the lucid account of circumcision of the female which was given by Duboussé (*Bulletin de la Société d'anthropologie de Paris*, 1878):

La circoncision consiste seulement dans l'enlèvement du clitoris, et se pratique de la manière suivante sur les filles de neuf à douze ans. L'opérateur, qui est le plus souvent un barbier, se sert de ses doigts trempés dans la cendre pour saisir le clitoris, qu'il étire à plusieurs reprises d'avant d'arrière en avant, afin de la trancher d'un seul coup de rasoir, lorsqu'il présente un simple filet de peau. La plaie est recouverte de cendre pour arrêter le sang, et se cicatrise après un repos complet de quelques jours. L'an plus tard, de l'aveu même des opérateurs, le peu de soin qu'on apportait à circonciser les filles dans les limites religieuses de l'opération, qu'on pratique plus largement en saisissant les nymphes à la hauteur du clitoris, et les coupant presque à leur naissance, à la face interne des grandes lèvres, dont les replis minces, qui nous occupent, sont pour ainsi dire la doublure encaissant les organes reproducteurs; ce qui reste des petites lèvres forme, par la cicatrisation des parois lisses, s'élargit et se rétrécit,

cissant, une vulve béante, d'un aspect singulier chez les fellas circoncisés.

The French commandant, Gallieni, found that a corresponding operation was practised by the tribes located on the upper bank of the Niger (1883):—

Chez les Malinkes et les Bambarres, les jeunes filles sont généralement âgées de douze à quinze ans au moment de l'opération, qui a lieu après l'hivernage alors que les indigènes possèdent encore l'abondante provision de mil, nécessaire pour le repas plantureux préparés à cette occasion. L'opération est faite par les forgerons pour les garçons, par les femmes de forgerons pour les filles. L'instrument employé est un simple couteau en fer grossièrement aiguisé. Les patients ne doivent donner aucun signe de faiblesse au moment de l'excision. Comme nous nous étonnions souvent de voir pratiquer la circoncision vis-à-vis des jeunes filles, on nous répondait que celles-ci restaient ainsi plus fidèles à leur maris; cependant les femmes indigènes ne se piquent guère de chasteté.

Les familles dont les enfants viennent de subir l'opération de la circoncision, célèbrent cette fête par des danses et des chants, accompagnés de repas plus copieux que d'habitude. Les riches tuent des chèvres, des poulets, quelquefois même un bœuf; les pauvres ramassent deux ou trois chiens dans le village, et les cuisent avec le riz ou le consou; partout on confectionne du dourao et on se livre à d'abondantes libations.

Après l'opération, les circoncis vêtus de longues robes munies de capuchons qui leur recouvrent la tête ne reparaissent dans leur familles que lorsqu'ils sont entièrement guéris. Les garçons sont séparés des filles. . . . Les filles portent de petites calabasses remplies de menus cailloux, semblables à nos jouets d'enfant. Au matin, de bonne heure, tous retournent sous leur arbre. Les cicatrisées sont longues à se guérir, car les indigènes ne possèdent rien pour retenir les peaux après l'excision; il faut bien compter 40 à 50 jours pour la guérison.

Le retour dans les familles donne lieu à les longues fêtes. Les jeunes garçons ont désormais le droit de porter des armes et de donner leur avis dans les conseils; les jeunes filles peuvent se marier.

The most comprehensive, the most definitely significant, and the most functionally effective, of the whole series of operations on the normal external genital apparatus of the female, is that of infibulation. Its effectiveness in the securing of the chastity of the adolescent female must be admitted to present as near an approach to the desired physical consummation as can well be attained by methods anatomical. The practice in the Soudan has been carefully observed and studied by M. Peney, to whom we owe the following circumstantial description (*Bulletin de la Société de géographie*, Paris, 1850):

C'est vers l'âge de sept ou huit ans, que la jeune fille est livrée à la matrone chargée de l'opérer. Quelques jours avant l'époque fixée pour cet objet, la mère de famille invite les parents et connaissances du sexe féminin à se réunir chez elle, et c'est par des fêtes qu'on prélude à la cérémonie sanglante. Le moment arrivé, la victime, environnée de toutes les femmes présentes, est couchée sur un lit où elle est maintenue par les assistantes, tandis que la matrone, armée d'une rasoir et agenouillée entre les cuisses de la patiente, procède à l'opération. Celle-ci commence par l'ablation d'une partie du clitoris et des nymphes, le rasoir descendant sur le rebord des grandes lèvres, enlève sur leur bord interne et en contourant la vulve un lambeau de chair, large de deux centimètres environ,

Cette opération dure quatre ou cinq minutes, et, pour empêcher les cris de la patiente de se faire entendre, les assistantes ont soin de pousser des clameurs sur le diapason le plus aigu, tout le temps que durent les manœuvres opératoires. L'ablation des parties achevée, et le sang étanché, la jeune fille est couchée sur le dos, les jambes étendues et liées fortement l'une à l'autre, de façon à leur interdire tout mouvement. Cette précaution est nécessaire pour ménager la formation de la cicatrice. Avant d'abandonner l'opérée aux soins de la nature, la matrone introduit dans la partie inférieure du vagin, entre les lèvres sanglantes de la plaie, un petit cylindre de bois, de la grosseur d'une plume d'oie. L'office de ce cylindre, qui doit rester en place jusqu'au moment où le travail de la cicatrisation sera achevé, est de ménager une issue aux urines et plus tard aux menstrues. C'est tout ce qui reste de perméable dans le vagin.

Quand la jeune Nubiënnne prend un epoux, c'est encore à la matrone qu'elle s'adresse pour que celle-ci rende aux parties sexuelles les dimensions nécessaires à l'accomplissement du mariage. Car l'ouverture existante est trop étroite et trop peu dilatable (à cause de la cicatrice dont elle est entourée) pour que le mari le plus vigoureux puisse compter sur les seuls efforts pour pénétrer dans la place. La matrone intervient alors, et par une incision longitudinale, elle produit une plaie par laquelle s'accomplira la copulation. Mais comme cette plaie nouvelle tendrait à se refermer, si les parties saignantes restaient en contact, la matrone introduit entre les lèvres de la plaie, et à deux ou trois pouces de profondeur dans le vagin, un nouveau cylindre végétal, beaucoup plus volumineux que la premier; car ce dernier doit figurer les dimensions du pénis du mari. Ce deuxième cylindre reste en place une quarantaine de jours, époque où la cicatrisation est complète et où sa présence devient inutile.

Mais tout n'est pas dit pour la malheureuse qui s'est une première et une deuxième fois soumise à l'opération. Si elle conçoit, ce qui arrive ordinairement, elle ne pourra pas accoucher sans subir encore les épreuves de l'instrument tranchant: car la même bride résistante qui entoure la vulve et qui s'opposait à la copulation, s'opposera encore à la dilatation de cette partie par où doit passer l'enfant. Il faudra donc encore débrider au moyen de larges et profondes incisions les parties qui refusent de se dilater. Souvent au moment où l'enfant, en sortant du bassin, vient s'appuyer sur la cloison interne des parties génitales, souvent, dis-je, il arrive alors que la matrone, qui doit saisir cet instant pour inciser profondément les grandes lèvres, blesse grièvement le produit qui cherche à s'échapper au dehors. J'ai vu moi-même, dans les cas semblables, des coups de rasoir, portés mal habilement, produire chez l'enfant des blessures mortelles. Et cependant, malgré les douleurs qui accompagnent toujours cette horrible pratique de l'infibulation, malgré les dangers qu'elle fait courir à la femme et à l'enfant qui va naître, malgré toutes les tentatives essayées par les agents du gouvernement égyptien pour bannir cette affreuse coutume, les Soudainiennes n'en persistent pas moins dans leur idée à cet égard; quant aux jeunes filles, elles y semblent encore plus attachées que les hommes, car elles prétendent que sans infibulation elles ne trouveraient aucun mari.

With the accounts of a strangely, and even grotesquely gruesome, unnatural operation, a supplementary item of etymological, as well ethical and ethical, distinctiveness may be found of some collateral interest. Attentive readers of Juvenal will not have failed to observe that many of the moral features of the Rome of his day display an almost startling resemblance to some of the

most distinctive features of the great metropolitan communities of the opening decade of the twentieth century. Others are redolent of the social peculiarities of the age. We there find that nothing was so bad as, or, at least, worse than, a rich woman. (No one, of course, could apply this aphorism in one of our great civic communities of the present day; in which woman is fully emancipated; her superiority to man having long been fully recognized, and her equality now gradually becoming so, too.) The Roman millionairess regarded the young singing man as an article of luxury, and many (or most) of the public vocalists were slaves. And one of the penalties to which the more favored of these was obliged to submit to was the wearing of a locked *fíbula*, of which the pin penetrated the prepuce, in front of the glans penis. If the proprietor was a stage manager, this safeguard was adopted to prevent the destructive effects on the voice of the unceasing attentions of the members of the female aristocracy; if the owner was a member of the latter body, it preserved her property from the trespasses of enterprising rivals. But the ways of man are mysterious in their moral complexities; so are those of woman!

In concluding these notes of a series of strange and painful tamperings with the specialized physiological organs of the female human form, I venture to express the hope that they may be found to possess some interest for the practical gynæcologist and obstetrician, and even to inquiring medical men generally; as they surely must for the ethnologist, who is continuously endeavoring to discover, and explain, and reconcile, the multiplex variety of national and racial rites and observances; for the contemplative philosopher, who is continually vexing his brain in the vain hope of ascertaining how it is that men and women manage to make themselves so unhappy throughout the pilgrimage of life; and for the altruistic philanthropist who tries to combine and utilize the results of all such inquiries for the improvement of the future of suffering humanity.

THE PREVENTION OF DEAFNESS.

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Deafness, strictly speaking, is the total inability to hear, but is also applied to more or less partial inability to distinguish sounds. In the former definition, deafness is most frequently associated with mutism, and when the deafness is congenital or acquired in early infancy, deafmutism is invariably the result, the mutism in such cases being, of course, simply the natural result of the child's never having heard articulate speech. Even when deafness develops as late as the fifth or sixth year and even later, the faculty of speech is gradually forgotten until mutism results, except in those cases in which the child is promptly and perseveringly taught by the method of lip reading.

Total deafness associated with mutism is in by far the larger number of cases of congenital origin (about 40 per cent.), the remaining cases being due

to various causes, the principal ones being scarlet fever, cerebrospinal meningitis, meningitis, and measles.

This form of deafness, which I have considered elsewhere,¹ presents little for consideration as regards prophylaxis, although consanguinity in marriage is one of the predisposing factors, and especially the marriage of deafmutes. Even in the latter, however, not more than 25 per cent. of the offspring are deafmutes, thus showing a tendency of the offspring to revert to the normal type, although it must not be forgotten that the marriage of congenitally deaf persons is not necessarily a union of like with like from a physiological standpoint, as total deafness may be due to various lesions of the auditory apparatus.

Deafness as applied to the partial inability to distinguish sounds is by far the most frequent form met with, and the consideration of its prevention will form the subject of this article.

As regards the frequency of this form of deafness, we have no official statistics such as we have with total deafness associated with mutism. A faint idea of its frequency, however, may be had from a report of 11,855 cases of diseases of the nose, throat, and ear which I reported some years ago,² of which 2,284, or about 20 per cent., were cases in which a defect of hearing to a greater or less degree was involved.

While deafness is considered a disease by the laity, we, of course, know that it is simply a symptom, and one that may be due to a simple and easily corrected condition, such as an impaction of wax, or to one that may involve the very life of the patient.

The degrees of deafness vary even more than the different conditions to which they owe their origin. In mild cases it is frequently unsuspected by the patient, and is usually discovered by accident. In children especially, defects of hearing are often unobserved, the deafness being mistaken for inattention. By the effort of listening, the normal power of hearing is considerably increased, so that once the child's attention is attracted, it apparently hears perfectly. But this effort soon becomes fatiguing and the hearing gradually diminishes until the attention is again stimulated. This explains why such cases in children are so often attributed to dullness or inattention. Children showing such symptoms should invariably be carefully examined, and the majority will be found to be suffering from defects of hearing.

The disadvantage of even mild forms of deafness is so apparent that it need hardly be referred to here. Thoughtless persons frequently make unkind remarks in the presence of deaf persons, forgetting that while the latter are unable to hear, they are very observant with their eyes and are quick to detect such remarks. Deaf persons are therefore inclined to be suspicious, and are even more unhappy than the blind, whose affliction appears to be greater. The latter, however, invariably excite sympathy, while deaf persons are frequently treated with little patience or consideration.

Before discussing the prophylaxis of deafness, we must first consider the more usual affections of the

ear to which deafness may be due. These diseases and their causes and complications are so extensive that they cover almost the whole of the field of ear, nose, and throat diseases, and they can therefore here be pointed out only in a general way.

By far the greater number of diseases which affect the hearing owe their origin to a pathological condition in the nose or throat (nasopharynx), the point of entry being the Eustachian tube. A comparatively small number arise externally from the auricular canal, such as impactions of wax, eczema, and furunculosis of the canal, foreign bodies, traumatism, etc., but the majority of these do not offer serious menace to the organ of hearing. Even in these cases, however, care should be exercised. I have seen cases in which the tympanic membrane has been ruptured by the use of too great pressure in syringing the ear to remove an excess of wax, and also cases in which permanent injury has been done by inexperienced efforts to remove a foreign body. I have reported a case³ in which the patient, in an effort to remove some pepper which had been placed in the external canal of the ear for the relief of toothache (!), punctured the ear drum with an old toothpick, the injury being followed by severe suppurative of the middle ear and marked deafness.

The toothpick—with men—and the hairpin—with women—are responsible for a large number of cases of infection of the external canal, being employed to relieve an itching of the ear. The infection is usually followed by much pain and temporary deafness of the affected ear, due to the mechanical interference with the waves of sound in reaching the drum. It is advisable to explain to patients with such tendencies that the only safe thing to be used for the ear is the elbow.

The perfect function of hearing is dependent upon equal atmospheric pressure existing upon both sides of the tympanic membrane. To maintain this, the Eustachian tube must admit air into the middle ear cavity. When the lining membrane of this tube is inflamed or congested, or blocked with secretion, the equipoise of the drum is disturbed and the hearing diminished in proportion. When this is continued for a long period, the hearing is permanently injured, especially when the catarrhal process involves the middle ear cavity. In children, this condition is most frequently due to hypertrophy of the pharyngeal tonsil, the so called adenoids of the nasopharynx. Even in cases in which the hypertrophy is not sufficient to seriously interfere with nasal breathing, its effect on the ear is marked and therefore calls for prompt surgical relief.

Suppurative inflammation of the middle ear is a frequent cause of deafness. As soon as pressure against the drum is observed in such cases, a free incision should be made. The neglect to do this will not only prolong the suffering of the patient and expose him to the danger of a mastoid complication, but the natural bursting through the drum destroys more tissue, which may leave a noticeable defect in the hearing.

Acute suppurative inflammation of the middle ear, when properly treated, should result in closure of the drum in practically every case, leaving no perceptible defect in the hearing. When not properly

¹ The Influence of Heredity on Deafness, by William Scheppe Gregg. *The American Journal of the Medical Sciences*, 1890.
² *Annals of Ophthalmology and Otorhinology*, October, 1895.

³ The Ear from a Medical and Surgical Point of View, by William Scheppe Gregg. *Annals of Ophthalmology and Otorhinology*, June 28, 1902.

however, or improperly treated, it tends to develop a chronic suppurative process with its dangers of mastoid involvement and impaired hearing. When the chronic suppuration in these cases is finally arrested, a result that is usually obtained only after patient and prolonged treatment, the perforation nearly always persists, and its subsequent closure is not only sometimes impracticable, but requires great manipulative skill on the part of the aurist. Hence the importance of the prompt and careful treatment of such cases during the acute stage.

Nasopharyngeal catarrh is an important factor in the development of ear disease and consequent impairment of hearing, and is the more important on account of its great frequency. The presence in the nasopharynx of a secretion in which pathogenic microorganisms are nearly always present, is a constant menace to the ear on account of its proximity to the orifice of the Eustachian tube. In addition to this, the efforts of the patient to dislodge the secretions tend mechanically to injure the delicate mechanism of the middle ear, so that even in such cases where there is no evidence of disease of the ear, the function of hearing is nearly always below the normal. Nasopharyngeal catarrh should therefore be treated with the care and perseverance that its importance demands and not be neglected as a necessary evil, as so many persons do.

All forms of nasal disease or abnormalities are a source of danger to the ear. The purulent forms, whether due to suppuration of the nasal mucosa or of one of the accessory sinuses, may extend by continuity to the Eustachian tube and develop a suppurative inflammation of the middle ear with its danger to health and audition. This is especially the case in infants who are unable to clear the nasal passages. As purulent rhinitis in children is frequently considered a prolonged "cold," the importance of explaining the danger to the parents is self evident.

Nasal obstructions, whether due to septal deformities, tumors, or hypertrophies, tend to create diseases of the ear. There have been discussions as to whether this is due to the decrease of air pressure around the orifice of the Eustachian tube, and therefore in the middle ear, resulting from the nasal obstruction, or whether it is due to the secretions lodging around the Eustachian tube in such patients, but in either case the removal of the obstruction is indicated in order to preserve the hearing.

While on the subject of nasal disease it is well to call attention to the danger to the ear of the nasal douche. This should be allowed only on the specific direction of the physician, as many forms of douches are an absolute injury to the mucous membrane of the nostrils, and to the function of olfaction. As regards the ear, the danger is that some of the solution may enter the Eustachian tube and set up an inflammatory process in the middle ear. The patient should, therefore, be cautioned to blow the nose very gently after using such a douche, and always with both nostrils unobstructed.

One of the most insidious diseases of the ear, and unfortunately a most prevalent one, is what has been called the "nonsuppurative inflammation" (hypertrophic and hyperplastic) of the middle ear. In this, the obstruction of the Eustachian tube is

frequently so slight as not to warn the patient, as in the catarrhal form, and there is no pain, as in the suppurative type. Frequently the first warning that the patient has is the increased effort to hear, and it is surprising how defective the hearing may become, provided the loss is gradual, as is the case in this disease, before the patient observes it. Subjective noises in the ear (tinnitus) is another late symptom which may first attract the attention of the patient. Many of such patients consult the aurist only after the disease has made such headway that cure is out of the question, whereas in the early stage it could have been arrested and much benefit obtained.

Before concluding, I must call attention to the danger to the hearing of some of the general diseases, the principal ones being scarlatina and measles. Both of these have been responsible for such total deafness in children that mutism has resulted. Many of the worst cases of partial deafness which we are called on to treat owe their origin to an attack of scarlatina or measles during childhood. In such cases, the disease commences with a discharge from the middle ear, which being either entirely neglected or unskillfully treated, develops a chronic suppuration and leaves a perforation in the drum membrane. In some of these cases, especially after scarlatina, it is not infrequent to observe the almost total absence of the tympanic membrane, this having been destroyed by the suppurative process. Yet careful attention to such patients during the acute stage would have resulted in perfect recovery in practically every case.

There are many other affections, both local and general, which may have an injurious effect on the function of hearing, but the principle which I have advocated in the preceding holds in such cases, namely, the prompt recognition and proper treatment of ear complications in the initial stage. Herein lies the greatest success in the prevention of deafness.

As this early stage of many ear diseases is so frequently overlooked, especially in children, it should become the duty of the members of the school boards to have a competent physician test the hearing of the school children, especially in the public schools. In many cities, the school children undergo a regular examination of the eyes in order to detect errors of refraction, but the test of hearing is equally important. In this way, not only would such cases have the opportunity of being treated at a time when success would be most likely to result, but many children who are considered dull and inattentive would be found to be suffering from defective hearing. In this way would be furthered not only the physical but also the mental welfare of the children.

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THE NEURASTHENIC NEURALGIAS.*

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The term neurasthenic or neurotic neuralgia, unsatisfactory as it may be, is nevertheless of value in describing a certain class of painful peripheral affections occurring in neurasthenic or allied conditions. The recognition of such a species of neu-

* Read at the annual meeting of the Connecticut State Medical Society, Hartford, May 22, 1907.

ralgia is important from the fact that frequently the localized pain, emphasized and treated as an entity, is not relieved, but on the contrary is fastened more deeply upon the individual. In reality the neuralgia should be considered merely a symptom resulting from the fundamentally weakened state of the organism.

The term should be applied to pain which has, in the main, three characteristics. First, the affected area is more or less constant and restricted. Second, the part of the body which is the seat of the painful sensations is traversed by a sensory nerve trunk, or represents an area fairly well defined by the anatomical distribution of a branch of a sensory nerve. Third, the localized pain is subject to exacerbations.

These characteristics, it will be observed, may be applied in general to all forms of neuralgia. It will be necessary, therefore, to distinguish the neurasthenic from the profound migrainic, sciatic, and all the other types of neuralgia due to specific lesion of nerve or ganglion, to toxic and infectious agents, to disease of the blood vessels, to defects in the blood or of the body metabolism, or to any other definite physical disorder.

Œmæmia, rheumatism, gout, chronic intestinal toxæmia, have an effect on the organism as a whole, thereby lowering the general nervous tone and producing a neurasthenic condition of varying degree, but we would not call the neuralgia resulting from any of these diseases neurasthenic. The term neurasthenic can be applied only when the neurasthenia is the chief or prominent feature of the case, and the specific disease, whatever it may be, is incidental or contributing in a minor way to the general state. Whenever the disease or other agency is strongly operative and the individual is decidedly neurotic, the neuralgia is uniformly increased both as to the intensity and disabling quality. This fact renders the diagnosis still more difficult, especially as the clinical picture of the neuralgia, whether neurasthenic or due to physical ailment, is practically the same.

A brief reference to painful conditions of the feet will be of service in elucidating still further the use of the term neurasthenic. If there exists an anatomical defect due to injury, strain, or simple relaxation of the tissues of the arch, and the orthopedist can correct the pain by support or specially constructed shoe, then the metatarsalgia should not be called neurotic. When the pain, however, is not relieved and no special anatomical departure from the normal is observable, or when, as sometimes happens, the pain passes up into the leg or thigh, or over to the other foot, then the term neurotic is applicable. If an anatomical defect is present in what would be called adequate degree and a proper support can be worn and yet the neuralgia is not relieved, or if hyperæsthesia prevents the corrective device being applied, then doubt would certainly exist as to the relative importance of the local condition and of the inherent neurotic character of the patient. Fortunately an exact diagnosis is not so necessary if only the two factors in the case, physical as well as neurotic, are properly recognized. The tangible factor, or material basis for the neuralgia, should in all cases receive most thorough attention, and when the neurotic element exists this should be understandingly dealt with.

Any one sufficiently familiar with neurasthenic, hysteric, and hypochondric states can usually determine the type of neuralgia which should be termed neurotic. The reasons for making the diagnosis are somewhat subtle and hard to define. This is because in most of the cases there is a more or less subjective or intangible element which bespeaks a central rather than purely peripheral origin of the pain.

Generalizing as broadly as possible, my own experience has led me to formulate the following characteristics as diagnostic of the typical neurotic neuralgias. First, psychic influences and marked fluctuations in the mental state as well as in the body condition produce noticeable variations in the degree of pain, relatively greater in the neurotic neuralgias than in those due to more definite physical causes. Second, neurotic neuralgia is often characterized as being peculiarly difficult to bear; in other words, it has a mentally disorganizing or demoralizing quality. It is not because the neuralgia is so severe, but it insidiously undermines the will and power of the individual to endure it with patience and fortitude as one would bear ordinary pain of corresponding degree. Third, neurotic neuralgia may be slow and obstinate, but it is invariably curable, unless the patient is a profound chronic invalid and will not respond to nervous and bodily upbuilding.

The ætiology of this class of neuralgias may be briefly stated as follows: First, they occur only in the neurasthenic condition or its equivalent, however produced. Second, superimposed upon this condition there is an exciting cause, such as local or general strain, exposure to wind, cold, and wet, a blow or fall, emotional disturbance or mental shock, or there may be no appreciable exciting cause. Undoubtedly one exists, however, if our knowledge of the biochemistry of the issues and of the physiology of the nervous system was sufficient to enable us to discover it. In any case the point to bear in mind is that the neuralgias here referred to have practically no cause which is adequate to their production without the presence of the fundamental below par or neurasthenic state.

Anatomically the neurasthenic may follow the usual classification for other neuralgias. 1, Trigeminal; 2, cervicococcipital; 3, cervicobrachial; 4, brachial; 5, intercostal, including mastodynia; 6, lumbar plexus, including lumbosacral and regions supplied by the cutaneous femoris lateralis, cruralis, and obturatorius; 7, sacral plexus, including sciatica, neuralgia of the genital organs and of the anal region; 8, coccygodynia; 9, achillodynia, tarsalgia, and metatarsalgia.

In classifying the neurasthenic neuralgias from a clinical standpoint it will be observed that they occupy a position midway between the more or less indefinite and subjective paræsthesie on one hand, and on the other the very definite and objective condition resulting from neuritis or other pathological irritation. It will be possible, therefore, according to the degree to which one or the other of these extremes is approached, to subdivide the neuralgias into two varieties. One is nonobjective, that is, the pain exists with very slight or no concomitant physical symptoms; the other is objective, that is, the

pain is accompanied by localized symptoms, sensory, vasomotor, or secretory.

The nonobjective neuralgias should not be confounded with the various paræsthesiæ common to neurasthenia, hysteria, and hypochondria. When the paræsthesiæ, however, assume the character of distinctly painful sensations, they may be said to approach the neuralgic condition, and it may, perhaps, be proper to speak of a paræsthetic form of neurasthenic neuralgia. The painful area is not as clearly limited to the distribution of a sensory nerve and the character of the sensation is not persistently severe nor deep tissue involving. The pain itself may be fleeting, transitory, often changing its location, or fixed always to the same locality. It may recur with regularity, or be very irregular with the intervals between entirely normal. It may be quite acute, of a stinging character, or be a dull and very persistent ache, such as the low grade constitutional headache or backache. F. Lots¹ classifies the so called "nervous pains" as the highest grade paræsthesiæ, but from the standpoint of severity they are the lowest grade of all neuralgic manifestations.

Nonobjective neurasthenic neuralgia also manifests itself in another form, namely, as a result or relic of repeated attacks, or of an antecedent neuritis, or what is quite likely an antecedent neuralgia with objective symptoms. This form, as a rule, does not depart from its customary location. Its nature is that of a habit sensation which persists in recurring long after the physical evidence or justification for it have disappeared. Weir Mitchell, in speaking of injuries to nerves, cites some well defined cases and explains its neuralgic habit as psychic.

Much more profound and positive forms of non-objective neurasthenic neuralgia occur than the just mentioned paræsthetic or nervous pain and habit pain varieties. These may be classified as idiopathic. They may appear spontaneously, so to speak, that is, without appreciable cause or perhaps result from exposure to cold, wind or dampness. Most frequently they are one of the sequelæ of general over-exertion or body strain. When this is the case the favorite location of the neuralgic affection is the dorsolumbar region. It will be recognized as a definite, persistent backache, not the low grade paræsthetic backache already mentioned. In the milder forms there is no special tenderness to pressure on the vertebrae and movements of the body do not elicit pain. In the severer forms there is sensitiveness, tenderness, and pain from motion of the trunk. The hysteric invalid is especially liable to these hyperæsthetic symptoms. Many cases of "spinal irritation," so called, can best be interpreted in this manner. When emotional disturbance or mental strain is an ætiological factor the most common seat of the neuralgia is the occipital or cervico-occipital region. The occupation neuroses of the sensory type, termed by Jelliffe² the "neuritides," due to excessive use of the extremities in sport or work, belong under this heading and are included chiefly under the names cervicobrachial, brachial, lumbosacral, and sciatic neuralgias. Pain and tenderness to pressure may be the chief and only symptoms of these latter forms, with slight evidences of

vasomotor disturbance during exacerbations, or the objective symptoms may be pronounced and persistent, assuming the neuritic type of neuralgia. Months are frequently required for a cure, and often it departs only when the neurasthenia goes.

The term neurasthenic should, perhaps, be strictly limited to the neuralgias which are nonobjective, that is, without marked concomitant physical symptoms. E. Jendrassik³ so declares his conviction, and in establishing the diagnosis brings out the fact, which is almost pathognomonic, that the patient exhibits the pain more in his description than in his appearance. Nearly all writers, however, include in their conception of neurasthenic neuralgias that form which is accompanied by local symptoms. In as much as neuritis, in its clinical aspects, most closely resembles the objective form of neurasthenic neuralgia our attention will be directed to a consideration of the relationship between these two conditions.

The difficulty in distinguishing a neuralgia with objective symptoms from a neuritis is usually greatest in the brachial, cervicobrachial, and sciatic areas. The reason for this is obvious, namely, the free and more or less constant movement of the upper and lower extremities favors the development of the highest degree of peripheral nerve irritation. The cervicooccipital, intercostal, and lumbar regions, although subject to considerable excitation by motions of the head and trunk, are prone to pure neuralgic rather than neuritic manifestations. The neurasthenic type of painful affections of the trigeminus is capable of being separated from the diseased nerve or ganglion form by the fact that it is attended by fewer objective symptoms, the paroxysms are less violent and in the intervals between the pain is relatively less severe.

Of all the theories which have merited attention the proposition of Benedict,⁴ that all neuralgias, at least all the peripheral neuralgias, are due to a mild grade neuritis, most claims our consideration. As Erb⁵ says, this cannot be proved or disproved, but the proposition is certainly of value from an ætiological standpoint. The neuralgias with well marked objective symptoms are very suggestive of a neuritic or other condition much akin to it. Indeed, the degree of tenderness of a nerve as well as the other evidence of local disturbance are so decided that sometimes it is well nigh impossible to diagnose between a neuritis and a neuralgia. As a matter of fact, fully nine-tenths of all such cases are called neuritis. There can be no doubt, however, in some of these instances the diagnosis should have been neurasthenic neuralgia. Thus, in genuine neuritis we find the physical symptoms more definite, tangible and constant. In neuralgia, on the other hand, we may note marked pain and consequent disability coupled with other objective signs of an apparent neuritis. A few days later, following a period of extra good sleeping or the reception of some favorable news, nearly all these symptoms decrease in intensity to a surprising degree. This striking fluctuation in the symptoms make it impossible for us to reconcile such behavior on the part of nerve with our conception of an actual inter-

¹ *Neurologische Anzeichen*, Leipzig, 1906, p. 105.
² *Journal of Nervous and Mental Disease*, 1906, 32: 475.

³ *Deutsche medizinische Wochenschrift*, September 11, 1902.
⁴ *Von Ziemssen's Cyclopaedia*, XI.
⁵ *Dresden*.

stitial or parenchymatous inflammation. Whatever the peripheral irritation may be, the pathological understanding of it will fit the symptomatology much better if it is considered to be of the nature of a perineuritis rather than a neuritis.

The clinical diagnosis between neuritis and neuralgia may be summarized as follows: The motor element is the chief distinctive characteristic. In neuralgia there is no true loss of power and the pain does not materially restrict the movement or manipulation of the affected part. In neuritis proper the motor disability is present in some degree, and varies from paresis to paralysis. Both motor and sensory symptoms occur earlier and are more sharply defined in neuritis, the swelling of the nerve being more evident and continuous throughout its length and without the presence of the points of Valleix. The pain itself is generally more continuous in neuritis and more paroxysmal in neuralgia. Atrophy and anesthesia occurring with the paralysis are not present in neuralgia.

Every one studying a series of these neuritic cases will soon reach the conclusion, which is much more evident in the nonobjective neuralgias, namely, that the local manifestations are dependent to a considerable degree upon an irritative condition which is central rather than peripheral. Oppenheim⁶ believes that in many instances the increased excitability of the sensory nerves is of central origin, even when the nerve trunk shows some tenderness to pressure. The presence of this latter symptom he considers by no means sufficient to establish a diagnosis of neuritis. In this connection it is important to bear in mind the reflex or referred pains due to visceral disorder. The pain which may simulate very closely a neurasthenic neuralgia being referred to the periphery through the medium of the cerebrospinal nerves, as shown by the studies of Dana,⁷ Head,⁸ and J. MacKenzie⁹.

The theory held by Gowers and Starr¹⁰ offers a very plausible explanation of a central origin or factor in the production of neuralgia. It is a fact, demonstrated by cases of organic disease, that irritation of the substance of Rolando or of the central sensory tracts may cause pain in the periphery. It is in the substance of Rolando in the spinal cord or brain axis that the sensory nerves end. This peculiar gelatinous substance of delicate, close, mesh-like structure, with its numerous cells and nuclei, could readily be affected by disturbances of nutrition or by vasomotor conditions. Being thus irritated, painful sensations would be produced and referred to the periphery.

Summing up the pathology, or, more properly, the theoretical interpretation of the origin of neurasthenic neuralgias, we may conclude that there exists in all cases a definite central element or factor; that in the nonobjective forms the central is relatively greater than the peripheral element, the latter being merely the external manifestation of a disturbed condition of an internal sensory nerve centre or tract; that in the objective or neuritic neuralgia the same postulate holds true, the peripheral manifestation simply being increased in extent or degree.

and finally that in all cases when the peripheral element operates as a factor in the production of the pain, it is best explained as some form of perineuritic irritation.

Symptomatology.

The summary here given is intended to include, under the respective headings, the symptoms of all varieties of neurasthenic neuralgia ranging from the paræsthetic to the neuritic type.

Sensitiveness of the nerve trunk. Careful pressure of the neuralgic area will nearly always reveal the fact that the underlying nerve trunk or its subdivision is involved. It is sensitive and tender, and in extreme cases may apparently be enlarged. In the milder forms of nonobjective neuralgia no special evidence of sensory nerve involvement, as a rule, can be established. Also, in cases essentially paroxysmal, there may be, in the interval between the attacks, no demonstrable nerve sensitiveness. The tenderness to pressure may be uniform, or frequently points of increased sensibility will be found. These special points, or Valleix's points, occur along the course of the nerve, and most commonly when it comes nearer the surface, or emerges from a foramen, or muscle, or lies upon a bone. There may be one or more of these points and they may disappear and reappear, or their locality may shift. In neuralgia of extremities a painful or sensitive spot will sometimes be found at or near the exit of the nerve, from the vertebral foramen. Such spots, which are generally separated from the neuralgic area, are the so called points douloureux apophysaires of Trousseau. The effect of pressure upon all these pain points is variable. In some cases it will induce a neuralgic paroxysm. In others, firm pressure on the point will lessen or even dissipate the pain. Their importance has been somewhat exaggerated by the earlier writers on neuralgia.

The pain. The character of the neuralgic pain is variously described. At times it may be absent or there may be simply the sensation of heaviness or weariness. In some cases it is a constant ache, varying in intensity. In others it is spoken of as a burning or boring or stinging pain, either sharp or dull. In marked neuropathic patients the sensation is sometimes pictured as though the nerves were pinched or pulled by tweezers, or as if they were touched with a red hot iron. In these extreme cases, chiefly hysteric, the limits of the pain conducting power of the nerve appear to be surpassed, the patient being carried into a state of agony which is essentially psychic. The majority of the neuralgic pains in hysteria are called by Oppenheim¹¹ psychalgias. The pain may be limited to a single point or spot, but usually a more extended area is involved. It may be described as radiating from the centre to the periphery, or vice versa.

The exacerbations or neuralgic paroxysms, as regards frequency, duration, and intensity, occur in all possible variations. The intervals between the attacks may be minutes, hours, days, or weeks. The length of the paroxysm varies from a single sharp twinge to hours of increased steady pain. Usually there is considerable irregularity in the occurrence of attacks, but occasionally there exists a remarkably exact periodicity.

Disturbance of the skin sensibility is present in

Berliner Klinische Wochenschrift, 34, p. 188, 1898.
New York Medical Journal, 1887.
Brain, 1893, 9:1-20.
Ibid., 1902.
Lectures on the Nervous System.

some form in the majority of cases. Its fluctuation and variation is generally considerable, and this fact Eichhorst¹² considers to be one of the distinguishing features of neurasthenic neuralgia. The change in the character of the symptoms elicited by various tests appears in some instances to be almost a matter of caprice. This, however, is not true, although cases with a marked hysterical or hypochondriac element do suggest this type of behavior.

Anæsthesia and analgesia are never seen, but a condition of hypæsthesia and hypalgæsia is occasionally present in old cases. 'A state of hyperalgæsia and hyperæsthesia is very apt to occur at some time in the course of the neuralgia. In the exacerbations and in the earlier and more acute stages one of the most frequent combinations is hyperalgæsia, as shown by pin prick, and at the same time hypæsthesia, as demonstrated by diminished sensibility to a camel's hair brush.

The temperature sense is always present, and in most cases there is some increased or decreased sensitiveness to heat or cold. The surface temperature may show a slight departure from the normal, according to the activity or the sluggishness of the local vasomotor condition. Cold applications, as a rule, are not as acceptable as warm. It is curious to note, however, that in many of these patients who object to direct cold water treatment, menthol, which effects a change in the skin sensibility by substituting a sensation of coolness, is agreeably borne. Heat of high temperature, e. g., dry hot air, often aggravates the condition in the earlier and is of great value in the later and chronic stages.

The muscular sense, tested in cases of neuralgia affecting the upper extremities, does not show impairment. In some instances it appears to be more acute. In other patients, chiefly hysterical, the tests give varying results. This is probably due to the state of the centres of consciousness rather than to actual transmission defects in the peripheral nerves. It may be remarked in general that the extent to which all the sensory symptoms should be ascribed to a central or to a peripheral origin is very hard to determine.

Motor disturbances do not occur in the non-objective neuralgias, but may be transiently present in the neuritic forms. They may arise directly when the peripheral irritation exciting the sensory nerves also affects the neighboring motor filaments, or they may arise indirectly, i. e., reflexly, through the intermediation of the central nervous system, the sensory filaments alone being involved. The signs of motor irritation may vary from slight muscular twitches to tremors and irregular mild grade spasmodic movements, noticeable especially in trigeminal neuralgia. A certain degree of paresis, of ataxia, and also of atrophy may be present, but all of these conditions are due to disuse of the muscle groups on account of the fear of exciting pain. The tendon reflexes are normal except during the acute stage or a paroxysm, when they may appear increased.

Vasomotor disturbances are seen with relatively greater frequency in neuralgia of the trigeminus. The face, at first pale, soon becomes red and congested as the paroxysm increases. In older cases there may be chronic reddening, but the skin does not feel warm as it does in the acute exacerbations.

In severe cases the affected part of the extremities takes on a reddish or bluish red and more or less mottled appearance. There may be also some tumefaction, oedema, or passive congestion of the skin and subjacent tissues.

Secretory disturbances are most commonly seen in trigeminal neuralgia. Sweating and flow of tears occur during the exacerbations. Sometimes, also, the nose runs and the saliva is poured out abundantly on the affected side. In neuralgia of the extremities there may be a slight degree of perspiration during the acute attacks, and in the severe cases with prolonged vasomotor disturbance a clammy moisture persists on the skin. An excess of light colored urine is frequently passed at the end of each paroxysm.

Trophic symptoms are not present in neurasthenic neuralgia.

Skin eruptions are not usually observed, although a mild grade erythema, pemphigus, or herpes may occur, more especially in the neuritic type.

The mental characteristics of individuals subject to neurasthenic neuralgia are worthy of consideration, in that they may have a bearing upon the type of neuralgia manifested. From what has been said it will be noted that, as a rule, the nonobjective class are more fugitive, transitory, and less severe than in the objective or neuritic class. The former may be described as partaking of the quality of indefiniteness, both as to origin, cause, and duration. The latter are definite, self-restricted, and long in duration. It has been my observation that the individuals who have relatively weak will or who, by nature or by prolonged invalidism, have a reduced power of concentration are most subject to neuralgia of the nonobjective type. On the other hand, those persons who are strong willed and intense in thought, feeling, and action are particularly prone to the objective neuralgias.

For example, many of the brachial or cervicobrachial neuralgias occurring in connection with letter writing, piano playing, tennis, golf, etc., may be due in part to the relatively excessive amount of energy employed in the muscular act. This sudden or steady focussing or flooding of the nervous energy in the arm results in an overstrain of all the tissues involved in the mechanism of the movement. In addition to the strain upon the motor and sensory nerves and their centres, another result may follow, namely, the failure to eliminate the endproducts of the metabolic process, consequent upon the muscle functioning, may prove a considerable factor in the development of a state of persistent localized disorder.

The Treatment.

The treatment consists, first, in attending to the underlying neurasthenic condition, which may be considered the soil in which the neuralgia develops and thrives. This can best be done by regulation of the patient's life, giving full instruction as to the rest, diet, exercise, and outdoor living. Added to these physical procedures the individual should be taught how to correct or modify the mental habits and characteristics which are often a great factor in the production of the neurasthenic state.

The second point in the treatment relates to the management of the local condition. In the acute or earlier stages it will be found that nearly all local

treatment avails little. Rest, therefore, is the first and most essential requisite. This should be absolute or partial, according to the severity of the attack. Even in a mild case, when it would appear sufficient to immobilize, as far as possible, the neuralgic area, it is still a good practice to insist, for a varying length of time, upon complete rest of the entire organism.

When the time arrives for active local treatment to be undertaken the first step should be the employment of all such means as will improve the circulatory, eliminative, nutritional processes of the affected part. Massage, passive manipulations, electricity in its various forms, the application of heat and cold by hydrotherapeutical measures, dry hot air, etc., are of varying utility. It should be born in mind that the contradictory results so often obtained by these methods may be due to the stage of the disorder. For instance, massage may aggravate the condition in the earlier and be a positive benefit in the later periods.

The second step in the active local treatment consists in allowing the patient to exercise voluntarily. This should be done gently and gradually, at the same time giving instruction that any increase in the local sensation shall be borne bravely and patiently. In habit cases, or those of long standing, there is an especial need of stimulating to the fullest extent the courage and determination of the patient. If a fair test shows that exercise unmistakably increases the neuralgia then it is best to prescribe another period of rest until it is again advisable to attempt voluntary motion.

The medical treatment is very unsatisfactory and is of little value except symptomatically to relieve acute pain or to assist in the improvement of the general condition. In regard to the relief of pain, it is important to note that morphine has a characteristically bad effect upon the neurasthenic neuralgias. Antipyrine, acetphenetidine, gelsemium, and the salicylates are ordinarily the best analgetics. In the lesser paroxysms a small dose of bromide may be enough to allay the nervous irritability and thus allow relaxation to the pain. It is advisable during the attack to do something for, or with, the patient. Thus the act of bathing the feet in hot water, rubbing the part with menthol dissolved in a fit menstruum, using mild liniments applied alone or with heat, flushing the bowel, these and other procedures help to distract the attention and so enable milder drugs to be more effective.

In this connection it is well to bear in mind that in treating the neurasthenic it is not wise to make the symptoms too objective or label them with specific names. Thus, if the patient is told that the pain is due to inflammation of the nerves the idea, satisfactory by reason of its definiteness, may become fixed in the mind and contribute not a little to the continuance of the symptom. On this account, even more than because the diagnosis is incorrect, Dana¹⁸ is certainly right in condemning the practice of calling brachial neuralgia by the fashionable name "neuritis."

Summarized, the treatment of the neurasthenic neuralgias consists essentially in rest for the affected part and building up the underlying neurasthenic or below par condition of the patient.

THE FIRST FIVE YEARS OF THE GRADUATE.*

By WALTER G. ELMER, M. D.,
Philadelphia.

When you asked me to address you upon some topic this evening I considered several subjects, but finally put them aside when it occurred to me that your daily life is made up almost entirely at present of lectures and clinics and demonstrations bearing upon every phase of medical subject; and being firmly in accord with the sentiment expressed in the words of the well known axiom that "much study is a weariness of the flesh," I decided to talk to you upon a subject which might prove of real help to some of you—not all, of course—and endeavor to give you as true a picture as possible of the conditions as they exist to-day in our large cities and smaller towns in regard to the practice of medicine. If you are patient enough to hear me through to the end, some of you who are yet undecided as to what you will do with the future years may find some assistance in planning your career.

You have chosen a good profession, and you will have it within your power to accomplish a good work; and when at last your task is accomplished and the work done, you will have the quiet satisfaction of knowing that there is at least a little part of the world which is the better for your having lived in it.

You have chosen medicine as your life work for one or more of three reasons:

1. Because of an innate love for it, knowing full well all of the hardship, self sacrifice, disappointment, intense anxiety and worry which it involves, as well as the pleasure and satisfaction of dealing with hard problems and conquering them, of bearing a direct personal relationship with human life and saving it—for after all, there is no other satisfaction quite like this—and so you are intent upon your work and eager to make a success of it.
2. Some of you have chosen medicine as a means of earning a livelihood, for you have no doubt taken into account the fact that most of the doctors whom you know live apparently in comfortable and even luxurious surroundings—their houses usually being in the most desirable residential streets, and you have seen them going busily from place to place in rapidly moving automobiles or behind well groomed horses; you have noted also that physicians take more or less of a prominent part in the affairs of the community in which they live. All of this is more or less true. It is, however, but one side of the picture. You must not let yourselves be deceived by appearances.
3. Some of you have chosen medicine because of some unusual opportunity which lies before you in that direction—your father is a physician, perhaps, or some near relative, who is waiting for you to finish your training in order to help him with an already overburdening practice. This last group will find nothing to help them in the remarks that follow, for their path lies so straight and definite before them that no question will arise to confront and baffle them as to the future. At least it should not, for the solution of all their difficulties lies in their unhesitatingly seizing the opportunity which offers.

Our study of present conditions then must be

*Read before one of the students' medical societies in the University of Pennsylvania.

chiefly of interest to the first two groups, and more especially to those of you who have not as yet definitely decided upon your future course.

How then can you spend your first five years after graduation to the best advantage?

The first and most important essential is a good hospital training in one of our large city hospitals; or, if this cannot be obtained, then in a hospital of one of the smaller cities. The value of this training cannot be overestimated. Some of you will say that you cannot afford to give up this additional time to your preparation—a period of eighteen months or two years—and yet there is no way in which you can better invest your time, and so far as money is concerned, you are at so little expense during your internship, that the question of money should have no bearing. No matter how eager you may be to be self-supporting, put aside your impatience for a time and profit by your hospital training, and at the end of our five year period you will have passed by your classmate who started in practice immediately after graduation. The hospital should be your stepping stone to future success, and it is far more of an influence than you at present realize. Therefore let your final examinations in the medical school take care of themselves and bend all of your energies toward the securing of a good hospital appointment. If you should select two hospitals and try for an appointment in each you will have a fair chance to secure one of them; and then, too, do not disregard some of the hospitals in near by cities, for they are capable of providing a most excellent training.

The hospital gives you the opportunity of working with and assisting the very best men in their special branches of medicine and surgery; you learn the perfection of technics, you learn self reliance, you have ample opportunity for the study of human nature and character among all classes of people, you have the best possible opportunity for training and perfecting yourselves in the most important department of your profession—*diagnosis*.

Patients will come under your care by the hundred, and not infrequently you will be the first person to study the patient at the time of his admission to the hospital. Every time this opportunity falls to your lot—and it will happen frequently, sometimes eight or ten times in a day in a large hospital service—put aside all other work for the time and give each patient the most careful and painstaking examination, in order to be absolutely clear in your own mind as to the history, the nature of his illness, and the diagnosis of his disease or injury. A complete physical examination of your patient will time and time again reveal conditions which were entirely overlooked and unsuspected by the outside attending physician, who may possibly have been one of the best known of the city, and yet in the midst of a busy practice and too pressing demands upon his time he may have overlooked the one vital point in the case during his one or two brief visits to the patient's house. Then, too, there may be patients under the care of physicians who are not especially skilled in diagnosis, who may have been treated for days, weeks, or even months without the true nature of their condition being understood; and yet one single complete and thor-

ough physical examination will reveal an absolutely clear diagnosis.

Our resident physicians will sometimes make mistakes which are unwarranted—even though they are so lacking in experience—and yet on the other hand the resident physician has a great advantage over his chief in that he has every opportunity of studying his patient several times both day and night if he wishes; he can interview the patient's relatives and secure information from the nurse in charge; whereas the attending physician, entering a ward of thirty or forty patients, can rarely devote more than five minutes to each.

It is enough to barely mention a few of the errors which occur and which seem so inexcusable.

A patient presented himself for examination believing that he had consumption. He had been under the care of an outside physician, seen by another in consultation, and sent away to a sanatorium for a number of months. He returned to the city, but was failing in health, and had pain in his chest. He sought admission to the hospital. On removing his clothing it was seen at once that he had Pott's disease. This, the vital point in the diagnosis, had been overlooked; the patient said he had never before been asked to remove his clothing for examination. A woman was sent to the hospital with a diagnosis of valvular heart disease. There was a bleeding fibroid. Her shortness of breath and weakness were so marked that a blood count was immediately made and the hæmoglobin found to be 23 per cent. The heart murmurs were largely hæmic and due also to a much relaxed and flabby heart muscle. Here again the essential feature of the diagnosis had been overlooked, and digitalis might have been given for months without benefit. A little child of three had been treated for several weeks as a case of pneumonia. Examination showed an enormous left sided empyema, pushing the heart beyond the right nipple. The mother stated that the attending physician had not once turned down the bed clothes to examine the child. This little patient recovered after being relieved of three and one half pints of pus. Cases of this kind are not unusual. A patient was admitted to the hospital with a diagnosis of typhoid fever. The pelvis contained about a pint of pus from an unrecognized appendicitis. Another was admitted with a diagnosis of acute appendicitis. A physical examination revealed the fact that the patient had a large ovarian cyst, and that the acute symptoms were caused by a torsion of the pedicle. The diagnosis was confirmed at operation.

I could give you many other instances, but you have enough to illustrate the point I wish to impress upon you, the great value of making a correct diagnosis in every case where this is possible and the building up of your reputation upon this point.

You should always have the highest regard for your senior, and remember that you are his pupil and are in the hospital for the purpose of profiting by his greater experience. If you are asked for your opinion, give it unhesitatingly, even though you know it differs from his. Be careful to do this modestly and unassumingly, and point out certain reasons for your diagnosis. You may be right or

wrong. Very often you will be right and your chief will learn to depend greatly upon your knowledge of the case and will accept your statements without question. Therefore be careful not to permit his faith to be shaken. Avoid above all things the manner of too much assurance. When an attending physician or surgeon of a hospital turns to one of his colleagues and makes a remark about one of his internes and quietly adds, "He may be all right, but you can't teach him anything," it does not bid fair for the resident's future connection with the hospital service after he has completed his internship. I have gone into a ward with the resident in charge and heard him state with every evidence of assurance that this patient was suffering from acute appendicitis and the symptoms seemed so urgent that he had already had him prepared for immediate operation, and yet a moment's examination showed that the patient was really suffering from retention of urine with an enormously over-distended bladder, and that as soon as this had been relieved, every sign of pain and tenderness had disappeared. Therefore write it in red letters in your memory: *The essential point in each case is a correct diagnosis, after that the treatment.* And in regard to that, you will find it of the greatest help to follow your cases with your text-book.

Go back to your *Practice* again and again to read up your cases until you know the book by heart. If it be in the children's ward that your sick patients are, refer daily to your *Padiatrics*. If you have two or three operations scheduled for the following day, go over every step of these operations with your text-book of operative surgery, draw pictures of them with pencil and paper, study the colored plates of your regional anatomy; then close the book and make the drawings from memory. This method you will find of great value, not only while you are an interne, but after you are graduated from your hospital and will have to rise to the emergency of an abdominal section on your own responsibility, when you will not know what unforeseen complication awaits you.

As you draw near the end of your hospital course, your responsibilities will very probably increase and your authority in the hospital will be very considerable. This is in reality the pleasantest period of your training, and the days, more than filled with interesting work, pass altogether too quickly. You find yourself looking ahead and planning for the future. The fascination of medicine and surgery has you in its grasp and the life and interest of this work in the midst of a great city, where you are always among the best of the profession, has taken hold of you. You would like much to continue your work in so congenial an atmosphere, and the quiet little village in a far away country has no allurements. Consider well the conditions, however, before you decide to cast your lot among the great multitude who are striving for success in our great centres of population, many of whom feel, a large proportion largely with a modest living, and comparatively few, so brilliant success.

Let us see what the conditions are in Philadelphia today. A city of a million population having about one physician to every two persons. It is said that a community of one million can only

support one physician. Here, then, we have the proportion reduced to one third of what it should be. But this is not the worst feature. Philadelphia has fifty-five charitable hospitals, and it has been estimated that about 50 per cent. of the total population seek free treatment in these institutions. At least this is true in New York, and the conditions are about the same in Philadelphia. The writer conducts the surgical clinic of one of these hospitals, and in this one department of the out patient service there are one thousand visits a month from patients. About two thirds of these could afford to pay a doctor a moderate fee for his services. With about half the population, therefore, receiving free treatment the average doctor in Philadelphia should draw his private practice from less than two hundred persons. Some of the very busy physicians of the city, however, draw their practice from several thousand, and will visit during the busy months from thirty to fifty patients in a day. What, therefore, is there left for our recent graduate who is just starting?

It is so difficult to obtain a foothold in practice in a large city that the recent graduate who has his own way to make in the world and is without influence would, on the whole, be more successful and infinitely more contented if he began his work in a smaller community, where he had ample opportunity to take a prominent place among his professional colleagues within the first three or four years of his practice.

To those of you who succeed in obtaining hospital appointments in large cities and who at the time of graduation from the hospital see your way clear to a future position on the assistant staff of the hospital, I would say that you have a fair chance to succeed. You must, however, be possessed of infinite patience; you will have to face discouragement time and again; you will have to acquire a certain philosophy to help you over the hard places, and in earning capacity you must consider yourselves about eight years behind your classmate who goes to a small town or growing city, or who has begun practice in the suburbs of a large city. In fact, I think you may consider yourself fortunate if at the end of eight years you are living in the heart of New York, Philadelphia, or Boston in your own rented house, employing two servants and a coachman and driving a horse. What of your classmate, who is more remote from the congested centres of population, will have accomplished this in about two years and will be seeing eight or ten patients a day at moderate fees, at the end of ten years, you who have elected the city should be superior in experience, for your day's work will not infrequently include the personal supervision of seventy or eighty patients, and as this is kept up month after month it means the acquiring of an unusual degree of experience.

For example, you may have one or two patients come to your office in the morning; you then keep an appointment with your senior in the morning room of the hospital where you are one of the assistants, and after assisting at the operations or performing some other service, you conduct the out-patient service when you and your assistant see perhaps fifty patients, you may then see your patients

in the ward which is under the care of your senior, and after that a class of medical students to teach leaves you barely time to see one or two of your own patients who live in widely separated parts of the city, and returning to your office at nightfall, tired after your arduous day, you have a patient coming for a blood count or a physical examination when you are too weary to take much interest in his case. And yet, after just such a day's work, you may not have earned more than five or six dollars, and there is no assurance that this will be paid. Your classmate in the country or in the small town has patients come to him because he is the newest arrival in their community and therefore they know that they may have his services for a small fee. And so he sees as his private patients the same class of persons whom you attend in your out-patient clinic free. It makes a great difference to be out of reach of the large hospitals in this particular. A young physician told me recently that he had just completed his first year in practice and had the names of six hundred and fifty different patients on his records. This young man at the end of his second year is busy from morning till night. He is, however, working in a district fifteen miles away from the centre of Philadelphia.

Contrast with this the statement of the most eminent neurologist of London, that he was forty-two years of age before he was earning sufficient money from his practice to support his family, even though at that age he was known throughout England as a leading authority.

How much money must you earn in order to be self supporting? That is a question which some of you must consider carefully. I have calculated that the lowest possible figure to cover all one's expenses in the centre of Philadelphia is eleven hundred dollars, the chief item being for rent, for suitable offices in a good location are very desirable. It requires the strictest economy to keep within this limit. In New York, rents are much higher and living expenses are also somewhat greater, and four hundred dollars should be added to the amount stated. In small towns or the country one thousand dollars should suffice. A single man can live very comfortably in Philadelphia on eighteen hundred dollars. You must, therefore, average about two patients a day among the best class, or from four to six among the persons of moderate means. Now and then an operative case may yield you from twenty-five to two hundred dollars, which brings up the average very considerably; or it may be some special blood study or stomach work or uranalysis for an older physician which may yield you a ten or even twenty-five dollar fee. Anæsthetics pay very well, if you can secure the opportunity for giving them occasionally, and will pay you from five to twenty-five dollars, according to the nature of the case. In New York the fees for anæsthesia by an expert go as high as two hundred dollars. This is, of course, very unusual.

If you are fortunate in obtaining a permanent connection with one of the large hospitals, if you have several friends on the attending staff, and if you are possessed of an infinite patience, you might well consider the prospect of a city practice. You will probably require financial assistance to help

out your earnings for two years and perhaps five, according to your location and opportunities. Your classmate in the small town or country district will probably be self supporting in three months.

If you decide upon the centre of a large city eventually, you should at the end of five years in general work decide upon some special line and follow that at every opportunity and perfect yourself in every detail of it. For the successful men in the centre of our large cities are for the most part known especially in some special department of medicine or surgery, and *all of them* hold teaching or hospital positions. Under these circumstances there is little room for the outsider.

Have I discouraged you with the picture? I do not mean to. Your goal is difficult, far too difficult for some, but it is well worth the effort. It is won only after years and years of work and patience. Those men who succeed quickly and brilliantly are fortunate in having in addition to their exceptional ability an opportunity for success which is an absolute guarantee for the future. This good fortune does not fall to the lot of everyone. A prominent man retires and his work falls to his assistant. A young man still in his thirties receives a professorship or is elected attending physician or surgeon to a leading hospital. This is almost certain to bring success, but there must be ability first.

There remains one other point to be mentioned in closing, and that is a trip to Europe. If you can see your hospital position ahead of you, and can go to Europe for six months immediately after your graduation from the hospital, do so by all means. Six hundred dollars will cover your expenses; it will be a great advantage to you, and will be a keen pleasure as well; and after you are once settled in practice you may not have another opportunity for years. It is a satisfaction to look back to the days that you passed standing directly at the elbow of the master of surgery in all Europe, seeing every step of every operation, learning the technics, living all the while under the influence and the stimulus of a great personality, speaking to him in your own language and hearing his instant reply in a pure German, or perhaps he addresses you in perfectly correct English; those are interesting days indeed.

Or you may have had a good introduction to certain members of the staff of one of the great London hospitals, as St. Bartholomew's or St. Thomas's or Guy's; and there you can spend your days profitably working in the laboratory with men who may have returned from India or South Africa to do the same work you are doing, anxious to learn all the modern methods and recent advances in technics. And so as you work together day by day, you become the best of friends; you have the privilege of studying cases in the wards; you visit the operating rooms when you like; you are brought into daily contact with the attending staff; your relations with the interne staff are friendly and cordial, and you often meet in the big library at five o'clock and have tea and a pipe afterwards, which seems to be a general custom in the London hospitals. And after a few months of this pleasant existence you all part company, never to meet again.

And then, too, aside from the study and the work,

you have your week end trips to the country and nearby towns. If you are in Switzerland as a pupil of Kocher or Roux, you have your Sundays in the Alps or on the lakes, surrounded by the snow peaks. If you are in London, you have Oxford and Cambridge, Kenilworth, Leamington, and Warwick Castle, hundreds of places in and about London to be seen and enjoyed. And so it is with Edinburgh, Berlin, Vienna, or Paris; and the months pass altogether too quickly. Do not stay in Europe too long. It is not necessary, and you lose your place here by too long an absence. You will always be glad you went abroad, and in later years you will scarcely ever take up a textbook or a medical journal that will not quote or make some reference to your European teacher of former days, and your interest always lights up anew as you come across the familiar name; memory brings back the pleasant evenings when you dined with him; or walked through the woods or along the banks of the river; or drove with him through the crowded London streets; or joined him in the late afternoon at his club. It is a pleasure to recall these former days and you will always be looking forward to seeing again these congenial friends.

When you are engaged in practice there will be times which seem dull indeed, when your patients all seem hopelessly well, and it is at just such times as these that you may learn that one of your best patients is ill with typhoid fever and is under the care of another physician, or you may hear of one of your nicest families having called in a doctor who lives in their immediate vicinity. An older physician accepts these occurrences as a matter of course, but to the young doctor they are a keen disappointment, and at such times you will need all of your philosophy; but put aside the depressing thoughts and turn your attention to other things; the very next day, perhaps, you will be sent for to see a patient of consequence who had formerly been under the care of a leading doctor, and so there is very apt to be some compensation for the disappointments, and you will gradually learn to realize that some of the best things in life are yours.

And the best thing of them all is health. Without it, what are we? In your early years of practice, if ill health overtakes you and you find yourself in bed for weeks and weeks because of a dilating heart or an intractable nephritis, bills to be paid, and no funds, and debt increasing—these are anxious days and sleepless nights. But the pendulum of fortune cannot swing always to the wrong side, for it must swing back again and you will find a way out of your difficulties, and so the balance is maintained.

And, therefore, be glad that you are well, and regulate your lives so that you remain so. Exercise every day in the fresh air is most essential, and every one of you should make it a point of it. With health and youth in your favor, muscles and circulation in perfect tone, and a good digestion, a live interest in the work you have chosen, and interest and sympathy in the welfare of every adult and child who is entrusted to your care, you will win success in the end, a success, too, which is no doubt well worth the having.

(See Page 300.)

POLICE METHODS FOR THE SANITARY CONTROL OF PROSTITUTION

in Some of the Cities of Germany.

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(Concluded from page 406.)

The women who are found to require hospital treatment are sent to the city hospital in the Friedrichstadt. This is a large, though somewhat old, series of buildings, situated in the northwestern part of the city. Separate pavilions house those patients suffering with venereal diseases. Both males and females are treated, each sex in a separate building. This is not a "lock" hospital. In other words, there is no wall surrounding these pavilions, and the patients are not confined to the building itself. They are, however, not allowed to mingle with the other patients in the hospital grounds, for fear of the possibility of communicating infection. One hour daily is given them to wander about and exercise in the hospital grounds, immediately about the venereal pavilion. The treatment of the diseased prostitutes is paid for by the sick benefit fund (*Krankenkasse*) of the prostitutes, to which each prostitute must pay a fixed sum upon entering, and a weekly sum thereafter. Should the prostitute in question not be a member of this *Kasse*, as, for instance, those found diseased upon first arrest, then the cost of her maintenance and treatment must be borne by the city itself, from its poor fund.

In this hospital, the treatment is carried out according to the requirements of modern methods, and each woman is kept in the hospital until the belief is warranted that she is cured. Syphilis is here also treated by the inunction method, and the usual series of thirty rubs is made. After this series of rubs, if the symptoms of syphilis are still present, further treatment is applied, until these symptoms all disappear. Should no symptoms be present, she is allowed to go, being again referred, as above stated, back to the examining physician at police headquarters, who must also pronounce her without symptoms of syphilis; then she is again permitted to resume her trade.

Gonorrhea is treated as follows: The urethra is treated by means of injections of one per cent. irolo solution, these injections being made morning and evening, by the female attendants. Each of the women must have her own special urethral syringe, which is kept in a bottle of bichloride of mercury solution. Should the urethra not be free of gonococci in three of four weeks, then applications of one to two per cent. silver nitrate solution are made with the Playfair sound. Should this not cure, then the solution is applied in the strength of ten per cent. All applications are made by the doctor in person. In the treatment of cervical gonorrhea, the irolo is applied by means of the Playfair sound. If it is not persistent, then strong solutions of zinc chloride are used. Rectal gonorrhea, which, I am informed, is found to be present in about one third of the cases examined, is treated by injections of one per cent. irolo solution. If persistent, then the speculum is used, and applications of silver ni-

NÜRNBERG.

trate are employed. When Bartholinitis is present, the affected gland duct is slit up. Should this diseased condition persist, then both gland and duct are treated with the Pacquelin cautery. When the urethra is found to be free from gonococci upon two consecutive examinations, occurring at intervals of one week, the woman is allowed to go, being referred back to police headquarters, for examination by the surgeon on duty there. Should the cervical secretion be free of gonococci on three consecutive examinations, the treatment is suspended. Should she then remain free of gonococci for from two to three more weeks, she is allowed to go, being referred back to police headquarters.

Taken all in all, with the exception of the treatment of syphilis, the methods employed in these examinations and treatments in the city of Dresden impressed me as being the most complete and scientific of those employed in any of the cities I visited, and I shall be greatly surprised if, in view of the fact that the police and hospital authorities work so carefully, hand in hand, the statistics which will result are not of the greatest satisfaction to all those who take an interest in the prevention of the spread of venereal diseases.

The male patients who are treated in the city hospital of Dresden have the privilege of leaving this institution whenever they see fit to do so. Should they, however, leave the institution previous to the completion of a cure, then they must receive, by order of the government of the city of Dresden, cards of notification from the hospital authorities. These cards, or slips, are colored red for the gonorrhoeal patients, and yellow for the syphilitic, and read as follows:

1.

Your gonorrhoea is not yet cured. You must, therefore, still place yourself in the treatment of a physician. Intercourse is not yet permissible because of the infectiousness of your disease. Not even then when the discharge has thoroughly disappeared; on the contrary, only then when the examination by the physician reveals no further symptoms of disease.

That for syphilis reads as follows:

2.

Your disease is not to be cured with one single course of treatment. You will, in all probability, again notice some trace of your illness, some time after the ending of your course of treatment. (For instance—open wounds, or pains in the mouth, or in the throat, or on the genitals, or an eruption upon the body.)

As soon, therefore, as any new signs of disease show, no matter how long after the completion of the course of treatment, then you must at once go to a physician—the sooner measures are begun against this, the shorter the duration of the treatment—the surer the result.

Even though no signs of disease present themselves, you must, for three years, undergo a course of treatment, once to twice a year. The disease from which you suffer is, during a long time, contagious, months, and often years, after the visible signs of it are healed. During this entire time you may not either indulge in intercourse or kiss other persons, nor use the same towels, dishes, washcloths, or combs.

Without previous consultation with the physician, you may not marry, nor, if you are already married, again take up sexual intercourse. Should you, at a later period, come under the treatment of another physician, then you must tell him, without being asked, that you have suffered with syphilis.

Nuremberg has about 300,000 inhabitants, and is the seat of command of the third Bavarian army corps. It and its neighbor, Fürth, are great industrial centres.

This city is one of those in which houses of prostitution are tolerated. They are all, by the orders of the police, situated about the outer city walls, are usually very ordinary in character, and are marked with the sign *Weinhandlung* (wine shop), and further by a lighted, colored lamp, or lantern, which hangs above the door.

The number of houses tolerated in this city of 300,000 inhabitants is twenty to twenty-two, each of which is occupied by five to six females. In addition to these prostitutes living in regular brothels, there are about eighty inscribed prostitutes who live in quarters of their own, in the poorer parts of the city, in out of the way alleys, or streets. In other words, the number of prostitutes under control in this city is about two hundred. From these figures it will be seen at once how small a part of those females who prostitute themselves really come under police observation and control in this city. No female under twenty-one is permitted to be inscribed upon the lists of the police; consequently, it is the experience of the police officials that those who have reached the age of twenty-one have prostituted themselves for a long time, and no attempt is made to rescue them from this life. No obstacles, however, are ever placed in the way of those individuals or associations who care to attempt rescue work. Those prostitutes who are inscribed on the police lists are required to submit themselves to an examination by the district physician once a week, whether they dwell in brothels or have their own apartments. The houses of prostitution are regularly visited by this district physician once a week, and the examinations take place in the houses in question. Payment for these examinations is made to the physicians by the prostitutes. They pay at the rate of 3 marks for the first, and 2 marks for the other inmates. Those who are not inmates of houses of prostitution must present themselves once a week, at police headquarters, where they are examined free of charge. When a female presents herself to the police, with the statement that she desires to be enrolled upon the list of prostitutes of the city, she is required to sign a document in which she expressly states that she desires to follow this mode of life, and that she subjects herself to the police regulations, etc. These are as follows:

The aforementioned persons may only take residence in such streets and houses in which this is permitted by the magistracy. Whenever a dwelling is taken possession of, this is, without reference to the generally prescribed notifications, specially to be reported, within twenty-four hours, in the bureau. No. —, of the city magistracy. The police regulations with regard to the choice or occupancy of a dwelling are, at all times, to be followed:

It is forbidden them to dwell in the neighborhood of churches, or schools, in inns, etc.; furthermore, in the suburban communities of the district Nürnberg, and, similarly, it is forbidden them to occupy ground floor dwelling. Their removal from this city, even when

only transient, must be reported in advance, in police bureau No. —, with the statement of the destination, and the expected duration of absence.

2.

For the purpose of police supervision of the state of health, those females placed, because of public prostitution, under police observation are required to report themselves every Wednesday morning at 10:30 o'clock, in the room of the royal district physician, in the City Hall, for the purpose of medical examination, and to appear in a cleanly condition and decent behavior, as well as to bring along the booklet handed to them at the time of their reporting themselves as prostitutes. Possible prevention of their appearance is previously to be reported to the royal district physician.

Remaining away of their own accord will be followed by compulsory production, and, according to the circumstances, procedures for their punishment. The medical directions and police orders with regard to the cure of contagious diseases must be obeyed without question, otherwise the penalties provided therefor in paragraph 327 of the National Penal Code, and article 67, paragraph 2, of the Bavarian Police Penal Code, will be meted out to them.

The regular medical examination will be carried out by the authorities, and free of charge.

At the first examination they must prove that they are in possession of a proper uterine syringe, and must bring that along with them.

Only in exceptional cases, and then only after the permission of the police has been given, is the examination permitted—upon agreement with the royal district physician—to occur in the residence of the person to be examined, and at her expense.

Every female who is admitted to prostitution is obliged to the payment of increased hospital contributions.

3.

It is forbidden to those females mentioned in paragraph 1:

a. To visit public theatres and concerts, balls, Salvatore parties, as well here as also in Fürth, show booths of all sorts, and other public entertainments. To entice, in a conspicuous manner, male persons, from the windows or doors of their dwellings, or to make themselves publicly noticeable through creating a disturbance, or in any other manner.

b. To make themselves conspicuous, upon the streets, in public places, in inns, inn gardens and other public resorts, through conspicuous finery, or mode of dress, or to obtrude themselves upon men.

c. To wander about in the neighborhood of barracks, military buildings or other resorts, or inns which are much frequented by the military.

d. To enter into, or to maintain in any manner, relations with immature males.

e. To wander about in the evenings or at night upon the streets or public places, should this be alone or in company; to accost males, or to make themselves noticeable by means of signs, signals, or other means of notification.

f. To indulge in intercourse or other indecent behavior upon the streets or squares of the city, or in inns or public resorts.

4.

Admission to their dwellings is, for the purpose of control, permitted, and to be permitted at all times, to those police officials who are supplied with written orders. Those persons noted in paragraph 1 are warned to obey the preceding police orders, under the penalty that any disobedience thereof will not only be followed by their being stricken from the list of prostitutes standing under police control but furthermore, with procedure to punish them according to paragraph 362, division 6, of the National Penal Code, and, possibly also, expulsion from the city district, or incarceration in a workhouse, up to the duration of two years, as specified in paragraph 362 l. c.

graph 362, division 6, of the National Penal Code, and, possibly also, expulsion from the city district, or incarceration in a workhouse, up to the duration of two years, as specified in paragraph 362 l. c.

5.

The magistracy may, at any time, add further regulations to those contained in paragraphs 1 to 4, which are to be absolutely followed, under penalty of being stricken from the lists of those prostitutes standing under police control, and a report and entrance of complaint for their punishment.

Read to and signed by _____

Identification booklet was handed out.

CITY MAGISTRACY OF NUREMBERG.

I am informed that, at the examination here, in the houses themselves, or at police headquarters, particular stress is laid upon the appearance of physical signs, and the grosser symptoms of gonorrhoea, such as pronounced urethral discharge, reddening, etc. No examination is made for gonococci. Those found sick are referred to the city hospital. This is a beautiful modern building, lying in the suburbs of the city, and fitted up with every modern convenience and appliance. The individual pavilions (for this is a hospital upon the pavilion system) are surrounded by trees and lawns. The two pavilions designated for the treatment of venereal diseases in the male and female are "locked" wards. Each is surrounded by a large garden, which is bordered by a high brick wall, topped with a generous supply of broken bottle glass imbedded in the cement. This last mentioned precaution, I was informed, was found necessary, to prevent, in the first instance, attempts by their lovers to free the inmates, such as were frequently made formerly, and, secondly, to prevent the inmates of the individual pavilions from attempting to climb upon the wall, to escape, or to look over into the adjoining pavilion. As a further safeguard, to protect against the attempts to free the female inmates, guards are always on duty. These precautions, stringent as they may seem, have been made necessary by the fact that the public prostitutes have proved themselves, in all instances, to be hand in glove with the lowest of the criminal classes, and, usually, to have some lover, or *Louis*, who is a blackleg, and who usually is supported by the earnings of the prostitute. When she is an inmate of the hospital his income is necessarily cut down, and in former times, before the locked wards were protected as now, it happened, in a number of instances, that these rowdies, with others of the same sort, recruited from among the criminal classes, frequently attempted, at night, to bring about the release of some one of the inmates, and, in some instances, even succeeded. To prevent still further the communication between the inmates of the adjoining male and female pavilions, they are forbidden to promenade in that part of the garden which adjoins the pavilion for the other sex, and there are ground glass windows upon the side facing toward the other pavilion.

Of the inmates in the hospital, by far the large majority of those found to be diseased are among those who did not live in houses of prostitution. Whether it is due to a smaller percentage of disease among the women who live in houses of prostitution, or whether it is due possibly, other factors,

being greater adepts at tricking the physician, or whether the methods of examination may differ in the two instances, must remain an open question. If a woman is found diseased upon her admission to the list of prostitutes of the city of Nuremberg she is at once sent back to the city or district whence she came, and the entire costs must be borne by that city or district.

When admitted to the hospital for treatment, the women come into a large area, the well lighted house of which is kept scrupulously clean. The examinations for gonococci are made in this institution at first during the period of pronounced discharge, at least once a week, and later, when the acute symptoms have somewhat subsided, twice a week. The secretion from the urethra, ducts of the Bartholinian glands, and cervix uteri are examined. Syphilis is treated by the usual method of inunctions. Gonorrhœa is treated at first, usually, by means of irrigations of boric acid solution. Should it prove obstinate, then a strong solution of protargol is used. The length of stay is governed by the condition of the patient. She must remain until all secretions have been free of gonococci for at least two examinations. Payment for treatment is made by the sick benefit fund of the prostitutes, to which each must pay a weekly contribution.

In the city of Nuremberg there is also a notification sent to the city magistracy by the superintendent of the hospital, with regard to the source of a venereal infection. This form reads as follows:

NUREMBERG. to the city magistracy of N. With regard to measures against the spread of venereal diseases. under treatment in division for sexual diseases, because of states that had sexual intercourse with, name residence SUPERINTENDENT OF THE HOSPITAL.
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Those prostitutes, inmates of the lock hospital, who refuse to permit examination or treatment, may be compelled to do so, by force, if necessary. Should any one of the inmates conduct herself in an obstreperous or unseemly manner, she may be placed in solitary confinement, in a prison cell, set aside for that purpose. It is a large, well ventilated room, is lighted by a large window sufficiently high above the floor so that it may not be possible for one to reach the lower rim of the window. The inmate who is locked in the cell, however, receives the same fare as the other inmates, unless her offences be so grave that she is placed upon the extreme of punishment, a bread and water diet. Furthermore, her bed consists of a mattress placed upon the floor, and her covering is the usual blanket, or blankets. This cell serves its purpose more from the fact of its presence than because of its use, for I am told that it very rarely has an occupant. The doctor in charge told me that the inmates themselves usually saw to it, by means of disciplinary measures which they resorted to among themselves, that none of their number conducted herself in an unseemly manner toward those in charge.

MUNICH.

Munich, the third largest city in the German Empire, is the principal city of the kingdom of Bavaria and the seat of the royal residence. It has about 350,000 inhabitants, and is the seat of the general command of the first Bavarian army corps.

It has, therefore, the largest garrison of any Bavarian city, and is, furthermore, the seat of a university, the technical high school, and is one of the centres of artistic life in Germany, as also a great industrial city.

Prostitution in the city of Munich is, again, only tolerated, and houses of prostitution are no longer permitted. It was stated to me that formerly "one or two" existed; now, however, there is none which is known to the police. The government does not sanction prostitution, but tries, in so far as this is possible, to control those who follow this trade, and to prevent, as far as it may be prevented, the spread of contagious, venereal diseases. There are, in all, about two hundred and fifty prostitutes inscribed upon the police lists. The number of the uninscribed is not known, but is said to be legion. The prostitutes are chiefly recruited from among the *Kellnerinnen*, or waitresses, in different saloons, restaurants, beer halls, or beer gardens, and it is among these that the greatest number of the secret prostitutes are to be found. No attempts are made to reclaim those who follow prostitution as a livelihood, for it is said that they all enter prostitution voluntarily, as an easy way to live well, and to avoid hard work.

Those who are inscribed must present themselves for examination upon entering the city to live. They are then examined for the presence of syphilis and gonorrhœa. Eighty per cent. of those who present themselves for registration have had syphilis and gonorrhœa. No woman is inscribed upon the lists who is under twenty-one years of age. Those women arrested upon the streets for suspected prostitution cannot be examined unless they give their written consent thereto. Those presenting themselves at police headquarters for examination—that is, the regularly inscribed prostitutes—are examined once a week. The examination is chiefly directed toward the discovery of syphilitic lesions and gross discharge. If visible discharge is present the prostitute in question is referred to the city hospital, where she is examined to determine the presence or absence of gonococci. Should a soldier become infected and be able to give the supposed source of his infection, then the suspected person *may be invited* to appear at police headquarters for examination. The suspected person cannot, however, be forced to submit to an examination. This can only be made upon her written consent. Those prostitutes found to be diseased are, as in the other cities previously under consideration, referred to the city hospital for treatment. This is again not a lock hospital. To any one acquainted at all with life and manners in the city of Munich, the reasons for the failure of the attempts to regulate prostitution must be at once apparent. Only two hundred and fifty prostitutes are inscribed upon the police rolls as following this trade, among a population of over five hundred and fifty thousand. Even under the circumstances a part of the sources of infection is controlled and prevented, in a measure, from transmitting diseases; but how infinitesimal must this part be. It is because of the fact that not only in this city, but similarly also in the other cities (as mentioned in the consideration of the city of Berlin) a woman who may be a most brazen prostitute, and

may be notoriously diseased, can escape the provisions for police control, so long as she does not allow herself to come under the heading of public prostitute.

CONCLUSIONS.

Under the existing conditions the sanitary control of prostitution is, and must remain, defective. So long as there is no national law, or set of regulations, making the methods of control identical throughout the entire empire, and governing cities, villages, and country districts alike, the prostitutes will, naturally, flock to those places where the control is least rigid. So long as the methods of medical examination differ so widely, and so radically, in the different cities, the attempts to check the spread of venereal diseases must be greatly hampered. At present, the prostitute who suspects herself to be diseased need only to go to a specialist privately, and if she finds her suspicions correct, leave the city for some place where the control methods are less exact. Only when the regulations governing the examinations are identical throughout the empire, and when these are everywhere carried out by properly equipped specialists, competent to examine for and treat all of the venereal diseases, and when the methods of treatment in the various city hospitals shall be based upon the most modern, scientific methods, will it be possible to form a just opinion about the value of sanitary control and reclamation.

At the present time the greatest obstacle to the success of the attempts to prevent the spread of venereal diseases in Germany, and the condition which renders the attempts of sanitarians almost abortive, is the inability, under the present laws, to cope with "clandestine" prostitution. As stated before, so long as even a small part of a woman's earnings is obtained by work, she cannot be classed as a "public" (*gewerbsmässige*) prostitute. I believe that all of those who have studied the problem, as it exists in Germany, will agree with me that the most potent sources of venereal infection are the "clandestine" prostitutes. Until the government of Germany can bring its members to realize that the woman who prostitutes her body with a number of men, for money, is a prostitute, whether she derives her entire income or only a part of it from this trade, and until ways and means are found to place all prostitutes under sanitary supervision, and to regard all of them as sources of danger, not only directly to the person having intercourse with them, but indirectly also to an entire community perhaps, will it be possible materially to check the spread of venereal diseases.

The control which is executed solely by and through the police is, I fancy, less successful in its results than would be the case if the sanitary part of the matter were left entirely in the hands of the health authorities, recourse being had to the police only when the prostitutes molest or annoy the public, when they commit some breach of the public peace, or decency, or disturb the orders of the health authorities.

At present, too, the frequency of the examinations is too little. Very infrequently a microscoical examination of the secretions from all the usual sources of infection made at each visit. I believe that semi-

weekly examinations would fully suffice for the prevention of direct infection with gonorrhoea. In the matter of syphilis, too, I think the interval between examinations during the early stages to be too short. Similarly also the course of treatment, thirty inunctions, cannot suffice to render the woman a safe person to permit to have coitus. Here, however, arises the question whether it will ever be possible to force a prostitute to submit to incarceration in a locked hospital during the entire contagious stage of a syphilis, meaning as it would her inability to earn anything for herself, or to look after any business affairs which might arise, and making her a burden and an expense upon the community during this entire period. The question which must be decided is, whether it is cheaper to allow a source of syphilitic infection to wander about, infecting the community, or to pay the expense of her keep and treatment during her incarceration.

While the system as it exists may seem in some respects to be harsh, I feel satisfied that the officials seek to make it as little of a hardship to the women as possible. A perusal of the regulations in force in the various cities will show that they are, in the main, similar; and while it may look as though the prostitutes' liberties were greatly curtailed, a more careful reading will show that the rules are only such as would tend to preserve public order and morals, and to prevent the prostitutes from overrunning the principal streets and those places or resorts in which respectable families are wont to congregate.

In no instance, in any city which I visited, did I notice anything which savored, in the least, of brutality or levity on the part of the examining or treating physicians. Although stern in checking any loud talk or unseemly actions, there was never any undue gruffness. Nor was there any action or word calculated to make the women feel their degradation. Consideration seemed to be the watchword. On the other hand, I saw but one woman (she admitted to having been a "public" prostitute for more than seven years) in the large number I saw examined and treated, who seemed in any way timid or abashed. In this instance it seemed to me that her fright was due chiefly to the fact that this was her first visit to the hospital in that particular city. Most of them seemed to look upon the entire matter as some huge joke, and acted accordingly.

While the police cannot, officially, enter upon any attempts at reclamation, the efforts of such societies as have this for their purpose are seconded, in every possible way, by the authorities. That these efforts bear the minimum of fruit is due only to the abandoned character of the prostitutes themselves. The authorities are only able to enforce a sojourn in a reformatory institution in the case of minors, and here also experience seems to have shown that those who want to go wrong *will do so*, in spite of all attempts at reclamation or reformation. It is not within the scope of this paper to discuss the causes of prostitution, but it was the consensus that the confirmed prostitute, whether of the "controlled" or "uncontrolled" class, finds her way into prostitution not through bitter necessity, nor the perfidy of man, but through an inborn tendency thereto, combined with the desire to earn a wide and cer-

finery, dress, etc., without the need for manual labor. As one authority tersely expressed himself, it is *unabhängig, Friedrichkeit* (innate dissoluteness) which is responsible, in the great majority of cases.

Many attempts have been made by the Social Democrats, the clergy, the women's rights advocates, and other abolitionists, to do away with "control" by the police. They ought not to succeed. Rather should they be brought to realize how great is the growing danger from the possible spread of venereal diseases through uncontrolled prostitution, and to aid, rather than to obstruct, all such measures as may tend toward a betterment of venereal prophylaxis—personal as well as moral.

I am particularly indebted to Dr. Lührs and Dr. Fürst, of Hamburg; Professor Lassar, Sanitätsrath Dr. Blaschko, and Criminal-Inspector Penzig, of Berlin; Professor Kollmann, of Leipsic; Police President Köttig, Police Physician Winkler, and Oberarzt Werther, of Dresden; Hofrat Dr. Beckh and his assistants, of Nuremberg; and Bezirksarzt Dr. Von Dall 'Armi, of Munich, for the extraordinary courtesy and kindness which they extended to me. To these gentlemen, as also to those others, medical and police, who through their great help smoothed the way for me, I desire, in closing, to express my sincerest thanks.

53 EAST FIFTY-EIGHTH STREET.

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXV.—How do you prevent contraction in the scars of burns? (Closed August 15, 1907.)

LXVI.—How do you make an early diagnosis of pregnancy? (Answers due not later than September 16, 1907.)

LXVII.—How do you treat delirium tremens? (Answers due not later than October 15, 1907.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXIV has been awarded to Dr. Austin Rogan, of Johnstown, N. Y., whose article appeared on page 406.

PRIZE QUESTION NO. LXIV.

THE TREATMENT OF INFLUENZA.

(Concluded from page 409.)

As there is no specific for influenza, the proper treatment of this disease must be largely based upon the individual case. To treat successfully a case of la grippe the severity of the attack, the condition of the patient, and the season of the year must be taken into consideration. Influenza is caused by a specific microorganism producing a general intoxication. In the majority of cases the natural defenses of the body are able to destroy the organism and its toxins, thus leading to recovery. In certain cases, however, in which the general vitality of the patient is below par, or in intense infections, assistance is indicated. In these cases it is the duty of the physician to put the patient in the best condition to resist the inroads of the bacteria, and on the physician's proper advice and assistance the recovery of the patient or prevention of complications very often depends.

For practical purposes we may divide patients suffering from influenza into two classes depending on the severity of the symptoms: (1) Mild cases; and (2) severe cases.

1. *Mild Cases.*—This class is characterized by fever 101° to 103° F., general debility, muscular and arthritic pains, coryza, bronchitis, loss of appetite, vomiting, diarrhoea.

The first step in the treatment is to put the patient to bed. However mild the case may appear, this step should not be neglected, as pneumonia may develop in such cases, while the patient is trying to fight off the disease. The bowels must be cleared by calomel preferably in small doses, gr. $\frac{1}{100}$, every half hour, till gr. ii have been taken, then followed in a few hours by a saline. The diet should be exclusively milk for two to three days. The patient should take two to three quarts within that time. If the case is seen early an attempt may be made to abort the attack and Dover's powder, gr. v to x, and a hot lemonade will often produce a good perspiration with amelioration of the symptoms.

2. *Severe Cases.*—They are characterized by high fever, 102° to 105° F., marked prostration, severe muscular and arthritic pains; catarrhal symptoms, conjunctivitis, laryngitis, bronchitis; digestive symptoms, loss of appetite, vomiting, diarrhoea, enteritis; nervous symptoms, pain in the head, extremities, joints, vertigo, delirium, occasionally convulsions.

The treatment of severe cases may be divided into: (1) Commencement of case; (2) progress of case; and (3) convalescence.

1. *Commencement of Case.*—(a) General management: Rest in bed is extremely important, and the quicker a patient is put to bed the less need is there of cardiac stimulants during the attack and of tonics during convalescence. The sick room should be large, not too warm, about 60° to 64° F., heated by an open fire place; good ventilation, but no draughts; no gas burning; steaming kettle in the room. The bed clothing should be warm, but light. The garments of patient should be warm, but light, and perfectly loose, including a flannel jacket. The diet for the first twenty-four to forty-eight hours should be exclusively milk given in small quantities at frequent intervals. Often the patient will be unable to retain the milk and addition of lime water or peptonizing the milk may be helpful. Occasionally the patient will be unable to retain any food in whatever manner administered, then rectal feeding will have to be resorted to for two to three days, giving the stomach complete rest.

(b) Attention to symptoms: Fever requires but little attention, as it seldom lasts longer than a few

days. If high fever is present sponging the body with alcohol will often lower it. Cold sponging or cold baths I never advise, as cold often aggravates the catarrhal symptoms. Five grains of quinine sulphate repeated two to three times, if there is no middle ear inflammation, may also help in lowering the temperature.

When vomiting is very severe, food should be stopped for twenty-four hours, and if still persistent after this rectal alimentation for two to three days should be tried. The vomiting may be relieved by swallowing small pieces of cracked ice on which has been poured a few drops of brandy. High rectal irrigation with warm water will help in elimination of the toxic substances through bowels and kidneys, and may stop the vomiting. Mustard plaster over stomach may act favorably. This mixture often gives good results:

R Acidi hydrocyanici diluti.....miii;
Spiritus ammoniac aromatici.....ssss;
Aque, q. s. ad.....5ss.
Misce. Sig.: Every hour for three to four doses.

Diarrhoea often requires attention. The bowels should be cleared by small doses of calomel, followed by a saline. If diarrhoea is not excessive no treatment is necessary, but if it is painful and weakens the patient interference is indicated.

R Bismuthi subgallici.....gr. x-xx;
Spiritus ammoniac aromatici.....ssss;
Aque, q. s. ad.....5ss.
Misce. Sig.: Every 3 to 4 hours.

The nose and throat are often irritated and inflamed. A spray of liquor antisepticus will clear away the mucus and will keep the mucous membrane antiseptic. If the discharge is excessive, gr. x of suprarenal extract to the ounce may be added. In persistent tracheitis inhalation of steam to which has been added 5i of equal parts of eucalyptol and thymol acts nicely.

For bronchitis mustard plaster over sternum will often relieve the irritation. If expectoration is profuse I find this mixture efficacious:

R Potassii citratis.....gr. x;
Liquoris ammoniac acetatis.....ssss;
Aque chloroformi.....5i;
Syrupus acidi hydriodici.....5ii.
Misce. Sig.: Every 3 hours.

If the cough is dry and harassing, codeine gr. ¼ or heroine gr. 1/12, acts best to relieve it.

Nervous general pains are often distressing, and are best relieved by one of the analgetics, preferably:

R Phenacetine.....gr. v-xx;
Caffeina citratis.....gr. ii-iv.
Misce. Sig.: Every 3 to 4 hours for three to four doses.

2. Progress of the Case.—(a) General management: Rest and surroundings of the patient should be the same as before.

Diet: As the condition of the patient improves, in addition to milk may be added plain chicken broth, or chicken broth in which an egg has been beaten in; custard, egg nog, milk punch. If the case progresses favorably solid food may be permitted in the form of scraped beef sandwich, small piece of chicken, poached or scrambled egg, farinaceous foods. The aim is to give nourishing and

easily digestible foods in small quantities and frequently repeated, about every two hours. Water may be given in abundance, best is an alkaline water, which besides allaying thirst helps in flushing the kidneys. As one of the great characteristics of influenza is the great prostration it produces, an alcoholic stimulant is often indicated. Champagne answers the purpose best.

(b) Attention to symptoms: The bronchitis should be given proper attention. Influenza has the tendency to weaken the patient, and a stimulant expectorant is often indicated:

R Ammonii carbonatis.....gr. iv;
Aque camphore.....5ii;
Aque, q. s. ad.....5ii.
Misce. Sig.: In milk every 3 to 4 hours.

If dyspnoea becomes urgent, cough weakens, expectoration diminishes, and suffocative symptoms appear an emetic should be administered at once:

R Ammonii carbonatis.....gr. xx-xxx;
Aque tepide.....5ii.
Misce. Sig.: Take at once.

In robust individuals drawing off 10 to 15 ounces of blood, or application of six to twelve leeches over sternum acts favorably. This may be followed by an antispasmodic mixture, like:

R Spiritus aetheris.....℥ xx;
Spiritus ammoniac aromatici.....℥ xx;
Aque camphore.....5ii;
Aque, q. s. ad.....5ss.
Misce. Sig.: Every 2 to 3 hours.

An hypodermic injection of strychnine, gr. 1/30, every six to eight hours, will also help to relieve the symptoms.

The heart must be constantly watched and if weakness become manifest stimulants should be pushed till the desired effect is produced. Alcohol in the form of champagne or brandy may be relied on. Strychnine hypodermically, gr. 1/30, every six to eight hours, is often extremely valuable.

Insomnia is often an extremely trying symptom and may prevent convalescence. If ordinary measures do not produce the desired effect a few grains of sulphonal, trional, or paraldehyde will give the patient a good refreshing sleep.

3. Convalescence.—(a) General management: Care during convalescence is as important as during the disease on account of the general weakened condition in which the disease leaves the patient. The patient should not leave the house until the temperature has remained normal for five to six days. Then rides through the park, and if his strength allows short walks will help in bracing the patient up. Often change of scene to some mountain resort is of immense benefit.

The diet should be nutritious, palatable, and served in an appetizing manner. Besides milk and farinaceous foods, nitrogenous foods should be given, as chicken, roast beef, eggs, fish; fruits, as baked apples, stewed prunes, oranges, grapes. An alkaline water should be drunk in abundance. A glass of coffee is often a useful stimulant. For appetite a glass of burgundy two to three times a day is excellent.

(b) Medicinal indications: To restore the patient's strength cod liver oil or some malt liquor helps exceedingly well. To stimulate the appetite a bitter tonic may be given with advantage, as

R Tincture tinct. conic. p.	℥ss.
Spiritus ammoniæ aromatic.	℥ss.
Tinct. nœ. gennæ compos.	℥ss.
Aque, q. s. ad.	℥ss.
Misce. Sig.: Five minutes before each meal.	
Often a hæmætic is indicated:	
R Ferri et ammonii citratis,	gr. iii;
Liquoris potassii arsenit.	℥ss.
Aque chloroform.	℥ss.
Aque, q. s. ad.	℥ss.
Misce. Sig.: Three times a day after meals.	

Dr. William L. Wilson, of St. Joseph, Mich., states:

As influenza is a disease characterized by a number of symptoms, complications, and effects which differ greatly in number and severity in different cases, the treatment must be varied according to the type of case encountered. In all cases, however, as no specific remedy has yet been found our treatment must be directed toward the limitation as far as possible of infection, the prevention of complications, and the relief of symptoms.

Wherever the surroundings are favorable I direct that the patient be isolated from the rest of the household, and if cough and expectoration are present that the sputum be disinfected. I am also in the habit of directing that the throat and nasal passages be sprayed frequently with dilute solutions of hydrogen peroxide, whether catarrhal symptoms are present or not, as it is through these channels that infection takes place.

Wherever it is possible the patient should be confined to one room which should be well lighted and ventilated and kept at a temperature of about 68° F. In all but the very mild cases he should be kept at rest in bed, and if his case is a mild one he should be warned that he may become dangerous through some cardiac, pulmonary, or other complication. The indications which should guide us in the use of remedies are: The relief of pain, more active elimination from the skin, kidneys, and intestines, and the support of the heart and nervous system. In almost all cases I begin treatment by giving two or three grains of calomel, preferably in divided doses, and follow with a reliable saline. In mild cases all that may be required in addition to the calomel is a hot bath, followed by a hot drink and a Dover's powder. This usually relieves the acute symptoms, and I then give quinine in tonic doses for three or four days. In cases in which the fever runs higher and the pain is more severe I give acetphenetidin and salol, aa $2\frac{1}{2}$ grains in a capsule, every two hours until these symptoms are relieved. Codeine sulphate, $\frac{1}{4}$ to $\frac{1}{2}$ grain, may be added if a more decided analgesic effect is desired. As soon as the more acute symptoms are relieved I follow with a capsule of quinine sulphate 3 grains and extract of nux vomica, $\frac{1}{4}$ grain, every four hours. For the severe pain in the head and face hot water compresses frequently applied are very useful.

Where the catarrhal symptoms of the nose and throat are prominent a capsule of quinine sulphate, 2 grains, extract of belladonna, $\frac{1}{10}$ grain, and camphor, $\frac{1}{4}$ grain, every three hours, is useful. Locally I use a spray of Seiler's or Dobell's solution previously warmed and follow with an inhalation of a 5 per cent. solution of camphor and menthol in alcohol.

Where there is a harsh dry cough and dryness of the respiratory passages I give a prescription containing tincture of aconite, potassium citrate, ipecac, and syrup acaciæ until the secretions are established. A mustard plaster applied to the chest is always useful, and if the cough is of a laryngeal character iodine painted over the region of the larynx is often efficacious.

For the irritating cough which frequently persists, codeine $\frac{1}{4}$ grain and heroin $\frac{1}{12}$ grain, are the best remedies. They may be given alone or in combination with terpin hydrate, compound mixture of glycyrrhiza, or other expectorants, but I usually avoid giving those containing much sugar. Steam inhalations of compound tincture of benzoin I have often found useful. In the gastrointestinal type with vomiting and purging bismuth in large doses, cerium oxalate, and mild astringents should be given, and the colon should be irrigated with a hot saturated solution of boric acid. It is sometimes necessary to give morphine hypodermically. Hot applications may be applied to the abdomen and stimulants administered.

In cases exhibiting marked cardiac depression alcohol, ammonia, strychnine, camphor, or caffeine is often necessary.

The diet in all cases should be light, concentrated, and administered at short intervals, and the patient directed to drink plenty of water.

During convalescence the patient should be advised against returning to active duties before he is entirely well and to avoid exposure; but moderate exercise and plenty of fresh air are essential. For their tonic effect I give quinine, iron, strychnine and arsenic, wine of coca, the glycerophosphates of calcium and sodium, and extract of malt.

The neurasthenic cases I have found are benefited greatly by static positive insulation for fifteen minutes. In the absence of a static machine, galvanization of the spine and general faradization are good substitutes. I have also found that the persistent neuralgic pains which sometimes follow influenza are greatly benefited by the galvanic current.

In the cases of cardiac asthenia which so often follow influenza I have used the artificial Nauheim baths and Schott resistance exercises with good effect.

Therapeutical Notes.

Spirit of Glyceryl Trinitrate in Asthmatic Attacks.—Hoozel (*Gazette médicale de Paris*, July 15, 1907) states that he has had such uniformly good results from spiritus glycerylis nitratis that he constantly uses it when called to a patient suffering with an asthmatic attack, whether in middle age or older. He reports that it gave immediate results, causing the cessation of the attack in ten hours, even though it had been in progress several days. He recommends a potion containing three drops of the centesimal solution; in one hundred and fifty grammes (also containing one gramme of potassium iodide, and thirty grammes of syrup of codeine), of which a tablespoonful may be given every hour until the symptoms are quieted. In case there are râles in the chest indicating bronchitis, he employs terpin hydrate and Todd's potion, and inhalations

of amyl nitrite, but these inhalations have never given such good results as the trinitrate, and are ordered mainly to gain time, and to give the patient something to do to allay impatience. In every case in which he used the trinitrate he observed a more rapid result than he had ever obtained from other remedies.

Warts on the Hands of Children.—Mantelin cured, in one month, a little girl, eleven years old, who had a number of warts upon her lips and on her hands, by giving her 0.6 gramme (or ten grains) of magnesia daily, and using the following:

- R Chloral hydrate, { 6.0 grammes;
Acetic acid, {
Salicylic acid, { 4.0 grammes;
Ether, {
Collodion, { 15.0 grammes.
M. To be applied to the warty growths once a day.

Bulletin général de thérapeutique, July 15, 1907.

Treatment of Melæna Neonatorum.—Schubert (*Zentralblatt für Gynäkologie*, No. 7, 1907) recommends injections of solutions of gelatin for melæna in young infants, and reports two successful cases. As regards ætiology, in the absence of syphilis, gastrointestinal traumatism or infection from the cord, it is possible that a lesion of the brain may be the origin of the melæna. Von Preuschen, in fact, has experimentally caused gastrointestinal hemorrhages in animals by punctures of different cerebral centres. These lesions, which may occur even in a normal labor, may be, as in the cases reported by the author, facilitated by the forceps extraction.

Treatment of Tetanus and Strychnine Poisoning by Spinal Anæsthesia.—Strychnine acts especially upon the sensory portions of the spinal cord. After an injection of strychnine, an animal ordinarily reacts much more violently to peripheral irritation than in health; but if the posterior roots of the spinal nerves are cut, this phenomenon of strychnine poisoning does not take place. The same effect is produced by the physiological action of certain poisons; thus, when cocaine is introduced into the spinal canal in animals poisoned with strychnine, Russel found that (after an injection of 2 c.c. of a one per cent. solution), the convulsions ceased. The anæsthesia lasted one or two hours. If the convulsions returned they were checked by a second injection. As strychnine is rapidly eliminated, a cure can be obtained in this manner. The author obtained the same results in the treatment of tetanus.

Bulletin de médecine, July 17, 1907.

The Treatment of Skin Cancer by Zinc Ions.—

1. Josselyn (British Medical Journal) describes a procedure, which he had found to be of great advantage in the treatment of epithelioma of the skin, and which is based upon the introduction of the ions of zinc into the thickness of the morbid tissues. It is only necessary to use an ordinary medical galvanic battery, so as to obtain a constant current, which is regulated by the galvanometer. The active pole, the positive, is represented by a plate of zinc, which is adapted to the contour of the lesion to be treated. This electrode should be covered with three or four layers of lint, and thoroughly moistened with a solution of zinc sulphate (one per cent.) in distilled water. This plate of zinc should be frequently cleaned.

After placing the negative pole to the surface of some other portion of the body, and the positive on the lesion to be treated, the current is gradually turned on, and may be slowly increased to 5, 8, or even 10 milliampères, according to the dimensions of the sheet of zinc. The epitheliomatous ulcer, when treated in this manner, takes on rapidly the appearance of a simple wound. In a number of cases the reporter found that one application was all that was required to cure the patient.

Baby Powder for the Treatment of Miliaria.—In the treatment of gum rash, or strophulus intertinctus miliaria rubra, in young infants, Comby (*Bulletin général de thérapeutique*, April 8, 1907) has found the following combination very useful:

- R Lycopodium, {
Starch, { 15.0 grammes;
Bismuth subnitrate, {
Talcum, {
Menthol, { 1.0 gramme.
M. Use as baby powder on affected skin.

Thiosinamine in Arteriosclerosis.—The action of thiosinamine upon cicatricial tissue, suggested to Renon its employment in aortic disease. In chronic aortitis, with a systolic or double murmur, in both insufficiency and stenosis, the constant result from thiosinamine was to reduce the dyspnoea. It was also noticed, almost as constantly, that there was a reduction of the arterial tension, of from 2 to 5 centimetres of mercury in the sphygmomanometer of Potain. The albumin diminished or disappeared from the urine, of which the daily quantity was frequently increased. On the other hand, the physical signs were not modified and the murmurs were not changed in their character or intensity. In one case in which the cardiac lesion coexisted with medias-tinitis, this medication was given and followed for two years. The result was a considerable amelioration in the dyspnoea; but without any appreciable change in the physical signs. The action of thiosinamine in arteriosclerosis is less constant when there are no clearly defined cardiac or aortic lesions. It was observed, however, that in all cases where amelioration followed the use of thiosinamine, the improvement continued for a period of from three to five weeks after the cessation of the treatment. The preparation employed by Renon was the following:

- R Thiosinamine, 1.0 gramme;
Sterilized distilled water, 25.0 grammes.

The injections were given hypodermically once daily for a period of twenty-five to thirty days. The ordinary dose was five cubic centimetres of the fluid, or twenty centigrammes of thiosinamine. This was usually injected under the skin of the abdomen or the upper part of the buttock. These injections are not painful and do not produce indurations. One point should be observed particularly in preparing the solution: The menstrum should be cold and the solution should be prepared in vessels previously sterilized, so that decomposition of the thiosinamine would be avoided, which would be effected by a high temperature. In spite of every precaution, the solution is not perfectly transparent, it is always a little opalescent. The distilled water may be replaced by normal salt solution (sterilized) if desired (*Revue médicale de la Suisse romande*, No. 5).

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Edited by

FRANK P. FOSTER, M. D.,

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THE IMPERIAL CANCER RESEARCH.

We have received the *Fifth Annual Report of the Imperial Cancer Research Fund*, of which his Majesty King Edward VII is the patron, for the year 1906 to 1907. It contains the report of the general superintendent and director of the central laboratory, Dr. Ernest F. Bashford. Dr. Bashford states that cancer affects all kinds of vertebrate animals which, while escaping the effects of many of the chronic forms of irritation to which man is subject, suffer from other external irritants. The specific organisms of some forms of keratosis linguae and lupus, he says, seem to play a part analogous to that of physical irritants, but no one form of external agency is constantly associated with the development of cancer. It is futile, therefore, to seek for a hypothetical something common to all the external agencies associated with cancer. It is more profitable to search for the common intracellular change which must take place in the transformation of normal into cancerous tissue. He holds that there is still no evidence requiring or even justifying the assumption that the disease is communicated from one individual to another; hence the search for the clue to cancer in any one species of animal must take account of possible peculiarities in the individuals which are attacked and in those which escape, and during the year questions of personal and family liability have received increased attention. The members of the laboratory staff have given serious attention to the additional alleged cancer cures which have been brought to their notice during the year.

including trypsin and the allied preparations. "Unfortunately," says Dr. Bashford, "it is impossible to assign a curative value to any of them."

This report deals only in a very general way with the laboratory work done during the year, but important papers emanating from the staff have appeared in various scientific publications, and we presume will eventually be embodied in the *Third Scientific Report*. Since the last of those reports was issued, such papers, to the number of seventeen, have appeared in various British, French, and German journals and volumes of transactions. Such a method of publication, scattered and fragmentary though it may be, seems to us of the highest value. General interest in cancer research is now so intense that all important contributions to it should be published as soon as possible, and the diversity of the vehicles of their publication spreads wide a knowledge of the progress made. We cannot afford to wait for voluminous reports issued at long intervals. The Imperial Cancer Research Fund is giving us excellent work. Not the least valuable of its features is the fact that it is brushing aside such more or less widely accepted fallacies as tend powerfully to impede real progress.

AN INTERNATIONAL CONFERENCE ON THE SLEEPING SICKNESS.

For a number of years the study of the sleeping sickness has engaged the attention of investigators of the infectious diseases. For, apart from its special epidemiological features, certain intricate problems of the relations of the protozoa to disease in man and the lower animals have sprung into prominence and offered rich results for the patient investigator, not only in the field of the immediate observations, but in the wider one of disease processes in general.

The epidemics of sleeping sickness have made sad havoc in many portions of Africa, and attempts at their prevention have met with slight success, while the outlook for successful treatment of the individual is dark, although certain hopeful light is being shed by the work of Koch and particularly of Ehrlich.

The reflections of an international congress held in June in London are therefore all the more interesting, particularly since most of the leading investigators of the disease were in attendance.

The scope of the deliberations can only be touched upon in this place. The conference agreed that, so far as our present knowledge of conditions has gone, the sleeping sickness is due to the *Trypanosoma gambiense*, propagated in main by the *Glossina palpalis*, or the tsetse fly, although other species of flies, notably of the *Glossina*, cannot be excluded. Since

this is true, methods of prophylaxis should be applied mainly to those portions of the country in which *Glossina* may be found. Such methods of prevention concern the patient and the fly. In the first place, the early diagnosis is imperative, and methods for circulating the necessary information to the native and colonial practitioners were outlined. Police sanitation of infected individuals is recommended in order to prevent the transportation of the parasite, and the colonial authorities should bend every effort to prevent importation or exportation of a patient suffering from sleeping sickness. In certain cases the patients may be transported to districts where *Glossina* does not live, without much danger of spreading contagion, and it is imperative for Europeans to avoid the establishment of camps or habitations in localities where the tsetse fly lives, and particularly to keep clear of infected localities.

As for the flies, it is known that they inhabit the borders of streams and lakes, and clearing out the brush along the streams is very serviceable in diminishing the breeding places of these flies. Mechanical modes of protection of houses, closets, etc., are advised in order to keep out, not only *Glossina*, but the many species of *Anopheles* as well.

From the therapeutic side the Conference gave its approval to the use of arsenic in the form of sodium amidophenolate, since experience had shown that it caused a decided amelioration of the patients' condition, and, although it is premature to maintain its ability to bring about a cure of the condition, yet it causes such a great diminution in the number of trypanosomes in the blood that for its thus diminishing the chances of contagion alone its use is indicated. All affected persons should therefore be subjected to its use even if it is unavailing from the standpoint of individual therapeutics. Many problems for investigation were suggested at the Congress, a continuance of the deliberation of which it is hoped will take place. It is largely by the concerted action of a Congress of this kind that progress is made. When specialists in one field of medicine meet to advance the knowledge in that field the results are usually noteworthy, as in the present case.

PLAGUE INVESTIGATIONS IN INDIA.

The present pandemic of plague began in 1896, in the province of Yunan, China. It was introduced into Bombay from Hong Kong soon afterward, and it is estimated that between four and five millions of people have died of the disease in India alone. Proposals were made to the Secretary of State for India by the Lister Institute in September, 1904, for the appointment of a commission to investigate the disease. In January, 1905, the Secretary of State

appointed an advisory committee which was to assume the direction of the investigation of the problems and to administer an annual grant; the advisory committee appointed a working commission. The composition of both these bodies, as well as the papers embodying the results of the first year's work of the latter, will be found in the *Journal of Hygiene* for September, 1906.

In the same journal for July, 1907, we find a continuation of the report of the Plague Investigations in India, in which some interesting and important results are set forth. In a paper on the diagnosis of natural rat plague, the results of the autopsy findings in 31,174 rats examined between January 1, 1906, and February 17, 1906, 4,000 of which were plague infected, and 200 plague infected rats examined between July and December, 1905, are described. From the evidences obtained by this study it is concluded that a naked eye examination by a competent observer is more satisfactory for the purposes of a diagnosis than the microscopical examination alone. In the case of partially decomposed carcasses, the naked eye appearances are more satisfactory than the bacteriological findings. The typical bubo, which occurs in the neck in 75 per cent. of cases, the granular liver, the subcutaneous and intravisceral hemorrhages, and the clear pleural effusion are the characteristic features.

The question of the manner of entrance of the natural infection in rats is of interest. While it is possible to infect wild rats by feeding them with the viscera of dead plague rats, the situation of the primary bubo indicates that this is not the usual method of natural infection. In rats dead of plague naturally acquired the bubo is usually in the neck, no case of mesenteric bubo having been observed in 5,000 post mortem examinations. In rats artificially infected by feeding, on the other hand, the primary bubo is in the mesentery. A few plague workers in India have held the theory that natural infection of the rat is the result of eating the feces and the urine of plague patients; but of 194 rats fed with such material, not one contracted the disease.

Other studies seem to point to the rat flea (*Pulex cheopis*) as the natural disseminator of the disease in the rat as well as in man. (It has been proved that the rat flea will bite man.) Certain studies and experiments show that it is possible for a flea to take as many as 5,000 bacilli into its stomach at one feeding, if it is fed on a rat having well developed septicaemia. It has also been shown that *Bacillus pestis* will multiply in the stomach of the flea. This multiplication varies with the season, the more rapid and greater increase taking place at a time corresponding with the epidemic season. At such a season a flea may remain infective for fifteen days.

Plague bacilli have been found in the rectum and in the faeces of the flea and on rare instances in the œsophagus, but never in the salivary glands or in the body cavity. It is suggested that infection follows the entrance of the bacillus through the puncture of the flea from the faeces of the insect previously or subsequently deposited on the skin. The cat flea (*Pulex felis*) does not seem to be able to transmit the disease. The human flea (*Pulex irritans*) and *Ceratophyllus fasciatus* are capable of transmitting the disease. Evidence has been obtained which shows that *Bacillus pestis* found on the skin of an animal is able to enter the skin through the bite of a noninfected flea and produce plague. Further experimental work seems to show that the flea and the flea alone is the transmitting agent of the disease. There is a valuable article on the anatomy of the *Pulex cheopis*, the rat flea.

AN INDETERMINATE MENINGEAL DISTURBANCE.

In the *Bulletins et mémoires de la Société médicale des hôpitaux de Paris* for July 25th M. Vidal and M. Philibert report the case of a woman, twenty years old, who entered their service in the hôpital Cochin complaining of intense headache. She had had headache for two months, but it had only now become so severe as to lead her to seek admission into the hospital. She had always been healthy, and there was nothing in her personal or family history or anything discoverable on physical examination to indicate any diathetic taint. She had lost appetite and flesh, her sleep was disturbed, and she had night sweats. At the time of her admission the headache was atrocious, her temperature was 100.75° F., and her pulse was 64. Stiffness of the neck, Kernig's sign, exaggerated reflexes, and irregularity of the pupils soon supervened. These phenomena varied in intensity from time to time, sometimes even disappearing temporarily. Cerebrospinal fluid withdrawn by lumbar puncture was never ejected as if under pressure, and at no time did it show any bacillary elements; at first it contained multinuclear cells and subsequently lymphocytes. The girl showed no sign of hysteria. She was under observation for three months and a half in the hospital; she then left in an apparently normal condition, except that the pupillary inequality had not entirely disappeared.

The case was reported as one of nervous sequelæ of a meningeal state (*état méningé*) of indeterminate nature. It was thought to have been inflammatory, but not of a specific origin. Antisyphilitic treatment, tried as a matter of routine, had no effect. The authors remarked that curable cases of acute meningitis were sometimes met with at times when pneumonia or influenza was prevailing in an epi-

demic form, and in persons who had not been attacked with either of those diseases, but they added that at the time when this case occurred neither pneumonia nor influenza was prevalent in Paris.

CHLOROFORM IN THE BLOOD.

In our issue for February 8th we called attention to some experiments made by Buckmaster and Gardner to determine the amount of chloroform in the blood of anesthetized animals. In their first paper the authors criticised the method adopted by the French writers for the determination of the percentage of chloroform in the blood of these animals. In a second series of experiments (*Proceedings of the Royal Society*, lxxix, B 532) Buckmaster and Gardner made a series of parallel estimations with the method advised by them in the first paper and with the method employed by Dr. Maurice Nicloux.

They find that the latter method, though not possessing a very high degree of precision as an exact chemical procedure, is sufficiently accurate for most practical purposes and is capable of giving satisfactory results for the estimation of chloroform in air and in simple solution in such liquids as urine. In the case of the blood of anesthetized animals, however, the results are uniformly too low if the blood for analysis is allowed to clot before the mixture with acid alcohol is made. When, on the other hand, the clotting of the blood is prevented by an oxalate, the results more nearly approach those given by the method devised by the authors; but they are still too low. In one experiment, in which the animal was treated with hirudin in such proportion as to render the blood incoagulable for some minutes, the results obtained by the two methods were almost identical. The writers believe that, on account of the variable and low results obtained with clotted blood by the method of Nicloux, if it should be applied to organs or tissues which do not disintegrate when boiled with acid alcohol, the results would also be too low.

THE NEW VOLUME OF THE INDEX CATALOGUE.

We have received the twelfth volume of the second series of the *Index Catalogue of the Library of the Surgeon General's Office, United States Army*. It has been prepared under the supervision of Major Walter D. McCaw, of the Medical Corps of the army. It consists of eleven pages devoted to the third addition to the alphabetical list of titles of medical periodicals, followed by 978 large double columned pages of text, carrying the vocabulary from O to Periodicals. It would be superfluous to comment on the character of the volume, for it preserves the supreme excellence that pertains to all the preceding volumes.

News Items.

Fined for Selling Adulterated Milk.—A milk dealer in Delaware County, Pennsylvania, has been fined \$60 for selling adulterated milk.

The Portland, Me., Medical Club held a meeting on Thursday evening, September 5th, as guests of Dr. C. W. Foster. A paper on Diphtheria was read by Dr. C. L. Cragin.

The Southern Medical Association (formerly known as the *Tri-State Medical Society of Alabama, Georgia, and Tennessee*), will hold its first annual meeting at Birmingham, Ala., on September 24, 25, and 26, 1907, under the presidency of Dr. H. H. Martin, of Savannah. Dr. Raymond Wallace, of Chattanooga, Tenn., is secretary.

The Pennsylvania State Pharmaceutical Examining Board has issued certificates to five persons who took the examination for registered pharmacist, and to eight persons who took the examination for qualified assistant. Twenty-three candidates took the former and thirty candidates the latter examination.

Philadelphia Municipal Hospital Census:

	Remaining last report.	Received.	Discharged.	Died.	Remaining.
Diphtheria	92	63	61	9	55
Scarlet fever	92	30	76	1	45
Smallpox	0	1	0	0	1
Other diseases	19	2	13	5	3

The Rhode Island Medical Society.—The quarterly meeting of this society was held at Field's Point, on August 29th. Papers were read as follows: Acetonemia, by Dr. N. H. Gifford; A Case of Cancer Simulating Aneurysm, by Dr. Jay Perkins; Who Shall Marry? by Dr. Bernard L. Towle.

The Wisconsin State Medical Association held its annual meeting at Superior on August 20-22, 1907. The following officers were elected: President, Dr. W. E. Graund, Superior; vice-presidents, Dr. Byron M. Caples, Waukesha; Dr. Herman Gasser, Platteville; and Dr. E. S. Hayes, Eau Claire. Milwaukee was chosen as the next place of meeting.

Scientific Society Meetings in Philadelphia for the Week Ending September 14, 1907.—Monday, September 9th, Wills Hospital Ophthalmic Society. Wednesday, September 11th, Philadelphia County Medical Society. Thursday, September 12th, Pathological Society. Friday, September 13th, Northern Medical Association, West Branch, Philadelphia County Medical Society.

The Jefferson County, Alabama, Medical Society.—At a meeting of this society, held at Birmingham, on Monday, August 26, a symposium on Typhoid Fever was presented as follows: The Modes of Infection and Means of Prevention, by Dr. R. B. Harkness, city health officer; Diagnosis and Clinical Types, by Dr. A. C. Cameron; Diet and Hydrotherapy, by Dr. H. S. Ward; Complications and Methods of Treating Them, by Dr. Cabot Lull.

Personals.—Dr. Robert W. Lovett, of Boston, has been appointed by the governor a member of the Massachusetts State Board of Health, vice John W. Bartol, resigned.

Dr. John Gray, of Niagara Falls, was the recipient recently of a loving cup, presented by the Niagara Falls Academy of Medicine, on the eve of his departure for Colorado, on account of ill health.

Dr. Louis A. Klein, of Lewiston, Pa., has been appointed by the governor assistant State veterinarian.

Typhoid Fever in Pennsylvania Towns.—According to reports received at the State Department of Health, there is an epidemic of typhoid fever in Ridgway, Elk County. Seventy-one cases have been reported in a population of 8,000. A number of cases of disease in children characterized by paralysis has been reported from the same town. Some of these cases are believed to be due to acute anterior poliomyelitis and others to cerebrospinal meningitis. An unusual number of cases of typhoid fever has been reported from Chester, Delaware County.

The Ohio State Medical Association.—The sixty-second annual meeting of this association was held at Cedar Point, Lake Erie, on August 28, 29, and 30, 1907, under the presidency of Dr. Benjamin R. McClellan, of Xenia. Officers for the ensuing year were elected as follows: President, Dr. Charles L. Bonfield, Cincinnati; vice-presidents, Dr. D. W. Steiner, Lima; Dr. J. S. McClellan, Bellaire; Dr. B. S. Bowman, Akron; and Dr. H. T. Sutton, Zanesville; secre-

tary, Dr. J. H. J. Upham, Columbus; treasurer, Dr. J. A. Duncan, Toledo.

The Gloucester County, New Jersey, Medical Society will hold its tenth annual social session at the Hotel Pitman, Pitman Grove, on Thursday, September 19th, at 6 p. m. These social sessions, growing out of the eightieth anniversary of the society, in 1898, have proved an excellent means of increasing the *esprit de corps* of the society, as they are attended, not only by members of the society but by their wives and invited guests and afford an opportunity for the members to become better acquainted and more interested in each other.

The Medical Society of the County of Herkimer, N. Y.—The quarterly meeting of this society was held at Herkimer, on Tuesday, September 3rd. The programme arranged for the meeting included the following papers: Otitis Media, Dr. H. Beattie Brown, president of the Medical Society of the County of Westchester, physician to the Eye and Ear Infirmary, New York city; Ammonia in Pneumonia, Dr. George S. Eveleth, Little Falls; Report of a Case of Typhoid Fever with Complications, Dr. J. E. Canfield, Herkimer.

Charitable Bequests.—By the will of Samuel E. Moore, the Episcopal Hospital, of Philadelphia, becomes a residuary legatee with three other institutions of a nonmedical character.

By the will of Catherine Franey, St. Vincent's Home and the Maternity Hospital, of Philadelphia, receive \$100 each. The Society of St. Joseph for Educating and Maintaining Poor Children receives \$800.

By the will of Mr. A. A. Housman, of New York, the following bequests are made: Mt. Sinai Hospital, \$10,000, for a Housman memorial bed; Hebrew Orphan Asylum, of New York, \$5,000; Montefiore Home for Chronic Invalids, \$2,000; Home for Aged and Infirm Hebrews, \$2,000.

The Mortality of Baltimore.—According to the report of the health department for the week ending August 24, 1907, there were 40 cases of typhoid fever reported, as compared with 53 last year. The report showed a total of 248 deaths, as compared with 217 the corresponding week of last year, 195 in 1905, and 200 in 1904. The annual death rate in 1,000 of population was: Whole, 22.09; white, 20.25; colored, 31.78. The principal causes of death were: Typhoid fever, 9; consumption, 35; cancer, 5; apoplexy, 4; organic heart diseases, 7; bronchitis, 1; pneumonia, 5; diarrhoea, under two years of age, 54; Bright's disease, 20; congenital debility, 18; lack of care, 1; old age, 3; suicides, 1; homicides, 1; accidents, etc., 19.

The Mortality of Chicago.—According to the report of the department of health for the week ending August 24, 1907, there were, during the week, 684 deaths from all causes, as compared with 589 for the corresponding week in 1906. The annual death rate in a thousand of population was 16.02. The principal causes of death were: Apoplexy, 11; Bright's disease, 37; bronchitis, 11; consumption, 51; cancer, 25; diphtheria, 5; convulsions, 7; heart diseases, 45; intestinal diseases (acute), 212; nervous diseases, 22; pneumonia, 30; scarlet fever, 8; typhoid fever, 11; whooping cough, 4; all other causes, 145. There were 252 deaths of males under 1 year of age; 70 between 1 and 5 years of age; 50 between 5 and 20 years of age; 226 between 20 and 60 years of age; and 86 over 60 years of age.

The National Medical Association, composed of colored physicians, dentists, and pharmacists, held its ninth annual meeting at Baltimore, on August 29 and 30, 1907. The officers of the association are: President, Dr. N. F. Mossell, Philadelphia; vice-president, Dr. G. W. Cabannis, Washington, D. C.; treasurer, Dr. A. W. Williams, Chicago; Dr. P. A. Johnson, New York, chairman executive board; Dr. A. R. Collins, Washington, D. C., secretary executive board; W. A. Davis, Ph. D., Philadelphia, Pa., pharmaceutical secretary; W. S. Latham, D. D. S., Washington, D. C., corresponding dental secretary; Dr. John A. Kenney, Tuskegee Institute, Alabama, general secretary; Dr. Gustavus Henderson, New York, assistant secretary; Dr. W. H. Wright, Baltimore, Md., chairman local committee.

The Mortality of Boston.—The total number of deaths reported to the board of health for the week ending August 31st, was 221, as against 207 for the corresponding week last year, showing an increase of 4 deaths, and making the death rate for the week 10.77. The number of acute and deaths from infectious diseases was as follows: Diph-

theria, 28 cases, no deaths; scarlatina, 20 cases, no deaths; typhoid fever, 18 cases, 1 death; measles, 20 cases, 2 deaths; tuberculosis, 40 cases, 15 deaths; smallpox, no cases, no deaths. The deaths from pneumonia were 8; whooping cough, 1; heart disease, 26; bronchitis, 5; marasmus, 10. There were 14 deaths from violent causes. The number of children who died under one year of age was 88; under five years of age, 100; persons over sixty years of age, 37; deaths in public institutions, 84.

The Health of Pittsburgh.—During the week ending August 17, 1907, the following cases of transmissible diseases were reported to the bureau of health, of Pittsburgh, Pa.: Varicella, 1 case, 0 deaths; typhoid fever, 85 cases, 13 deaths; scarlet fever, 14 cases, 0 deaths; diphtheria, 17 cases, 2 deaths; measles, 7 cases, 0 deaths; whooping cough, 13 cases, 4 deaths; pulmonary tuberculosis, 7 cases, 6 deaths. The total deaths numbered 151, in a population, according to the census of 1900 of 321,616, corresponding to an annual death rate of 24.10 in 1,000 population. During the week ending August 26th, the following cases were reported: Varicella, 1 case, 0 deaths; typhoid fever, 99 cases, 8 deaths; scarlet fever, 19 cases, 0 deaths; diphtheria, 5 cases, 1 death; measles, 12 cases, 1 death; whooping cough, 12 cases, 2 deaths; pulmonary tuberculosis, 15 cases, 7 deaths. The total deaths numbered 149, corresponding to an annual death rate of 24.09 in 1,000 population.

The Health of Isthmian Canal Workers.—According to a cable report, recently received at the isthmian canal office in Washington, the conditions seem to be very satisfactory. With 38,000 employees on the pay rolls of the commission and the Panama Railroad, there were but 1,097 cases of sickness, against 1,107 cases with but 28,000 employees in July, 1906. In July, 1907, the death rate among white employees was 16 in 1,000, against 30 in 1,000 in 1906, and among the colored employees 42 in 1,000, against 72 in 1,000 in 1906; in the total force 35 in 1,000, against 64 in 1,000 in 1906, showing a reduction of nearly 50 per cent. in the rate of mortality in the last twelve months. The last case of yellow fever in Panama was in November, 1905—twenty months ago—and the last on the isthmus was in May, 1906, or fourteen months ago. In July there were fifteen deaths among the white employees of the commission and the Panama Railroad, four only being Americans, one from typhoid fever, one from amoebic dysentery and abscess of the liver, and two from accidental drowning.

The Health of Philadelphia.—During the week ending August 17, 1907, the following cases of transmissible diseases were reported to the bureau of health: Typhoid fever, 84 cases, 10 deaths; scarlet fever, 14 cases, 1 death; chicken pox, 3 cases, 0 deaths; diphtheria, 50 cases, 6 deaths; cerebrospinal meningitis, 4 cases, 2 deaths; measles, 7 cases, 1 death; whooping cough, 20 cases, 8 deaths; tuberculosis of the lungs, 103 cases, 54 deaths; pneumonia, 19 cases, 15 deaths; erysipelas, 1 case, no deaths; cancer, 21 cases, 19 deaths; mumps, 1 case, no deaths; septicaemia, 2 cases, 1 death; tetanus, 1 case, no deaths. The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 14; cholera morbus, 1; diarrhea and enteritis, under two years of age, 90; puerperal fever, 1. The total deaths numbered 502, in an estimated population of 1,500,595, corresponding to an annual death rate of 17.31 in a thousand population. The total infant mortality was 188; under one year of age, 166; between one and two years of age, 22. There were 43 still births, 20 males and 23 females. The temperatures were seasonable. The humidity was above 90 once. There was a total precipitation of 0.25 inch.

The American Pharmaceutical Association.—The fifty-fifth annual meeting of the American Pharmaceutical Association was held in New York during the week of September 2nd to September 7th, when much business of importance was transacted. In connection with this meeting the board of trustees of the United States Pharmacopoeia met and awarded the contract for the printing of a Spanish translation of the Pharmacopoeia to the firm of J. B. Lippincott Company, of Philadelphia. The work of translation has been done under the direction of Professor José Guillermo Díaz, of the University of Havana, Cuba, with the assistance of a corps of five skilled Spanish proofreaders. It is expected that the Spanish translation will be on sale by January 1st, 1908.

It follows: President, William M. Seabury, California College of Pharmacy, San Francisco; President, George H. Rulby,

New York College of Pharmacy, Columbia University; third vice-president, Charles Holzhauser, Newark, N. J.; treasurer, S. A. D. Shappard, Boston, Mass.; general secretary, Charles Caspari, Jr., Baltimore College of Pharmacy of the University of Maryland; reporter on progress of pharmacy, Professor C. Lewis Diehl, Louisville, Ky. Hot Springs, Ark., was chosen as the next place of meeting.

Philadelphia Bureau of Health Statistics.—During the month of July, 1907, in the division of medical inspection, there were 2,317 inspections, excluding schools; 533 fumigations were ordered; 18 cases were referred for special diagnosis; 166 cultures were taken; 59 injections of antitoxine were given; and 60 persons were vaccinated. In the division of vital statistics, 2,608 deaths, 2,903 births, and 1,114 marriages were reported. In the division of milk inspection, 6,747 inspections were made of 138,546 quarts of milk, of which 821 quarts were condemned. Thirteen specimens were examined chemically and 806 microscopically. In the division of meat and cattle inspection, 2,040 inspections were made; 136 were found unsanitary; 705 dressed carcasses were condemned; 702 postmortem examinations were made, of which 125 were condemned. In the division of disinfection, 122 fumigations were done for scarlet fever; 209 for diphtheria; 91 for typhoid fever; 180 for tuberculosis; and 173 for miscellaneous diseases. One hundred and sixty-one schools were fumigated. In the bacteriological laboratory 656 cultures were examined for the presence of bacillus diphtheriae; 316 specimens of blood were examined for the serum diagnosis of typhoid fever; 810 specimens of milk were examined; 109 specimens of sputum were examined; 2 disinfection tests were made; and 1,329,900 units of antitoxine were distributed. In the chemical laboratory 93 analyses were made.

The Medical Society of the Missouri Valley held its twentieth annual meeting at Council Bluffs, Ia., on Thursday and Friday, September 5 and 6, 1907. The programme prepared for the meeting included the following titles: Dr. James W. Cokenower, Des Moines, Orthopaedic Surgery in General Practice; Dr. J. E. Summers, Omaha, Should the Uterus be Removed when Operating for Disease of the Annxæ? If So, When, and by What Technique? Dr. C. B. Hardin, Kansas City, Are We Largely of Necessity Symptomalogists in the Treatment of Diseases? Dr. Leo M. Crafts, Minneapolis, Cyst and Gumma of the Cerebellum; Dr. C. G. Geiger, St. Joseph, Inguinal Hernia; Dr. R. J. Midgley, Omaha, Psychotherapy, and Its Why and How; Dr. A. J. McKinnon, Lincoln, Vaginal Cesarean Section: Report of Case; Dr. W. J. McGill, St. Joseph, Malignant Growths of the Rectum; Dr. Alfred Schalek, Omaha, Pruritus; Dr. G. R. Curran, Mankato, Minn., Spasms of the Pylorus; Dr. Arthur D. Dunn, Omaha, Heart Block; Dr. J. C. Waterman, Council Bluffs, Habitual Constipation; Dr. S. Grover Burnett, Kansas City, The Sane Type of Insanity; Dr. William Jepson, Sioux City, The Malignant Growth of the Testicle; Dr. Charles W. Pollock, Omaha, The Diagnosis of the Presentation and Position in Obstetrics; Dr. A. L. Muirhead, Omaha, Alkaloids *versus* Galenic Preparations; Dr. David C. Hilton, Lincoln, Tonsillectomy *versus* Tonsillotomy, and a Simple Technique; President's Address, Dr. O. Beverly Campbell, St. Joseph; Dr. LeRoy Crummer, Omaha, Cardiovascular Complications Following Operations; Dr. Elbert E. Fisher, Rodney, Toxæmia of Pregnancy; Dr. S. R. Towne, Omaha, Educational Hygiene; Dr. Llewellyn Williamson, St. Louis, Squint and Its Relation to the General Practitioner; Dr. A. C. Strokes, Omaha, When to Operate for Prostatic Hypertrophy.

Society Meetings for the Coming Week:

MONDAY, September 9th.—Society of Medical Jurisprudence, New York; New York Medicohistorical Society (private); Corning, N. Y., Medical Association; Waterbury, Conn., Medical Association.

TUESDAY, September 10th.—Buffalo Academy of Medicine (Section in Medicine); Medical Society of the County of Schenectady, N. Y.; Medical Society of the County of Rensselaer, N. Y.; Practitioners' Club of Jersey City, N. J.

WEDNESDAY, September 11th.—Medical Society of the Borough of the Bronx, New York; Brooklyn Medical and Pharmaceutical Association; Richmond County, N. Y., Medical Society.

THURSDAY, September 12th.—Blackwell Medical Society of Rochester, N. Y.; Society of Physicians of the Village of Canandaigua, N. Y.

Pith of Current Literature

THE BOSTON MEDICAL AND SURGICAL JOURNAL

August 29, 1907.

1. The Dignity of Medicine, By IRA J. PROUTY.
2. The Three Long Continued Fevers of New England, By RICHARD C. CABOT.
3. The Organization of Tuberculosis Classes, By JOSEPH H. PRATT.
4. Medical Inspectors: Their Function, By CHARLES HARRINGTON.
5. Factory Inspection, By FRANK G. WHEATLEY.

2. **The Three Long Continued Fevers of New England.**—Cabot, in this paper, speaks of fever which lasts two weeks or more, typhoid, tuberculosis, and sepsis. Under sepsis the author understands all the diseases due to the pus forming bacteria which are prone to exert their influence in any part of the body, puerperal fevers, appendicitis, fevers originating in the gallbladder and the pelvis; also those hidden, dubious fevers associated with vegetations on the heart valves, commonly called ulcerative or malignant endocarditis. Out of 784 cases which he studied for the purpose of this paper at the Massachusetts General Hospital, he had 586 cases of typhoid. The next largest item was sepsis, with seventy cases, or 9 per cent., and then tuberculosis with fifty-four cases, or 7 per cent. Next to these three common fevers comes meningitis, although it is usually associated with a short fever or with one which often touches normal, it may produce a continued fever; and twenty-seven of the cases of cerebrospinal meningitis were of this type. Next to that group comes influenza, ten cases. Acute articular rheumatism, ten cases. It may turn out to be true that this disease is due to a rather mild infection with pyogenic, pus forming cocci; if so these cases would be classed with the other types of sepsis. Then come five cases of leucæmia, and four cases of malignant abscess, with fever. After that, cirrhosis and gonorrhœa, two cases each, and then thirteen other diseases, one of each. The author then treats the three fevers of long standing. He concludes that it is important to realize the fact that there are but three common, long, continued fevers in New England. Second, that these fevers, though often confounded with each other and so unrecognized, can be recognized in the vast majority of cases provided we think of them at all and look for them carefully by the ordinary methods of physical diagnosis.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

August 31, 1907.

1. A Review of Recent Work on the Mechanism of Urine Formation, By LORENZ SOETMANN.
2. The Importance of Ice in the Production of Typhoid Fever, By WILLIAM H. PARK.
3. Röntgen Ray Technique in Dermatology, By MIRIAM K. KASSABIAN.
4. Treatment of Acne and Chronic Eczema, By R. LOUIS H. BOGGS.
5. The Therapeutics of Tuberculosis of the Skin, By GRANTLEY MAC GOWAN.
6. Two Scorbroids of the Face: A New Rubra Scorbroidem, H. Præparatum Scorbroidem of the Face, By M. L. BENJAMIN and W. H. MOORE.
7. The Technique of Operations for Carcinoma of the Breast, By ABEL F. FORTER.
8. Great Radioactivity: A Preliminary Communication, By WILLIAM C. STURGE and L. ROSENBERG.
9. A Simple and Safe Operation on the Frontal Sinus by the Inferior Route, By R. H. COOM.
10. The Case Method of Treating Consumption in the Menstruating Phase, By JEROME H. PRATT.
11. Observation on Plague in India, By JEROME H. PRATT.
12. The Quality of Public Water Supplies, By WILLIAM S. JOHNSON.
13. Filtration of Public Water Supplies, By HENRY W. CLARK.
14. The Public Water Supply, By LOUIS C. GOODPATRICK.

2. **The Importance of Ice in the Production of Typhoid Fever.**—Park, of New York, thinks that the danger from the use of ice produced from polluted water is always much less than the use of the water itself. Every week that the ice is stored the danger becomes less, so that at four weeks it has become as much purified from typhoid bacilli as if subjected to sand filtration. At the end of four months the danger becomes almost negligible, and at the end of six months quite so. The slight danger from freshly cut ice, as well as the natural desire not to put even sterilized frozen sewage in our water, suggests agreement with the report of Dr. Jackson, that portions of rivers greatly contaminated, such as the Hudson within three miles of Albany, should be condemned for harvesting ice for domestic purposes—such ice alone to be used where there is absolutely no contact with food.

5. **The Therapeutics of Tuberculosis of the Skin.**—MacGowan says that for a number of years he has at times made use of a kind of heliotherapy in the treatment of sluggish wounds and tuberculous lesions of the skin. This consists of directing the concentrated rays of the sun on large wounds or large lupus patches with large lenses of broad focal distance, and on smaller areas with smaller lenses of lesser focal distance. The effect sought has been double: First, to obtain the stimulation from a kind of exaggerated sunshine on sluggish granulations, and, second, to obtain the destructive effects following the accurate focusing of the rays on definitely diseased tissues. The treatment is carried out as follows: The subject sits or lies facing the sun. The operator stands or sits in such a position that he can throw the sun rays through the lens directly on the diseased tissues and change the focus of the instrument at will and at the same time observe the tissues which are being treated. The eyes of the operator should be protected with dark glasses, for the effect of gazing steadily at the concentrated light as it moves about the patch is blinding unless the eyes be covered. All of the neighboring parts should be protected with lead foil as is done in prolonged Röntgen ray exposures. The patch of lupus alone is exposed. The lens then is so held that the rays while concentrated are not accurately focused on the diseased structures, and the lens is moved so that the light rays of "exaggerated" sunshine move around and around the diseased area for from five to fifteen minutes, an occasional short rest being taken to relieve the operator's hand and accustom the patient to the treatment. The rays then are focused accurately on some point in the patch and the lens slowly moved, the focal distance being kept the same, over the whole lupus area. The pain at the time is quite severe, but bearable. The tissues first redden, the individual bloodvessels become engorged and expand, grow rapidly cedematous, rise above the surrounding tissues and take on a yellowish brown and then an opalescent tinge. This is the time to cease. In twenty-four hours the cauterized tissues dry into a yellowish crust, which remains in position for a week or so before it drops off, leaving a smooth but slightly depressed and undefinite scar. Any point that escaped may be put to the test by tuberculous tests and submitted to a second treatment.

6. **Two Scorbroids of the Face.**—Benjamin and Moore say that the treatment of acne vulgaris scorbroidem may be summarized in three words, salicylic acid and sulphur. All patients will recover in from two weeks to two months, no matter how severe, if properly treated with these drugs. In using sulphur and salicylic acid in this, as in other affections, we must begin with a weaker strength on an innocent base and gradually increase the strength commensurate with the highest amount of tolerance of the normal skin of the patient. The strength of the preparation of salicylic acid and sulphur the authors will be the stronger, the better.

one does not irritate too markedly the normal skin and produce a dermatitis.

7. The Technique of Operations for Carcinoma of the Breast.—Porter, of Fort Wayne, Ind., emphasizes the following points: 1. Complete closure of the wound after removal of cancer of the breast may be secured and drainage dispensed with in nearly all cases if proper attention is paid to the placing of the incisions, the securing of hæmostasis and the use of tension sutures. 2. Venous stasis in the arm and lack of motion in the shoulder, as postoperative results, may be avoided in nearly all cases of avoiding infection and keeping the wound surfaces in close apposition until healing is complete. 3. The best means of accomplishing the last named object is a few buried sutures in the apex of the axilla and a properly adjusted compressive dressing held in place by adhesive plaster.

11. Observations of Plague in India.—Daland states that the diagnosis of plague in India in 1905 was very often based on: (1) Sudden onset; (2) extreme prostration; (3) fever, which usually decreased on the third day; and (4) painful glandular enlargements or buboes. In no instance was the diagnosis corroborated by the discovery of the plague bacillus. Clinically the introduction of a hypodermic needle into an enlarged gland and the removal therefrom of a small quantity of lymph in which the pest bacillus may be recognized, establishes the diagnosis in doubtful cases. Unfortunately the natives object to autopsies and it is the policy of the government to acquiesce so as to popularize the hospitals. As a rule the onset of plague is sudden as if the patient was "stricken down," and although diarrhoea is uncommon, it has been observed before death and is colliquative in character. The washed leather appearance of the tongue is diagnostic. The bubonic is the ordinary type, a few show the septicemic or pulmonary types, the latter occurring in about 0.5 per cent. of all cases. Terminal pneumonia is present in about 10 per cent. of the cases. When bacilli are found in the blood the disease is fatal in 98 per cent. of the cases. Most patients die on the third day, and the average mortality is 81 per cent. in natives and 15 per cent. in Europeans. Tympanites is usually a fatal symptom when it occurs and affection of the thyroid is a grave complication. The commoner complications in their order of frequency are: 1. Delirium. 2. Cardiovascular weakness or paralysis. 3. Tympanites. 4. Persistent vomiting and diarrhoea (uncommon). The rarer complications are aphasia, peripheral neuritis, bulbar paralysis, general acne, panophthalmitis, keratitis, hæmaturia, meningitis, and secondary pneumonia. Mixed infections with smallpox, relapsing fever, measles, erysipelas, etc., are sometimes observed. For many years the natives of India have been convinced of the necessity, during epidemics of plague, of (1) evacuation of villages when disease and death appears among rats; (2) burning the houses of the villagers; (3) destroying the roofs of houses so as to permit the sunshine to penetrate all portions of the dwelling, as the flea prefers darkness. The correctness of this belief is easily comprehended in the light of the results secured by the plague commission, as is also the cause of the infrequency of plague among Europeans.

12. The Quality of Public Water Supplies.—Johnson, of Boston, remarks that waters which are free from objectionable appearance, taste or odor, as well as free from contamination, are found in Nature only in the ground. A good ground water supply obtained from a spring or well is undoubtedly the most satisfactory supply which can be secured. A good ground water is clear, colorless, odorless, and practically free from any organic matter whatsoever. Any community which is favored with large areas of sandy or gravelly soil from which water can be obtained has little excuse for having a poor water supply. The temperature of ground

water as delivered in the houses during the warmest months has been found in Massachusetts to be from 52° to 55° F. The water derived from surface sources is delivered to the consumers at a temperature of from 70° to 75° in warm weather. The chief points to be guarded against in obtaining a ground water supply are the presence of iron and an excess of hardness. Hardness is likely to occur when water is obtained from soils containing limestone. Iron occurs usually where there is much organic matter in the soil from which the water is derived or through which it passes on its way to the wells. The presence of iron renders the water almost useless for many domestic purposes, but it can be removed without any serious difficulty, although the iron occurs in many different forms and different treatment must be employed with different waters. In speaking of water obtained from wells, the author does not refer to artesian wells, but to shallow wells which have depths of from 30 to 50 feet. Artesian wells are undoubtedly of great value in many parts of the country, but in New England, at least, they are seldom satisfactory and cannot compare with the shallow wells drawing water from sandy or gravelly strata at a not very great distance beneath the surface. Surface water sources can be greatly improved in many cases without filtration. The most effective method is by storage for a considerable time in a deep pond or reservoir, with bottom and shores free from loam and mud or other organic matter. If water could be stored for a sufficient time and under proper conditions all disease germs would be killed, the water would become colorless and in every respect excellent for domestic purposes. Running streams are the most desirable sources of supply and he does not believe there is any stream, accessible for water supply purposes, which can be considered a safe source from which to take water directly. Although there may be no permanent sources of pollution on the watershed, it is absolutely impossible to prevent access to the stream, and when we consider that any pollution entering the stream at any time is almost immediately taken into the distributing pipes of the water supply system, the danger is obvious. Such supplies, if used at all, should invariably be filtered. Experience is showing us that the nearer we get to Nature, either in disposing of sewage or in obtaining a water supply, the better the results secured. The old fashioned cesspool which has been so much abused is now considered the best method of disposing of small quantities of sewage. In methods of water purification the most satisfactory are those where Nature is assisted as little as possible. The addition of chemicals or the construction of works which require constant personal attention, while frequently necessary, should be adopted only as a last resort.

13. Filtration of Public Water Supplies.—Clark, of Boston, observes that while the actual hygienic efficiency of modern mechanical filters has not been as yet adequately demonstrated, yet such efficiency is undoubtedly obtained and will be demonstrated eventually. There is a place for each type of filter. Sand filters are successful with polluted, but comparatively clear waters and with the addition of sedimentation basins and the occasional use of coagulants with waters somewhat turbid. At the present time, however, no method of satisfactorily handling the very turbid waters full of clay and other matters in suspension is known other than by the use of coagulants and mechanical filters, although sedimentation and double sand filtration is of much promise. The prejudice in some minds against the use of aluminum sulphate under proper supervision is not justified; the aluminum hydrate formed is invariably removed by the filters if they are successfully operated. We might, perhaps, as well refuse to eat many common foods because in their production chemicals are used as to object to water clarified by coagu-

lants. The public is beginning to demand a clean water of good appearance, as well as safe, and in order to obtain such a water coagulants are sometimes necessary. Before either type of filter is adopted, thorough preliminary studies of all the local conditions as to water supply, etc., should be made and hasty and inexpert conclusions prevented.

MEDICAL RECORD.

August 31, 1907.

1. A Consideration of the Causes and the Characteristics of the Weak Foot: With Reference to the Principles that Should Govern Its Treatment.
By ROYAL WHITMAN.
2. A Preliminary Report of Research Work on the Effects of Tropical Climate on the White Race.
By EDWIN P. WOLFE.
3. The Longevity of Idiots.
By L. PIERCE CLARK and CHARLES E. ATWOOD.
4. Fæcal Toxæmia.
By WILLIAM FRANCIS WAUGH.
5. The Early Recognition of Tabes Dorsalis.
By CHARLES ROSENHECK.

1. **A Consideration of the Causes and the Characteristics of the Weak Foot.**—Whitman gives as the causes of the weak foot those that favor the predisposing and simulating attitude, of which even advanced deformity is simply the exaggeration. These predisposing causes he divides into four classes, which are of course interdependent and often combined: 1. Congenital or acquired abnormality or weakness of structure; the support is deficient. 2. Weakness of muscles; the power is insufficient. 3. Overweight or overstrain; the burden is too great. 4. Improper attitudes that subject the foot to a mechanical disadvantage in the performance of its functions; the adjustment is imperfect. The ordinary symptoms of the weak foot, aside from the attitude and impaired function, are sensation of weakness, of tire and strain along the inner border of the foot and beneath the arch. Pain in the heels, due in great part to unrelieved pressure, is often a prominent symptom. The discomfort may be confined to the feet, but it often extends to the calves, knees, and especially in women to the back, symptoms explained by the disordered function which affects the entire body. As a further illustration of this, it may be mentioned that the weak foot in adolescents is usually accompanied by a droop of the spine (posterior curvature), which, in turn predisposes to lateral deviation. It is true that the two forms of postural deformity may be caused by general weakness, but it is probable that in many instances the general posture is a secondary result of the loss of spring elasticity and stimulation of the proper use of the feet. As far as attitude is concerned there are several classes, which are, in order of the most noticeable deformity: 1. The abducted foot; the arch is well formed. 2. The abducted and flat foot; the arch is lowered. 3. The flat and abducted foot; the foot is flat. The prognosis as to cure is favorable in the order of the classes. Of importance in treatment are the shape of the shoes. Essential is one of a particular type, both for children and adults with a well pronounced inward twist (right and left), since it aids in preventing abduction. A second point of importance is to make the inner border of the sole and heel thicker, or slightly wedge shaped, so that the foot is inclined somewhat toward inversion. This is one of the oldest of remedies, one that is continually discovered and applied by the un instructed patient, whose shoes wear away on the inner side. The principle is applied also by the expert blacksmith, and if the shoe were firmly attached to the foot, instead of merely containing it, the expedient would be of much greater advantage in the treatment of human beings. The patient having been properly shod must now be instructed as to attitudes. Outward rotation of the limbs must be avoided. The foot should be advanced in the line of the walk, and the "springy" step should be cultivated, that is, the

body should be lifted over the forefoot by exercising the calf muscle. This protects the foot from overstrain and at the same time strengthens the muscles and improves the tone of the entire body. As the prevailing attitude has been one of abduction, one now cultivates the adducted attitude; thus, in the sitting posture one should always cross the feet so that the weight resting on the outer borders should incline them inward (invert the soles). The influence of the modified shoes, the attention to posture, and the cultivation of muscular strength may be quite sufficient to cure the milder cases of disability if the cooperation of an intelligent patient is assured. In most instances, however, the tendency toward deformity has advanced so far that it cannot be controlled by the patient, and, as cure depends on reconstructive changes, in adaptation to the prevailing uses and attitudes, the importance of preventing frequent recurrence of deformity is apparent. For this reason a brace is usually an indispensable adjunct in curative treatment. For the adjustment of such a brace an accurate plaster model of the foot in the proper attitude is essential. In many instances the deformity is of such long standing, or the resistance is so great, that forcible correction of the deformity under anaesthesia is indicated.

BRITISH MEDICAL JOURNAL.

August 17, 1907.

1. Remarks on the Effects of Respiration Upon the Circulation and the Pulsus Inspirations Intermittens vel Pulsus Paradoxus.
By P. W. WILLIAMS.
2. Clinical Observations on the Prodromal Period of Some of the Acute Infectious Diseases.
By E. W. GOODALL.
3. On Bottle Makers' Cataract.
By W. ROBINSON.
4. A Case of Congenital Obliteration of the Bile Ducts in Which There Was Fibrosis of the Liver and the Spleen.
By J. G. EMANUEL.
5. The Ringworm Question in Elementary Schools.
By P. S. ABRAHAM.

1. **Pulsus Paradoxus.**—Williams states that the so called pulsus paradoxus, or undulations in the force and frequency of the pulse synchronous with respiration, has been noted in various conditions. It is a question whether these respiratory undulations are due to respiratory pump action acting on the heart and intrathoracic vessels or to nervous impulses influencing the heart and vessels; in other words, are they myogenic or neurogenic, or both? From examining large numbers of school boys, the writer soon learned that, so far from indicating an abnormal condition, well marked respiratory undulations in the pulse implied that the boy would be good at running and other outdoor sports. The pulsus paradoxus so frequently observed in acute dyspnoea from laryngeal obstruction, is probably merely a pathological exaggeration of a physiological condition. During an inspiration the pressure around the heart and all intrathoracic vessels is considerably less than that of the atmosphere outside the chest. The negative pressure affects the thin walled elastic veins, containing blood at relatively low pressure, more than the thick walled arteries with their contained blood at relatively high pressure, hence the veins are dilated by the increased amount of blood driven into the chest from the systemic veins. But the same negative pressure aids the flow of blood to the right heart leading to a stronger ventricular contraction, or at least to a larger amount being ejected, and consequently more blood reaches the left ventricle, and more blood escapes by the aorta, so arterial tension rises. With obstructed inspirations a still greater but similar effect is produced, for the negative pressure which increases the capacity of the lung reservoir can only do so by dilating the vessels, thereby correspondingly facilitating the onward flow of blood to the right heart, and from the right ventricle, although the negative pressure, even at a

from any pericardial adhesions, etc., will have some tendency to interfere with contractions, and to aid the diastole of the cardiac cavities). Thus an inspiration first widens the pulmonary vessels and increases the lung reservoir capacity; but, secondly, by lessening resistance, it increases the rate of flow through the pulmonary vessels. But this pump action is not the sole or most important factor in the production of respiratory pulse variations, as is shown by the fact that section of the vagus nerves does away with such variations. In children, as compared with adults, the spinal centres are unstable and the reflexes over active. Hence in young individuals, although their chest walls are more pliable and less fitted to overcome atmospheric pressure on deep inspirations, the bulbar centres are very prone to obviously affect the frequency and force of the pulse; and when the larynx or main bronchi are obstructed the forcible inspiratory impulses often result in the so called pulsus paradoxus. That these effects on the pulse are wholly due to cardioinhibitory or vasoconstrictor centres is hardly possible, but they are certainly the dominant factors.

2. Prodromata of Acute Infectious Diseases.—Goodall, by the prodromal period of an acute infectious disease, means the stage that intervenes between the first symptom of illness and the rash or some other characteristic sign. *Scarlet Fever.* Here the prodromal period is short and there is not much room for variation in the initial symptoms. Sore throat may be present before the rash appears, especially if the latter be delayed, when the throat symptoms are apt to be marked (scarlatina anginosa) and the case to be diagnosed as one of diphtheria. The same mistake is common where the rash does not appear at all, but there is usually continued fever, great restlessness or delirium, much swelling, and pain in the fauces, with no definite false membrane and no good results from the administration of diphtheria antitoxine. Vomiting is a common early symptom; the more severe it is, the more severe the attack of scarlet fever, as a rule. Prodromal rashes are extremely rare, if they occur at all. Exceptionally the rash may commence on the extremities, and the only sign may be a punctate eruption. *Diphtheria.* Here the onset is so insidious that it is often well advanced before it is recognized. *Rubella.* The rash of this disease almost always appears synchronously with any other symptoms. But in some cases there is antecedent superficial glandular enlargement. *Measles.* The initial symptoms of measles are notoriously variable. Prodromal rashes are common, the most frequent being a punctate erythema, usually restricted to the trunk. Another common rash is an erythema, consisting of small discrete papules, affecting chiefly the trunk and face. A third rash is urticaria which is usually universal. These rashes generally come out on the first day of the disease, are accompanied by a rise of temperature, but not by catarrhal symptoms, and disappear before the proper rash comes out. Remission is fairly frequent, all or many of the early signs of measles being present, and disappearing after twelve to twenty-four hours. After twelve hours to four days the constitutional symptoms recur, and the rash comes out. Laryngitis is a frequent initial symptom, and may be so severe as to lead to the diagnosis of "croup." It usually passes off when the rash comes out. Koplik's spots are the most important of the early diagnostic signs, and are pathognomonic, not being found in any other disease. By their timely recognition we may avoid errors based on prodromal rashes, remission, and laryngitis. They usually come out early on the first or second day. *Varicella.* Here there is usually no prodromal period, but occasionally a punctate scarlatiniform erythema is present. *Typhoid Fever.* This is most protean in its modes of onset. The character-

or be delayed six weeks. Special organs—the lungs, the brain, or the kidneys—may bear the brunt of the disease from its earliest stages, and lead to diagnoses of pneumonia, meningitis, or nephritis. In some cases an erythematous rash may occur during the first few days.

LANCET

August 17, 1907.

1. The Principles of Vaccine Therapy. (1),
By Sir A. E. WRIGHT.
2. Medical Science and School Hygiene,
By Sir J. W. BYERS.
3. Cleidocranial Dysostosis,
By J. H. ABRAM.
4. Notes on a Case of Carcinoma of Both Ovaries,
By M. P. KERRAWALLA.
5. On the Continuous Administration of Fluids by the
Rectum in the Treatment of Acute General Peritonitis,
By B. G. A. MOYNIHAN.
6. A Note on Hypopharyngoscopy,
By H. S. BARWELL.
7. Note on a Case of Thyroid Tumor,
By W. G. SUTCLIFFE and A. F. M. POWELL.
8. Tuberculosis Among School Children,
By T. N. KELYNACK.

1. Vaccine Therapy.—Wright states that we have at our disposal to-day for the treatment of bacterial disease the following methods: 1. Chemical antiseptics. It is now universally recognized that it is futile to attempt to check bacterial growth in the interior of the organism by antiseptics which have a greater affinity for the constituent elements of the body than they have for any bacteria. The antiseptic directly antagonizes the protective forces which the living organism has at its command. It paralyzes the phagocytes and abolishes the antibacterial power of the blood fluids. 2. Extirpation of the obtrusive focus of infection. This is of greatest value where there is a prospect of removing all the infecting bacteria without danger or sensible mutilation. But the majority of scraping or extirpating operations only aim at the removal of one or more obtrusive foci of infection. 3. The determination of lymph to the focus of infection. Under this head are included the application of hot fomentations, the evacuation and drainage of abscess cavities, massage, and radiotherapy. 4. Serum therapy. This method, which has succeeded only in diphtheria, is built upon the postulate that the animal organism possesses the capacity of responding to the incorporation of practically unlimited quanta of bacterial cultures by a practically unlimited output of antibacterial substances. There is no justification for it. 5. Expectant treatment. This consists essentially in feeding and nursing the patient and keeping him at rest in bed. It gives far better results in generalized bacterial infections than any active medication. 6. Vaccine therapy. The author begins this part of his subject by discussing the machinery of immunization and the principles of vaccine therapy. Its essential feature is the scientific exploitation for therapeutic uses of the protective machinery with which the organism is equipped. Two elements take part in the protection of the organism: (a) The leucocytes with their digestive ferments; and (b) the antibacterial substances in the blood fluids. The success of an immunization process depends upon the power of immunizing response which the organism possesses, the composition of the vaccine, its dosage, and the method of administration. Hitherto the question of dosage has been practically excluded. Increased phagocytic response is associated with successful immunization, and this increased phagocytic response is dependent upon an increase in the opsonic power of the blood fluids, and not upon an increased capacity for spontaneous phagocytosis on the part of the white corpuscles. (To be continued.)

3. Cleidocranial Dysostosis.—Abram reports a case of this condition—absence of the clavicles in a boy,

aged sixteen years. The case falls under the head of that class of dwarfism due to maldevelopment, and described as a distinct type by Marie and Sainton under the name of cleidocranial dysostosis. The leading features are: (1) Aplasia of the clavicles, more or less marked; (2) exaggerated development of the transverse diameter of the cranium; (3) delay in the ossification of the fontanelles; and (4) hereditary transmission.

5. Rectal Injections in Peritonitis.—Moynihan has given a thorough trial to the method of treating diffuse septic peritonitis by means of the introduction of large quantities of fluid into the rectum, and concludes that there are few recent therapeutical measures equal to it in value. He has thus treated nineteen consecutive cases of general peritonitis due to appendicitis, with but two deaths, and feels that several of the patients recovered solely because of the continuous administration by the rectum of saline solution over a period of two to four days after the operation. He also found the procedure of great value in cases of partial and complete gastrectomy. He uses a rectal tube one foot in length, made of pewter, and with a slightly bulbous extremity. It is perforated at the ends and on all sides, so that fluid can easily pass in, and flatus pass out. The tube is introduced about two or three inches, and at the anus is bent sharply so as to lie easily on the bed. It is connected with the flask holding the saline solution by means of a long rubber tube. The flask is immersed in a bath of hot water, kept at the proper temperature by means of a lamp. The best temperature is from 100° to 102° F. If it is hotter than this it is not retained well. The flask should be elevated so that its base is from three to six inches higher than the rectum. The saline begins to flow and continues to flow at the rate of about a pint an hour. If a feeling of tightness or distress is caused the flow is too rapid. If the rate of flow be properly regulated and the temperature of the fluid not altered, from seven to ten pints can be introduced without interruption. If the fluid acts as an enema, the tube can be replaced after the bowels have acted. Care and constant attention on the part of the nurse are necessary to make the administration a success. The change in the appearance of a patient who is absorbing fluid so rapidly is very remarkable. The pulse improves, the eyes grow bright, urine is passed in large quantities, and the skin becomes moist. The patient's aspect is one of comfort and contentment.

LA PRESSE MEDICALE.

August 10, 1907.

1. The Indications and the Operative Procedures in the Treatment of a Collection of Blood in the Cavity of the Uterus. By PIERRE SIKORA.
2. Ocular Reaction from Tuberculin in Children. By J. COMBY.
3. Heavy Weights or Light Weights?

By PAUL DE COMPIGNAN.

1. Treatment of a Collection of Blood in the Cavity of the Uterus.—Sikora considers this subject first in regard to the seat of the structure which may be at the external orifice of the cervix, at the internal orifice of the cervix, or at some place in the uterine cavity, then as occurring in a single or a double uterus. In a single uterus the procedure varies according as the entire uterus is dilated, whether the body of the uterus alone is dilated, the lesion occupies one cornu or forms an hamatosalpinx, or whether the mass of blood is contained in a uterus which also contains a tumor, such as a fibroma.

2. Ocular Reaction from Tuberculin in Children.—Comby finds the inoculation of tuberculin into the eyes of children a method of tuberculous diagnosis, but prone to be quite efficient. He distinguishes between three degrees of reaction: the first, the moderate, and

the violent, and warns that in order to avoid danger it is necessary to make the test on healthy eyes.

August 14, 1907.

1. Early Trephining in Fractures of the Skull. By L. LATOUR.
2. The Posology of Climate. By GASTON SARDOU.
3. Simplified Cryoscopy. By ALFRED MARTINET.

1. Early Trephining in Fractures of the Skull.—Latour reports seven cases of fracture of the skull, the clinical histories of which indicate the advantages to be obtained from an immediate trephining.

2. The Posology of Climate.—Sardou points out how the dosage of drugs must be modified by the altitude, temperature, influence of the sea, and other elements of climatic influence in different places.

August 17, 1907.

1. The Origin of the Superior Facial in Man. By C. PARHON and J. MINEA.
2. Diploic Anæsthesia for the Extraction of Teeth. By G. MAHE.
3. The Dwelling House. Humidity. Washing and Drying of Clothing. The Last Floor. The Terraces. By A. AUGUSTIN REY.

1. The Origin of the Superior Facial in Man.—Parhon and Minea conclude from the results of their studies that the nucleus of the superior facial is a portion of the common nucleus of the facial nerve, in which it forms the first dorsal group.

3. The Dwelling House.—Rey furnishes another contribution to the details of the proper construction of a dwelling. These articles appear occasionally, not in regular succession, and contain many points worthy of consideration, although the plans are not those of buildings met with very much in this country.

LA SEMAINE MEDICALE.

August 14, 1907.

1. Gastric Arteriosclerosis. By L. CHEINISSE.
2. French Congress of Alienists and Neurologists. Held at Geneva and Lausanne, August 1 to 7, 1907.

BERLINER KLINISCHE WOCHENSCHRIFT.

August 5, 1907.

1. The Division of the Uterus Into Three Parts. The Lower Segment (Isthmus Segment) and Placenta Prævia. By L. ASCHOFF.
2. Syphilitic Disease of the Parotid. By CLAUS.
3. A New Case of Primary Cancer of the Appendix. By D. GRÜNBAUM.
4. A Typical Disease of the Vertebral Column (Insufficiencia Vertebrae). By A. SCHANZ.
5. Syphilis of the Heart and Its Early Diagnosis. By B. HERZOG.
6. Meningococci Spermatocystitis (Concluded). By L. PICK.
7. Stasis Therapy in Gynecology and Obstetrics. By E. RUNGE.

1. The Division of the Uterus Into Three Parts. The Lower Segment, and Placenta Prævia.—Aschoff divides the uterus into the body, the cervix, and the intermediate portion or isthmus. Placenta prævia he divides into three forms: Placenta prævia simplex, in which the placenta occupies only a small portion of the isthmus; placenta prævia isthmica, which comprises all forms in which the placenta occupies the larger part, or the whole of the isthmus, corresponding to the placenta prævia marginalis; and the placenta prævia cervicalis, which includes the rare cases in which the placenta is attached to the cervical wall itself.

2. Syphilitic Disease of the Parotid.—Claus reports a case in this country met with in a married woman. In addition to other troubles referable to syphilis both parotiditis had been noticed for about a year and a protracted ulcer treatment with potassium iodide.

3. A New Case of Primary Cancer of the Appendix.—Grünbaum reports a case in which laparotomy was performed on account of double proosalpinx, with an

inflammatory involvement of the appendix and a primary carcinoma of the latter found.

4. **Insufficiëntia Vertebrae.**—Schanz points out that cases are met with in which a painful place in the vertebral column can be demonstrated that do not conform to any known picture of pain due to disease of the vertebrae. He believes these are due to an insufficiency analogous to that met with in flat foot, and that they need long continued support by means of a properly applied apparatus.

6. **Meningococci Spermatocystitis.**—Pick believes that he has found a relationship between contagious cerebrospinal meningitis and meningococcic or gonococcic inflammation of the spermatic vesicles.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT

August 13, 1907.

- Concerning the Indications for an Artificial Termination of Pregnancy in Patients with Mental Disease, By ALZHEIMER.
- Concerning the Presence and Importance of Carriers of Typhoid Bacilli in Lunatic Asylums, By NIETER.
- Concerning Lumbar Anæsthesia, By ACH.
- Successful Inoculation of a Spindle Celled Sarcoma in Dog, By STICKER.
- Concerning the Electric Registration of Mechanical Processes, Particularly with the Aid of the Thread Galvanometer and Thread Electrometer, By CREMER.
- A Case of Rupture of the Rectum, By HEINEKE.
- Traumatic, Intraperitoneal Rupture of the Bladder. Laparotomy. Recovery, By BERBLINGER.
- Injuries of the Abdomen from Contusions, By VÖCKLER.
- Multiple Tumors of the Brain Presenting the Symptoms of a Focus in the Internal Capsule, By SEGEL.
- Comparative Studies Concerning the Demonstration of Blood in the Fæces by Means of the Spectroscope and of the Modified Weber's Test, By FRANKEL.
- Acute Citrophen Poisoning, By HEYDE.
- An Instrument for the Partial Excision of Ingrown Nails, By ITTMEIER.
- A Summer Trip Through the Mediterranean to the Orient, By NEUSTÄTTER.

1. **Indications for an Artificial Termination of Pregnancy in Patients with Mental Disease.**—Alzheimer would not confine the indications for an artificial termination of pregnancy to those symptoms which show that the life of the mother is certainly endangered, but does not consider the existence of certain mental affections, such as dementia præcox, to be of themselves sufficient indications.

3. **Lumbar Anæsthesia.**—Ach states that the way to avoid bad after effects from lumbar anæsthesia is to: (1) Employ a good technique; (2) use tropacocaine rather stovaine; (3) use small doses; (4) never use concentrated solutions; (5) maintain absolute rest of the patient on the back with the upper part of the body elevated possible at least after the operation; (6) avoid elevation of the pelvis when not absolutely necessary; (7) use the stasis bandage about the neck; (8) the subcutaneous injection of caffeine immediately after the operation would be worth consideration in order to increase the blood pressure and thereby excretion, that the anæsthetic fluid might be removed from the sub-arachnoidal space by the natural way as quickly as possible. He gives as contraindications for the use of lumbar anæsthesia: (1) Fresh or badly treated syphilis; (2) fever of unknown origin; (3) septic conditions; (4) diseases of the nervous system, such as tabes; and (5) a high degree of scoliosis.

4. **Successful Inoculation of a Spindle Celled Sarcoma in Dogs.**—Sticker removed a sarcoma from the leg of a dog and implanted portions of it in four other dogs, in two subcutaneously, in two intraperitoneally. In from forty-two to fifty-six days tumors of the same nature were found in all four dogs.

6. **Rupture of the Rectum.**—Heineke reports the case of a man, forty-five years of age, who had suffered

from prolapse of the rectum for four or five years, and also from severe constipation which caused him to strain at stool. While straining in this manner one morning there was a sudden tear in the rectum, followed by the prolapse of a portion of the small intestine. The patient died two days later of peritoneal sepsis.

8. **Injuries of the Abdomen from Contusions.**—Vöckler reports a case in which rupture of the liver and pancreas was produced by a contusion of the abdomen, and reviews the literature of the subject.

LA RIFORMA MEDICA

August 3, 1907.

- Banti's Disease (Second Lecture), By G. RUMMO.
- The Coagulating Power of the Blood Serum in Precocious Dementia and in Manicodpressive Insanity, By CARLO BESTA.
- On Some Rare Complications of Cancer of the Ampulla of Vater, By NICOLA DI GIOVINE.

1. **Banti's Disease.**—Rummo, in this lecture, devotes himself to the study of the symptoms of Banti's disease, especially in the prearcitic stage. He divides the signs of this stage into two classes, the fundamental symptoms and the accessory symptoms, and tabulates them as follows: The fundamental symptoms are three in number: First, the reduction or increase in size and consistency of the liver, which goes on progressively. Second, a beginning venous engorgement of the upper part of the abdominal wall; and, third, the presence of signs of hepatic insufficiency. The latter consist in disorders of the biliary function, such as the presence of an excess of biliary pigments in the urine, the development of cholemia, etc.; the lowering of the amount of urea excreted, the appearance of glucose or lavulose when these are administered in the food, etc. Among the accessory symptoms are hæmorrhages from the nose, the gums, the stomach, and the intestines; pain over the liver; gastrointestinal disturbances and oedema of the lower limbs. In speaking of the treatment of Banti's disease, he mentions in the first place splenectomy. According to Ferranini, only 38 per cent. of recoveries are obtained with this method. A better prognosis may be made for the success of the operation when the disease is attacked in the prearcitic stage. The reason of the many failures is that the diagnosis of the disease cannot be made readily unless the liver is already involved to a considerable extent. In the prearcitic stage, or when there is incipient cirrhosis, we should always advise splenectomy if the physical condition of the spleen permit. If we have a case of primary enlargement of the spleen, with an atrophic cirrhosis sufficiently marked, we should advise splenectomy associated with Talma's operation. When there are diffuse oedemas, marked dropsy, and other advanced symptoms, we should not attempt operative treatment, but should confine ourselves to palliative measures. Iron, arsenic, strychnine, and phosphorus may be given internally in an attempt to improve the blood, but our attention should be especially directed toward the liver, by attention to the diet, the administration of iodides, etc. Paracentesis should be performed at intervals when the quantity of liquid threatens to impede respiration and heart action.

2. **Coagulating Power of Blood in Insanity.**—Besta studied the coagulating power of the blood in thirty-one patients with precocious dementia and seventeen patients with manicodpressive insanity. The purpose of the study was to add to the existing proofs of the toxic origin of mental diseases. He found that the coagulating power of the blood in precocious dementia fluctuated within normal limits, with the exception of two cases, in which there were some physical conditions which might account for the change. In depressive and maniacal states, however, the coagulating power of the blood was very much diminished. The same was true in epilepsy, and the author points out that these types of nervous disease are probably of toxic

origin. Possibly, the difference in the coagulating power of the blood in the cases of maniacodepressive insanity may assist in differentiating them from precocious dementia, a diagnosis which is often very difficult.

August 10, 1907.

1. Banti's Disease (*Third Lecture*). By G. RUMMO.
2. Nine Surgical Operations on the Lung. By G. SERAFINI.
3. The Treatment of Cutaneous Epithelioma.

By M. MARCIALI.

3. **The Treatment of Cutaneous Epithelioma.**—Marcialis recommends the following method of treatment for cutaneous epithelioma, reporting three cases: This method has given him very good results. The patients were affected with cutaneous lesions that did not bear any malignant characters. He did not apply the method in cases of malignant epithelioma, and does not know what effect it would have on this form. It is probable, however, that the treatment would result in an improvement. It consisted in the application of a mixture of two parts of wool fat, four parts of petrolatum, and three parts of resorcin, made into an ointment. The lesion and its surrounding skin were washed first with warm water and soap for about fifteen minutes, and then with lukewarm boric acid solution. The lesions were then covered with the ointment and dressed with cotton and parchment paper, held in place by bandage. This was allowed to remain in place for twenty-four hours. On the following day the washing and the application of the ointment were repeated, and so on until a complete cure was effected. The ointment never gave rise to any pain nor to any inflammatory reaction. Excellent results were obtained with it within a month, the cures being perfect in the three cases reported. (In one case, the diagnosis was rodent ulcer. In the other two it was simply stated that the patients had epitheliomas of the face. No portions were removed for microscopical examination).

ROUSSKY VRATCH.

July 14, 1907.

1. Radical Operation for Frontal Sinus Disease According to Killian. By M. F. TSITOVITCH.
2. On the Action of Borzhom Water (Katherine Spring) Upon the Purin Metabolism of Healthy Persons. By P. G. MEZERITSKI.
3. Natural Gastric Juice and the Results of Its Administration in Tuberculous Patients. By I. S. TSITOVITCH.
4. Two Cases of False Gunshot Aneurysm of the Blood-vessels. By V. V. POTEYENKO.
5. On the Origin of Inguinal Hernia, Report of a Case. By M. N. KLODNITSKI.
6. A New Method of Bacteriological Examination of the Blood (*To be concluded*). By M. N. KLODNITSKI.

2. **Borzhom Water and Purin Metabolism.**—Mezeritski investigated the purin exchange in three healthy persons who were given Borzhom, a natural mineral water, from the Caucasus. This water is said to increase the amount of urea and decrease the amount of uric acid in extractives in the urine. The patients were first placed upon a diet poor in purin bodies, and when the excretion of endogenous purin substances had become more or less constant they were allowed to drink Borzhom instead of ordinary water. Others were given a food rich in purin bodies, and thus the influence of the water upon purin metabolism was studied. The conclusions were that when the food was poor in purin, the water did not produce any changes in the excretion of purin bases. When the food was rich in purin bodies, the water increased the elimination of uric acid and also of purin bases. By drinking the water, an increase in both the exogenous and the endogenous uric acid was produced, but only the exogenous purin bodies were eliminated in increased quantity. (A considerable number of articles have appeared in Russian journals concerning the action of the mineral water,

which seems to be a table water corresponding generally to Vichy, but perhaps somewhat more concentrated.)

3. **Natural Gastric Juice in Tuberculous Patients.**—Tsitovitch employed the natural gastric juice of a dog, obtained by Pavloff's fistula in a number of patients with tuberculosis with the object of improving their appetite and digestion. The juice was given half an hour after meals in amounts varying from one half to one ounce. Excellent results were obtained, the patients improving in appetite and digestive power, increasing in weight and showing a lessened tendency to night sweats.

July 21, 1907.

1. Streptococcus Vaccine in the Prevention of Scarlet Fever. By D. V. NIKITINE.
2. On the Mechanism of Dilatation of the Stomach. By E. M. RICHMANN.
3. Material for the Study of Biliary Pigments. By M. I. LIFSCHITZ.
4. On the Decomposition of Atoxyl. By V. L. JAKIMOFF.
5. On the New List of Diseases of the Eye Excusing from Military Service. By I. I. KAZASS.
6. A New Method of Bacteriological Examination of the Blood (*Concluded*). By M. N. KLODNITSKI.

1. **Preventive Vaccination in Scarlet Fever.**—Nikitine used Gabritchevsk's vaccine for scarlet fever, obtained from the Moscow University Bacteriological Institute, in 767 persons in rural communities where scarlet fever were prevalent. He concludes from an analysis of his results that vaccination is possible against scarlet fever, that the inoculations are not injurious, but that immunity against scarlatina is acquired only after two or three inoculations. By means of vaccination, the number of cases in a community may be lessened and an epidemic may be cut short. In using the vaccine, care should be taken to observe the temperature of the patient and the condition of the kidneys. A contraindication against the use of the vaccine is great debility or the presence of serious constitutional diseases.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Thirty-fourth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. CLEMENT CLEVELAND, of New York, in the Chair.

Ovarian Implantation Metastases Following Cancer of the Cervix Uteri.—Dr. FRED J. TAUSSIG, of St. Louis, gave the clinical history and the post mortem findings in a case of his own. The patient was forty-two years of age, the cancer having developed two years prior, at her last pregnancy. It involved the vaginal walls and the cul-de-sac and then followed bands of adhesions to the ovary through lymphatics and bloodvessels, and not by continuity, as no cancerous tissue was found upon a serial section examination of this band of adhesion from the uterus to the ovary, although it was found to be very rich in bloodvessels and lymphatics.

The endometrium was found to be replaced by a pyogenic membrane containing nests of cancer cells. The left tube was found to be normal, but the right tube was thickened from inflammation and cancerous growths. The cancer did not extend to the tubes so frequently from the cervix as from the body of the uterus.

The spread of cancer in adhesions by continuity was not so rare, but it was open to question if cancer in lymphatic vessels of newly formed tissue. He concluded that in cancer of the body of the uterus it was advisable to remove the tubes and ovaries completely, but in cancer of the cervix in women under forty years old one or a pessary (and maybe also a belt).

Dr. J. AUGUST BOYCE, of Washington, was not prepared to accept Dr. Taussig's suggestion that a portion of the ovary ought to be left in the operation for cancer of the cervix, as he believed that cancer of the cervix spread more readily than cancer of the body of the uterus. The case under discussion he considered a rare one, and he thought that the operation in such cases of cancer of the cervix should be the radical one.

Dr. LAPHORN SMITH, of Montreal, mentioned the case of a woman who was operated on by an expert and returned in two years in a hopeless condition because the ovaries had not been removed.

Dr. REUBEN PETERSON, of Ann Arbor, Mich., thought this is an important paper and agreed with Dr. Bovée that an operation for cancer of the cervix should be a radical one and that the recommendation that the ovary be left was a step backward. After a thorough investigation he did not find any advantage to women whether an ovary was left or not. He expected that the majority would not agree to leaving in the ovaries, but did not believe it an entirely unsafe proceeding. He also thought the appendix should be removed if the ovary was.

A New Method of Version.—Dr. A. F. A. KING, of Washington, presented this paper (see page 411).

Dr. J. CLIFTON EDGAR, of New York, regretted that he had not a successful case to report, as he had not had a favorable case on which to try this method since learning of it.

Dr. R. A. HARRIS recalled a case in which he was called in, and upon examination found it to be a shoulder presentation. He went to his office for some instruments and when he returned found the head coming down. He learned that the patient had urinated in a vessel, therefore assuming the squatting posture during his absence.

Dr. MURRAY thought the pelvis should be examined for contraction before this method was tried.

The Superiority of Primary Over Secondary Cæsarean Section; Feasibility and Advantages of a Predetermination of the Method of Delivery.—Dr. EDWARD REYNOLDS, of Boston, said that the mortality in Cæsarean section was roughly proportionate to the amount of labor done. The operation should be made an elective one, and the secondary operation should be less often performed than at present. The predetermination of the method was a matter for the specialist only; therefore a closer relation between the specialist and the general practitioner was desirable before labor had progressed too far, that delay might not produce ill results.

Pubiotomy.—Dr. HENRY D. FRY, of Washington, reported two cases of his own. Pubiotomy was a satisfactory operation, he said, so far as the operation itself went, for cases of enlarged head and in cases of moderate degree of pelvic contraction. The separation of the pelvic bones was about 4 to 5 cm., and this was usually sufficient. The principal objection was the difficulty encountered in the after treatment.

Dr. GRANDIN was in accord with Dr. Reynolds, and had made a plea himself for the primary Cæsarean section seventeen years ago. It was the simplest operation in the whole range of surgery. He was in favor of pubiotomy over symphysiotomy, and believed that so long as the fetal head could be made to engage there was no necessity to induce labor. He also believed in packing the cervix after dilating. He could not see why the vaginal Cæsarean section was called for if the head was movable.

Dr. LAPHORN SMITH condemned pubiotomy. He endorsed Dr. Davis and Dr. Reynolds.

Dr. MURRAY said that the object of the obstetrician was not to deliver a woman of a child alive or dead, but to leave both in the best possible condition. We had had our own full statistics, and we could not call

an induced labor an easy thing. Cæsarean section was by far the best operation.

In a vast majority of these cases we should let the case go to labor for Cæsarean section and not interfere with high forceps.

Dr. DICKINSON, of Brooklyn, said that we could often forestall a difficult labor from the presence of a chronic toxæmia or a chronic neurasthenia. For many years we had had control of the secondary stage of labor. The Pomeroy bag now gave us control of the first stage, and has the advantage of all other dilators. We need therefore only to induce labor in multiparæ, where it was easy.

Dr. MALCOLM McLEAN asked at what time interference should take place in a given labor. There seemed to be a tendency to interfere too early, when the cervix and other parts had not gone through the physical changes.

Dr. REYNOLDS did not approve of pubiotomy, and had never had one done. Regarding Dr. Davis's paper, he did not think the series of cases was large enough.

Ovarian Gestation, a Second Specimen.—Dr. J. CLARENCE WEBSTER, of Chicago, spoke of two specimens, the second of which was the subject of discussion. The embryo was in position in a single amniotic cavity. The condition was diagnosed before operation.

THE CARE OF THE WOUND AND THE AFTER TREATMENT OF LAPAROTOMIES.

The Method of Closing the Wound.—Dr. SETH C. GORDON, of Portland, Me., said that each part should be carefully replaced. Catgut and silkworm gut sutures should be used only. Three weeks was necessary to complete union.

Catgut or Silver Wire for Approximating the Deep Fascia.—Dr. HUNTER ROBB, of Cleveland, read this paper.

Dr. LE ROY BROWN, of New York, said it was important to approximate the fascia edges and retain them so replaced for two weeks. He found that after primary union was supposed to have occurred the wound would open on coughing. He believed this was due to some blood changes. He had been experimenting with some suture material, but the experiments had not been concluded.

The Use of Laxatives in the After Treatment.—Dr. HENRY T. BYFORD, of Chicago, said that paristalsis was inhibited not only by conditions attending and following the operative procedure itself, but also by the emptiness of the bowels due to the purgation and dieting the day before, and the nausea and dieting the day after. The dangers of allowing intestinal atony to persist must be overcome. We must consider the necessity of giving laxatives to overcome the atony. There was risk in waiting for an appetite; solid food and intestinal fullness were necessary to produce efficient peristalsis.

Eserine Salicylate as a Prophylactic Against Atony of the Bowels.—Dr. HIRAM N. VINEBURG, of New York, was not ready to recommend this substance as yet, for the reason that his experiments with it had not been completed. The size of the dose used by the writer was $\frac{1}{100}$ of a grain. It was used in different series of cases, and those in which it was used showed better results. No bad results had followed its use, but it must not be employed in every case, as, for instance, cases of beginning peritonitis. It had been tried in 200 cases. He had tried to have a control case, but the difference between the two was not great. In cases of gastric disease no good resulted. It was given before the operation, and the patient went into a condition of shock.

Care of the Stomach and Bowels; Position and Rest in Bed.—Dr. LAPHORN SMITH said that nothing whatever should be allowed to go into the stomach during the first twenty-four hours. The bowels should be moved by an enema on the third day and every day

after unless they moved naturally. If vomiting was experienced, calomel was used generally with sodium bicarbonate. The position depended upon the severity of the cases; the foot of the bed was raised, or in septic cases, especially after appendicitis, the head was raised. Rest in bed for three weeks was the safest. Twenty-one days after the operation the patient got up and began gentle exercise, so that by the twenty-eighth day she could walk about freely.

The Incision and After Treatment.—Dr. W. GILL WYLIE, of New York, preferred to keep the stomach and intestine empty. He gave olive oil and glycerin for several days prior to the operation. The object of this was to have the gallbladder empty. It was almost impossible to prevent hernia, especially in patients who coughed. If the incision was in the middle line, the opening in the skin and fat was made longer than in the deep fascia. It was a mistake to make the openings too large or too small.

The After Care of the Patient.—Dr. HERMAN J. BALDT, of New York, said that the ice bag in three compartments was used in place of the ice coil. It required less attention than the ice coil. The mobility of the patients began as early as was consistent with their general condition. The greater number of patients might be out of bed with advantage to them within three days. A large number, even of those on whom extensive and technically difficult operations had been done, might be out of bed and placed in a comfortable chair within from twenty-four to thirty-six hours after this operation. A properly adjusted plaster bandage or adhesive plaster was essential for the safety of the wound. Neither the stomach nor the bowels required any special consideration unless there was some particular indication for it.

The After Care of the Patient.—Dr. J. MONTGOMERY BALDY, of Philadelphia, said there were many correct ways of administering after treatment. In routine cases he had been satisfied that after treatment was of little importance. Simplicity was the keynote in the operation and after treatment. Allow Nature to dictate in regard to the diet. Catheterism should not occur more than once or twice. If it was necessary oftener than this, then change the nurse.

Dr. I. S. STONE, of Washington, had rarely had a case of obstruction of the bowels following operation. The depletion of the patient as advised was not necessary.

The Prophylaxis of Venereal Disease from the Standpoint of the Gynecologist.—This was the title of the President's address. He remarked that we were said to be spending all our time in cure and not in prevention. Every member was deeply interested in prevention, and he believed we should take some concerted action. We knew that gonorrhea was the most widespread male disease. The saddest part was that the women and children were the greatest sufferers. Only one hospital in New York admitted cases of this sort in the acute condition, but all would be admitted in the chronic state. He would like to recommend a committee for the prevention and spread of the disease.

Not included.

Book Notices.

The Toxines and Antitoxines and Their Antitoxines. By EM. POZZI-ESCOFF. Authorized Translation. By ALFRED I. COHN, Ph.D. First Edition. First Thousand. New York: John Wiley & Sons, 1906. Pp. 100.

The purpose of this volume is to give a succinct statement of our knowledge of those complex substances called toxins, and of their antitoxins, and of the

called toxins, of their antibodies called antitoxines, and of venoms, so as to make the subject as clear as possible to those who wish to keep abreast of scientific knowledge.

There are descriptions of the toxins in general, of the antitoxines and serotherapy, of the vegetable, animal, and bacterial toxins, and of the various venoms. The volume will be of interest to the professional as well as to the lay reader.

Walter Reed and Yellow Fever. By HOWARD A. KELLY, Professor of Gynecological Surgery, Johns Hopkins University. New York: McClure, Phillips, & Co., 1906. Pp. xviii-3 to 293.

The medical profession of the world is under obligation to the author for this interesting biography of that unassuming officer, gentleman, and physician, Walter Reed; and the author is to be congratulated that in this labor of love, assumed in the scant leisure of a very busy life, he has portrayed so well the fine characteristics of a rare nature whom to know was a privilege and an inspiration.

Reed's work in proving that the stegomyia is the distributing agent of yellow fever is immortal, and mankind is under lasting obligation to him, because it is known now how epidemics of that dread disease may be controlled. This story of a doctor's life work should be in the library of every physician who loves his profession and who is proud of and wishes to emulate its achievements.

Applied Materia Medica for Nurses. A Textbook Intended for the Use of Nurses in Hospital Training Schools. Based Upon the United States Pharmacopæia, Eighth Decennial Revision, 1905. By J. HENRY SCHROEDER, Ph. G., M. D., Formerly Lecturer on Materia Medica in the Jewish Hospital Training School for Nurses, Cincinnati. Second Edition. Cincinnati: The Robert Clarke Company, 1907. Pp. x-113.

Discrimination has been shown in the preparation of this little book, so as to omit those features of materia medica which are of but little importance to the nurse, while the different forms of drugs, the various methods of use and administration, and the mode of action are considered in general and in detail. There is a table of doses of potent drugs, and there is a chapter on the more poisonous drugs. It is an excellent volume for its purpose.

Materia Medica and Therapeutics. By J. MITCHELL BRUCE, M. A., LL. D. (Hon.), Aberdeen, M. D., London, Fellow of the Royal College of Physicians of London, etc. Chicago: W. T. Keener & Co., 1906. Pp. 632. (Price, \$1.75.)

While this is a very satisfactory handbook as based on the *British Pharmacopæia*, with the Indian and Colonial addendum, it omits many agents included in the *United States Pharmacopæia*, and in consequence is as suited to the American student. The index is meagre, and the book is in consequence an index of the cases and remedies.

Practical Toxins and Antitoxins in Therapeutics. By MARTIN W. WARE, M. D., Adjunct Attending Surgeon, Mount Sinai Hospital; Surgeon to the Good Samaritan Dispensary, etc. New York: Surgery Publishing Company, 1906. Pp. x-88.

The author states that the purpose of this book is to apply the principles of toxicology to the treatment of those diseases in which toxins play a part, and to the treatment of those diseases in which antitoxins play a part, and in dental surgery. The book is well illustrated and contains a list of references to the original works.

Précis de technique orthopédique. Par P. REDARD. Avec 492 figures dans le texte. Paris: F. R. de Rudeval, 1907. Pp. 587. (Price, 12 fr.)

This is an excellent manual. It describes the general technique of bandages, apparatus, operations, and mechanical and gymnastic treatment of deformities in a comprehensive fashion. It is well illustrated, and its moderate price commends it to all orthopedic surgeons who read French.

Studie über Minderwertigkeit von Organen. Von Dr. ALFRED ADLER, Wien. Berlin und Wien: Urban & Schwarzenberg, 1907. Pp. 92.

Dr. Adler builds up his theory of the inefficiency (*Minderwertigkeit*) of organs from his observations in maladies of the kidney. "One of the strongest supports of the theory of the inefficiency of the urine secreting organs as a cause of diseases of the kidney is heredity, so often observed in kidney pathology." In an appendix he cites the histories of fifty patients, all of whom had suffered at one time more or less from enuresis, and shows that kidney troubles were to be found in the near blood relations, often progenitors, of the patient. With this inefficiency of the kidney as his basis the author steps from specializing to generalizing, and thus constructs his theory. He speaks of heredity, references to the anamnesis, morphological signs, reflex anomalies, inefficiency of several organs, and the rôle of the central nervous system, as signs of an inefficient organ. He comes to the conclusion that the inefficiency of an organ is of embryonic origin, caused by primary insufficiency of building material, by inflammation during embryonic development, and finally by the disturbing influence of a neighboring organ in the foetal period. The adaptation to changed conditions of life is therefore not to be found in the battle for existence in the survival of the accidentally fittest, but this is to be attributed to variation and a tendency to increased development of inefficient organs.

Diagnostics of the Diseases of Children. By LE GRAND KERR, M. D., Professor of the Diseases of Children in the Brooklyn Postgraduate Medical School, Pædiatrist to the Swedish Hospital in Brooklyn, etc. Fully Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 542. (Price, \$5.00.)

This volume in scope and plan is new in pædiatric literature. It is limited strictly to diagnosis, and considers the subject in a manner quite different from that of any previous volume. In making a diagnosis in the case of a child, the physician is confined largely to the objective symptoms of disease. The subjective symptoms are of much less importance than in the adult. Accuracy in diagnosis, therefore, demands correct interpretation of the numerous objective symptoms. It is with these that the present work chiefly deals. Although many diseases are considered specifically, the greater part of the volume is composed of chapters upon special symptoms. After introductory pages upon such subjects as position, facial expression, and the cry and voice, there are numerous sections of decided interest upon such symptoms as vomiting, abdominal pain, cough, dyspnea, and headache. The illustrations are well selected and really explain what they purport to illustrate.

The specialist in pædiatrics might feel that the work was not sufficiently exhaustive, and that much more might be said in many chapters. It is, however, well adapted to the general practitioner, and will materially aid him in his diagnosis of children's diseases. Although it does not present the result of large original research and does not offer much that is new, it presents certain subjects in an original manner, and must be considered a valuable addition to pædiatric litera-

BOOKS, PAMPHLETS, ETC., RECEIVED.

The Physiology of Alimentation. By Martin H. Fischer, Professor of Pathology in the Oakland College of Medicine. First Edition. New York: John Wiley & Sons, 1907. Pp. viii-348. (Price, \$2.)

Thirtieth Annual Report of the Board of Health of the State of New Jersey, 1906, and the Annual Report of the Bureau of Vital Statistics. Trenton, N. J.: The John L. Murphy Publishing Company, Printers, 1907.

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M. D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, etc. Fifth Edition, Revised. With 362 Original Illustrations, including 22 Plates, with 62 Colored Figures. New York: William Wood & Co., 1907. Pp. viii-391. (Price, \$2.)

Transactions of the American Pædiatric Society, Eighteenth Session, Held at Hotel Traymore, Atlantic City, N. J., May 30 and 31, and June 1, 1906. Edited by Linneus Edford La Fètra, M. D. Volume XVIII. Reprinted from *Archives of Pædiatrics*, 1906-1907. New York: E. B. Treat & Co., 1907.

Some Points in the Surgery of the Brain and Its Membranes. By Charles A. Ballance, M. V. O., M. S., F. R. C. S., Royal Prussian Order of the Crown, etc. With Illustrations. London: Macmillan & Co., Limited; New York: The Macmillan Company, 1907. Pp. xv-405.

Klinische Beiträge zur Lehre von den Degenerationspsychosen. Von Dr. K. Bonhoeffer, Breslau. Halle a.S.: Carl Marhold, 1907. Pp. 55.

Manual of Diseases of the Ear, Nose, and Throat. By John Johnson Kyle, B. S., M. D., Professor of Clinical Otology, Rhinology, and Laryngology in the Medical College of Indiana, etc. Second Edition, Revised and Enlarged. With 169 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. xxxi-627. (Price, \$3.)

A Textbook of Physiology for Medical Students and Physicians. By William H. Powell, Ph. D., M. D., LL. D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 939. (Price, \$4.)

Miscellany

Persistent and Anomalous Urachus Causing Intestinal Obstruction.—Antonio Fanoni (*Medical Record*, June 1, 1907) reports a unique case of intestinal obstruction caused by the slipping of a loop of intestine between a persistent and anomalously attached urachus and the anterior abdominal wall. The patient exhibited the usual signs of intestinal obstruction, and upon opening the abdomen Fanoni found that the constricted gut was held by a cord which was fibrous in character, and extended from the fundus of the bladder to a little above and to the right of the umbilicus. Its upper end was subdivided into three branches, which spread out like a fan. Microscopical examination showed the cord to be a persistent urachus, three expert pathologists concurring in this view. The patient made a very good recovery, and remained well for two months after the operation, when he was again seized with the symptoms of intestinal obstruction. A swelling was found to have formed over the site of the remaining stump of the urachal cord. On opening the abdomen a second time Fanoni found cheesy material in the stump, and removed the latter, together with its three branches. A band of adhesions had formed between the urachal stump and the omentum and was constricting the intestine. A lateral anastomosis was made and the peritonæum drained. The patient made a good recovery. There was no signs of tuberculosis in the intestines or the peritonæum, but the stump of the urachus was found to be the seat of a tuberculous process, as attested by microscopical examinations made by Dr. Brooks, Dr. Ewing, and Dr. Prudden. A search of the literature failed to reveal another instance of intestinal obstruc-

tion due to persistent urachus. The tuberculous condition of the stump was probably local. The excellent recovery made adds interest to this case.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending August 30, 1907:

Smallpox—United States.

Places.	Date.	Cases.	Deaths.
California—San Francisco	Aug. 11-17	17	4
Kansas—Kansas City	Aug. 11-17	1	1
Massachusetts—South Grove	July 1-Aug. 17	17	20
Michigan—Detroit	Aug. 11-17	1	1
Nebraska—Lincoln	Apr. 1-July 31	31	95
New York—Buffalo	Aug. 13-17	1	1
North Carolina—General	June 1-20	1	1
North Carolina—Greensboro	Aug. 11-17	1	1
Ohio—Columbus	June 1-20	1	3
South Dakota—Sioux Falls	Aug. 11-17	1	1
Texas—San Antonio	Aug. 11-17	1	1
Vermont—West Berlin	Apr. 26-Aug. 20	20	43
Washington—Seattle	July 1-31	17	17
Washington—Spokane	Aug. 11-17	1	1
Washington—Tacoma	Aug. 11-17	1	1

Smallpox—Foreign.

Austria—Trieste	Aug. 3-9	1	1
Austria—Vienna	July 28-Aug. 3	2	2
Brazil—Bahia	July 14-27	11	5
Brazil—Rio de Janeiro	July 15-28	4	1
Brazil—Santos	July 15-28	1	1
Canada—Halifax	Aug. 11-17	1	1
China—Chefoo	July 14-27	2	2
China—Shanghai	July 14-27	2	60
Germany—General	July 21-27	2	2
India—Calcutta	July 21-27	2	2
Italy—General	July 21-27	7	7
Italy—Genoa	July 21-27	1	1
Italy—Naples	Aug. 19-27	1	1
Madeira—Funchal	July 21-27	1	1
Manchuria—Daly	July 7-14	4	8
Mexico—Aguas Calientes	Aug. 6-17	10	10
Portugal—Lisbon	July 28-Aug. 3	6	6
Russia—Riz	Aug. 28-Aug. 3	2	2
Russia—St. Petersburg	Aug. 21-27	1	1
Russia—Warsaw	Aug. 21-27	5	5
Spain—Algebra	Aug. 13-21	8	8
Spain—Barcelona	Aug. 13-21	4	4
Spain—Cadix	July 13-21	4	4
Spain—Seville	July 13-21	4	4
Spain—Valencia	July 21-27	1	1
Straits Settlements—Penang	July 7-13	1	1
Turkey in Europe—Constantinople	July 28-Aug. 4	2	2
Turkey in Asia—Damascus	July 4-13	1	Present
Turkey in Asia—Bagdad	July 7-13	1	Present
Turkey in Asia—Bassorah	July 11-20	1	Present
West Indies—Barbados, Bridgetown	Aug. 2-10	1	1

Cholera—Foreign.

China—Amoy, Kulangsu	June 30-July 6	Natives, 8	deaths daily, estimated.
China—Tientsin	Aug. 17	1	Epidemic.
India—Bombay	July 7-13	26	26
India—Calcutta	July 7-13	26	26
India—Rangoon	July 7-13	1	1
Japan—Mori	Aug. 20	26	26
Philippine Islands—Manila	July 14-20	2	2
Russia—Siberia, Government District	July 16-Aug. 4	35	10

Yellow Fever—Foreign.

Brazil—Mangas	Aug. 21-27	4	4
Cuba—Matanzas, Matanzas Province	Aug. 26	1	1
West Indies—Trinidad, Port of Spain	Aug. 1-10	1	1
	on St. Martin from Trinidad	1	1

Plague—Foreign.

California—San Francisco	Aug. 28-29	1	1
Brazil—Rio de Janeiro	Aug. 14-28	2	2
China—Amoy, Kulangsu, Swatow	Aug. 29-July 6	6	6
Hawaii—Honolulu	Aug. 27-28	1	1
India—General	Aug. 6-12	6,812	1,492
India—Bombay	Aug. 17-23	1	1
India—Calcutta	Aug. 7-13	1	1
Japan—Fussumae	Aug. 30-Jan. 21	171	158

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the Public Health and Marine Hospital Service, for the seven days ending August 28, 1907:

- COLLINS, G. L., Assistant Surgeon. Granted leave of absence for one day, August 27, 1907.
- CUMMING, H. S., Passed Assistant Surgeon. Granted leave of absence for one month, from October 1, 1907.
- FOSTER, A. D., Assistant Surgeon. Relieved from duty at Naples, Italy, upon the return of Passed Assistant Surgeon A. J. McLaughlin, and directed to proceed to New York City.
- FOSTER, M. H., Passed Assistant Surgeon. Granted leave of absence for two months and eleven days, from October 9, 1907.
- FRIEDMAN, H. M., Acting Assistant Surgeon. Transferred from Philadelphia, Pa., to Ellis Island, N. Y., to take effect August 24, 1907.
- GAHN, HENRY, Pharmacist. Granted leave of absence for ten days, from August 19, 1907.
- GUSTETTER, A. L., Acting Assistant Surgeon. Leave of absence granted Acting Assistant Surgeon Gustetter amended to read from August 24, 1907, instead of September 1, 1907.
- GUTHIE, M. C., Assistant Surgeon. Granted leave of absence for one day, August 27, 1907.
- HEPLER, G. K., Pharmacist. Granted leave of absence for thirty days, from September 1, 1907.
- HOLT, JOHN M., Passed Assistant Surgeon. Granted twenty-three days' extension of annual leave, from September 7, 1907.
- KALLOCK, P. C., Surgeon. Granted leave of absence for thirty days, from September 10, 1907.
- KERR, J. W., Assistant Surgeon General. Upon the expiration of his present leave, directed to proceed to Cincinnati and Cleveland, Ohio; Syracuse, Elmira, Rochester, and New York, N. Y.; Newark, N. J.; and Philadelphia, Pa., for special temporary duty, upon completion of which to rejoin his station in Washington, D. C.
- MCINTOSH, W. P., Surgeon. Directed to assume temporary charge of the Service at Portland, Maine, Quarantine, during the absence, on leave, of Surgeon P. C. Kallock.
- MASON, WILLIAM C., Acting Assistant Surgeon. Granted leave of absence for fourteen days, from August 17, 1907.
- MORRIS, G. A., Pharmacist. Leave of absence granted Pharmacist Morris for fourteen days, from August 10, 1907, amended to read for fifteen days, from August 10, 1907.
- NYDEGER, J. A., Passed Assistant Surgeon. Granted leave of absence for one month and seven days, from September 1, 1907.
- PORTER, J. Y., Sanitary Inspector. Directed to make inspections of quarantine stations of the Service in the State of Florida, when necessary.
- RAMUS, CARL, Passed Assistant Surgeon. Granted leave of absence for seven days, from August 7, 1907, under paragraph 191, Service Regulations.
- RIEMER, H. B. C., Acting Assistant Surgeon. Granted leave of absence for fourteen days, from August 17, 1907.
- SCHWARTZ, LOUIS, Acting Assistant Surgeon. Transferred from Ellis Island, N. Y., to Philadelphia, Pa., effective August 24, 1907.
- SHOEN, CHARLES, Pharmacist. Granted leave of absence for six days, from August 6, 1907, under paragraph 190, Service Regulations.
- SMITH, A. C., Surgeon. Directed to proceed to Boston, Mass., reporting to Captain K. W. Ferry for temporary duty during the absence of Captain C. W. Ferry, and to continue on duty at the Boston City Hospital, when necessary, until relieved by a regular station in Pittsburgh, Pa.
- SMITH, H. A., Passed Assistant Surgeon. Leave of absence granted Passed Assistant Surgeon Smith for three months, from July 12, 1907, amended to read for one month and eight days, from July 12, 1907.

STILES, CH. W., Chief of Division of Zoölogy, Hygienic Laboratory. Granted leave of absence for nine days—four days from August 14th, and five days from August 26, 1907.

STIMSON, A. M., Passed Assistant Surgeon. Granted leave of absence for three weeks, from September 3, 1907.

TUTTLE, JAY, Acting Assistant Surgeon. Granted leave of absence for fourteen days, from August 15, 1907.

WELDON, WILLIAM A., Acting Assistant Surgeon. Granted leave of absence for one month, from September 10, 1907.

Boards Convened.

Under date of August 26, 1907, boards of medical officers were convened as follows, for the purpose of conducting medical examinations of candidates for appointment as cadets in the Revenue Cutter Service:

At Baltimore, Md.: Surgeon L. L. Williams, Chairman,

and Passed Assistant Surgeon J. T. Burkhalter, Recorder.

At Boston, Mass.: Surgeon R. M. Woodward, Chairman,

and Assistant Surgeon T. W. Salmon, Recorder.

At Chicago, Ill.: Surgeon G. B. Young, Chairman, and

Passed Assistant Surgeon B. S. Warren, Recorder.

At Detroit, Mich.: Surgeon Fairfax Irwin, Chairman, and

Assistant Surgeon E. R. Marshall, Recorder.

At Galveston, Texas: Passed Assistant Surgeon G. M.

Corput, Chairman, and Acting Assistant Surgeon William

H. Gammon, Recorder.

At Philadelphia, Pa.: Surgeon J. M. Cassaway, Chair-

man, and Acting Assistant Surgeon Louis Schwartz, Re-

recorder.

At Portland, Me.: Surgeon W. P. McIntosh, Chairman,

and Acting Assistant Surgeon A. F. Stuart, Recorder.

At San Francisco, Cal.: Surgeon H. W. Austin, Chair-

man, and Passed Assistant Surgeon J. D. Long, Recorder.

At Washington, D. C.: Assistant Surgeon General J. M.

Eager, Chairman, and passed Assistant Surgeon J. W.

Trask, Recorder.

At Washington, D. C.: Assistant Surgeon General J. M.

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Eager, Chairman, and passed Assistant Surgeon J. W.

Trask, Recorder.

At Washington, D. C.: Assistant Surgeon General J. M.

Eager, Chairman, and passed Assistant Surgeon J. W.

SCHETKY, L. O., Pharmacist. Detached from the Naval Hospital, Norfolk, Va., and ordered to the Naval Hospital, Washington, D. C.

VICKERY, E. A., Assistant Surgeon. Detached from the Illinois and ordered to the Navy Yard, Boston, Mass.

Births, Marriages, and Deaths.

Married.

BEISINGER—HOWARD.—In New York, on Tuesday, August 20th, Dr. Ralph P. Beisinger and Miss Rae Howard.

DELONG—STOFFEL.—In Pittsburgh, on Thursday, August 22nd, Dr. Francis Edward Delong and Miss Emma J. Stoffel.

DISS—BARKER.—In Sidney, N. Y., on Thursday, August 22nd, Dr. Charles Joseph Diss and Miss Constance Joseph Barker.

FOSTER—HALLETT.—In Philadelphia, on Wednesday, August 21st, Dr. Roland H. Foster and Miss Flossie Hallett.

HUGHES—MACGINERTY.—In Shoreham, Vermont, on Thursday, August 22nd, Dr. John Hughes and Miss Aline MacGinerty.

WAITE—COOK.—In Lakemills, Wisconsin, on Sunday, August 18th, Dr. W. W. Waite, of Syracuse, N. Y., and Miss Lillian Ardelle Cook.

WITMER—MILLER.—In Lancaster, Pennsylvania, on Wednesday, August 21st, Dr. Luther F. Witmer and Miss Louise Elizabeth Miller.

Died.

BLUMMER.—In New Haven, Connecticut, on Tuesday, August 27th, Mrs. Ann Blummer, wife of Dr. George Blummer, aged twenty-nine years.

BRANCH.—In Amherst, Massachusetts, on Tuesday, August 27th, Dr. Charles F. Branch, aged sixty-one years.

CANNON.—In New Albany, Indiana, on Wednesday, August 28th, Dr. George H. Cannon, aged fifty-five years.

FOLSON.—In New York, on Tuesday, August 20th, Dr. Charles F. Folsom, of Boston.

FRANKEL.—In Boston, on Tuesday, August 27th, Dr. Charles L. Frankel, aged forty-one years.

HARRIS.—In Newburgh, N. Y., on Saturday, August 17th, Dr. Louis A. Harris, aged forty-nine years.

HENSZEY.—In Philadelphia, on Sunday, August 25th, Dr. Samuel C. Henszey, aged seventy-eight years.

HESS.—In Milwaukee, Wisconsin, on Tuesday, August 20th, Dr. Adolph Hess, aged forty-two years.

LESLIE.—In Amesbury, Massachusetts, on Friday, August 23rd, Dr. Horace G. Leslie, aged sixty-five years.

MESSEMER.—In Marburg, Germany, on Monday, August 5th, Dr. Edward J. Messemmer, of New York.

MILLER.—In Hagerstown, Maryland, on Sunday, August 25th, Dr. John Elliott Miller, aged seventy years.

MURRAY.—In Allegheny, Pennsylvania, on Wednesday, August 21st, Dr. William H. Murray, aged fifty-eight years.

O'DONNELL.—In Kansas City, Kansas, on Friday, August 23rd, Dr. Henry O'Donnell, of Ellsworth, aged forty-one years.

POWELL.—In Greenwich, Connecticut, on Saturday, August 24th, Dr. Seneca D. Powell, aged sixty years.

POWELL.—In Tate Spring, Tennessee, on Sunday, August 18th, Dr. T. O. Powell, aged seventy years.

RICHARDS.—In Rothrockville, Pennsylvania, on Tuesday, August 27th, Dr. Milton S. Richards.

SOLOMON.—In Hull Hill, Massachusetts, on Wednesday, August 21st, Dr. James M. Solomon, aged fifty-four years.

TUCKER.—In New York, on Monday, August 26th, Dr. Charles B. Tucker, aged sixty-seven years.

VAN DUYN.—In Kansas City, Missouri, on Wednesday, August 28th, Dr. Augustus Coe Van Duyn, aged seventy-four years.

WRIGHT.—In Lee, Massachusetts, on Thursday, August 22nd, Dr. Eliphalet Wright, aged ninety years.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending August 31, 1907:

BILLINGSLEA, C. C., Captain and Assistant Surgeon. Granted leave of absence for twenty-five days.

FISHER, H. C., Major and Surgeon. Granted leave of absence for thirty days; in addition to other duties at Fort Logan, Colo., will report to the commanding general of the Department of Colorado, Denver, Colo., for temporary duty as chief surgeon.

PHALEN, J. M., First Lieutenant and Assistant Surgeon. Granted leave of absence for fifteen days.

REYNOLDS, F. P., Major and Surgeon. Leave of absence extended fourteen days.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending August 31, 1907:

DELANCY, C. H., Passed Assistant Surgeon. Detached from the Florida and ordered to the Navy Yard, New York, N. Y.

DOXEY, B. H., Assistant Surgeon. Detached from duty at the navy recruiting station, Des Moines, Ia., and ordered to Washington, D. C., September 3rd, for examination for promotion; then to await orders.

JONES, A. McK., Acting Assistant Surgeon. Sick leave revoked; ordered to the naval recruiting station, Des Moines, Ia.

MARTIN, J. C., Pharmacist. Detached from the naval dispensary, Washington, D. C., and ordered to the United States Naval Medical School Hospital, Washington, D. C.

IAN, C. M., Passed Assistant Surgeon. Detached from the Arkansas and ordered to the Illinois.

REYNOLDS, C. E., Pharmacist. Detached from the Naval Medical School Hospital, Washington, D. C., and ordered to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

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Original Communications.

ELECTROLYSIS AND THE NERVOUS SYSTEM.

By SIR JAMES A. GRANT, K. C. M. G., F. R. C. P. LOND.,
Ottawa, Canada,

Consulting Physician, General Hospital and St. Luke's Hospital.

In 1854, when a student at McGill University, my attention was directed to the marvelous operations of the nervous system, since which time I devoted spare hours to the problems of this intricate structure. Tear and wear are the result of both mental and physical strain, at no time more marked than in the present century. For many years I applied electricity in the ordinary way, frequently with beneficial results, without knowing exactly the why or the wherefore.

The power of the galvanic current to decompose water was discovered and first described by Nicholson and Carlisle in 1800. In 1806 Sir Humphrey Davy presented to the Royal Society a lecture on some chemical agencies of electricity and the following year announced the discovery of the decomposition of the fixed alkalis. The phenomena of electrolysis are due to a modification, by the current, of the chemical affinity of the particles through which the current passes, causing them to undergo decomposition and recombination. In the electrolysis of inorganic substances, it cannot be expected to solve the mysteries of life and disease. As the body is largely composed of water, holding in solution salts of potash and soda, it thus becomes an excellent electrolyte. The current of a dry battery, transmitted by an ordinary neurotone, is the simplest and most efficient method of electrical application. The umbilicus may be considered the *storm centre*, as far as collateral influence on the sympathetic system is concerned, as here the solar plexus approaches nearest the surface through its many filaments, which in turn accompany all the branches given off by the abdominal aorta. It also interlaces with the nerve fibres of the phrenic plexuses; gastric, hepatic and splenic plexuses; suprarenal and renal plexuses; superior mesenteric plexus; spermatic plexuses; and inferior mesenteric plexuses. Although according to Bastion a wide basis of positive knowledge does not exist, it is accepted that the sympathetic system of nerves, with its double ganglionated cord and great ganglionic plexuses, is, to a certain extent, an independent nervous system, penetrating deeply by its roots into the cerebrospinal axis. Its fibres are conducted to and from the viscera along the course of the blood vessels. The peripheral ganglia are dominated by a still higher

regulating centre, situated in the medulla oblongata, in relation with all the vasomotor nerves throughout the system. Although the nature of its relations with the medullary centre is still uncertain, the fact that the fibres of the sympathetic are mixed up on the vessels with those having a vasomotor function and have to do with the calibre of the bloodvessels generally, take part in the activity of all the glandular organs, in the movements of all the hollow viscera, and in the nutrition of the tissues generally, places the sympathetic system in the front as a central motive power. These are the circumstances which count in the operations of the system. When the tear and wear can be so changed by electrolytic action as to afford the freer transmission of normal nerve force, the constitutional changes for the better become most marked.

CASE I.—R. C. McC., aged seventy-one years, an officer in the Civil Service, Ottawa, was attacked, fully seven years ago, with a cough, shortness of breath, with a general sense of muscular weakness, and lessened ability to walk with usual strength of limbs, the gait being reduced to a short and rather feeble step. There was no evidence of marked muscular atrophy, but rather of defective muscular power in locomotion, and of lessened normal vigor as to contractility. This condition continued more or less for a period of fully five years. In regard to sensory functions, there were no important subjective phenomena. In the entire body all kinds of skin impressions were perceived readily and with normal acuteness. Eyes were perfect as to vision, and there was no strain whatever; sight was acute, both as to form and color, pupils were equal and reacted perfectly to light. Motor condition was equal on both sides of the body. Knee jerks were normal, and not in any way exaggerated, also ankle clonus was normal. Voluntary movements in face, arms, and hands were tolerably well performed. The patient stood steadily, with no marked change in closing eyes. If faulty condition in the spinal cord or higher sensory tracts accounted for the short steps in his gait, the fact of there being no altered sensibility of other kinds precluded such a possibility. The general symptoms, being functional in character, favored disappearance under treatment. Anaesthesia of the sympathetic branch of the connective or cord was not in any form present. The pupils were normal in size and reacted as to action, and the various muscles, including the diaphragm, whatever. The gait was up to standard, in the early part perfectly regular, very short steps, with no sign of unsteadiness, and no zig-zagging in leg movement. After careful consideration it was thought that the chief source of difficulty resided towards the base of the nerve centres, resulting from the accumulation of fluid and wear in past years, obstructing to a degree the normal transmission of nerve power. Therefore treatment through the solar plexus given every year.

day for three weeks, brought about an entire change for the better in every particular. The patient now walks with ease and comfort, enjoying the gait of years past. His face regained its former red color, owing to increased power of the vasa vasorum. The improvement in his general condition was most marked, appetite was good, cough and breathing much relieved, constipated bowels had become more regular. Sleep was composed and natural. His life history showed a temperate and regular man, free from any syphilitic complication.

CASE II.—Mrs. A. K., aged eighty years, well formed and of moderate stature, generally enjoyed good health, and was the mother of one child. Five years ago, for the first time, the patient found the power of her limbs not as vigorous as usual, but this fact was not attended by pain or evidence of muscular atrophy. She was unable to walk any distance without inconvenience and rapidly developed fatigue. The symptoms were attended by considerable shortness of breath and apparent inability to expand the chest, with accustomed vigor, in the respiratory process. Cough, expectoration, or any evidence of organic pulmonary or cardiac disease were not present. At times, during the past two years, she experienced a sense of dizziness, chiefly during the night, on movement of the head, which circumstance interfered with her usual quiet rest. The other functions of the body were normal, appetite was good, bowels moved regular, and urine was voided in normal quantity. Pulse was full, easy, and regular, and not changed by altered position. Memory was still retentive, and eyesight was normal. On January 4, 1907, she was placed under treatment, which was given every second day for a period of three weeks, each application of the neurotone to the moistened umbilicus, not occupying more than ten minutes, and the power graduated according to circumstances. The change for the better in the entire system was most marked, dizziness disappeared entirely, breathing became normal, and the power of the limbs was so restored that she walked freely to church and otherwise, without any difficulty. Facial expression was quite changed for the better, and the cheeks presented a shade of color, owing to undoubted increased activity in the capillary circulation.

CASE III.—Judge E., aged seventy-nine years, father of a large and healthy family. The patient was of ordinary stature, regular conformation, and usually enjoyed vigorous health, owing to entire absence of organic disease. During the past two years there had been a general feeling of malaise, with disinclination to engage in the active efforts of business, associated with a degree of mental depression, chiefly owing to the changed habits of life. The patient was unable to walk any distance with his usual activity. Pain in body and rheumatic complication were absent. Sensory organs were perfect as to functions. For many years he was a leader in a church choir, but the vocal cords for the past year did not respond with their usual vigor. After ten days' treatment the entire strength of the system was restored, and locomotion became as perfect as for years past, the voice also regained its power and tone, and he returned to his usual duties and responsibilities with ease and comfort.

CASE IV.—H. G., aged seventy-eight years, was a tall, spare man, had been patent solicitor for a period of forty years, during the greater part of which time he enjoyed excellent health. Family history was unimportant; his parents enjoyed a good old age. Social surroundings were favorable. Alcohol and tobacco had been only used in moderation. Digestive power was moderately active, also the alimentary canal. Other functions of the system were undisturbed. The patient was of neurosanguine temperament, with alert manner.

As to the circulatory system, he experienced for several months a feeling at times of faintness, with feebleness of cardiac action, but unattended by cardiac murmur. Pulse became weak, with low tension between beats, but no thickening of vessel walls. Respiratory system presented no abnormality, except at times defective power as to thoracic expansion. Integumentary system was natural. Disturbance of equilibrium as to gait, except slow and weak for some months, such condition being gradually developed, was absent. Cerebral and mental functions were normal. Sleep was usually composed, and no indication of lesion in sensory centres could be observed. Pupils were of normal size and acted naturally. Some years ago, he experienced weakness in sight, which under neurotone treatment greatly improved. On September 13, 1906, he was placed under treatment, which was given every third day, for four weeks. At the expiration of this time a marked change for the better was undoubted, and in six weeks he increased in weight fully twenty pounds. He now walks vigorously, feels in excellent health and spirits, and conducts his business with usual mental and physical activity.

The daily, in fact the hourly, changes in the component parts of the human body are mysterious and difficult to define, and nowhere more so than in the nervous system, the centre of thought, intellectual power, and locomotion. My object in producing this paper is to sift a portion of the wheat from the chaff, and define a few of the limitations and possibilities of electricity. One point is certain; where damage to neurones or their nuclei have cut muscle fibres off from the normal source of stimulating energy, electricity is of little account, as far as maintaining muscular contractility is concerned. The reaction of degeneration is characterized by loss of excitability in the nerves and of the excitability to rapidly interrupted currents in the muscles. The reaction of degeneration is of great moment, and when present, a lesion in some part of the nervous tract is readily diagnosed. In such conditions, electrolysis is useless. In nerve degeneration, when the induced current fails to meet with any response, it is called the reaction of degeneration. Weakened muscle cannot be strengthened by too strong a current, and such action must be avoided. So also with weakened nerve tissue. The power of the current must be graduated in proportion to the strength of either muscle or nerve.

"There is a great probability that a nervous impulse may be a change propagated by electrical agency, and even in its essential nature, an electrical phenomenon, a travelling and temporary dislocation of preexisting discrete particles, and not a travelling process producing new and differently gifted particles from the old." It is as solutions of electrolytes confined to minute cylinders that nerve fibres have a most important interest, and yet the characters of these solutions are beyond the reach of methods of ordinary chemical investigation. In the transmission of the electric current, it is well to be aware of the remarkable discovery of du Bois-Reymond, that the whole longitudinal surface of the individual nerve fibre is probably equally positive, and the whole transverse surface uniformly negative. In order to intensify the conduction of the electric current, moisture is not only necessary external, but is well provided for internally, as the nerve fibre is, throughout, a moist conductor. Nerve

fibres are in fact only finely drawn processes of cells, containing inorganic salts within them, and the electrical conductivity is provided by the electrotonic currents and by their distribution. The axis cylinder of the nerve fibre is a better conductor than the tissues which ensheath the fibre, and more electricity, in fact, is carried or conveyed along the axis cylinders than is at the same time carried by the other tissues of the nerve. The electrical phenomena of nerve depend entirely on the inorganic salts which it contains, and from recent investigations it has been proved that the nerve trunk has three kinds of conducting material, an external medium of poor conductivity, a dividing membrane, and an internal solution of conductivity of a higher order than that of the external solution.

Recent investigations as to the physical conditions present within the nerve fibre, in the axis cylinder, have pointed out the existence of a remarkable condition of proteid material in a state of colloid solution, in some way a possible store of potential energy. In this direction, demonstration of the potassium ring of McCallum, surrounding granules within the nerve fibre, is most interesting and important, in relationship with solid colloid masses in aqueous solutions of salts. Such electrolytes, even by a limited degree of motion, tend to diminish the usefulness of an electrical current, transmitted through the colloid solution. A single fact, which dominates all, is that nerve is a material adapted for the transmission of energy, from point to point, throughout the entire system, resting upon the undoubted presence of inorganic salts, as permanent constituents of the axis cylinder.

In no part of the human system are the irregularities of life more marked than in the alimentary canal, where the defenses of the organism permit the ingress of bacterial toxins. In this tract the blood making process becomes interrupted through the nonelimination of normal nerve power. Under such circumstances the perfectly stable nervous system is a rarity. Here particularly electrolysis becomes an important factor, giving new life and activity by establishing beyond doubt an average neuropsychic equilibrium. An important fact demonstrated clearly is that blood can actually be made by electricity, by stimulating through the abdominal walls the ganglia that take part in the process of blood formation.

A most important factor in the production of intestinal trouble is rapid eating of food. Man's efficiency in the duties of life is due in a great measure to the precautions in the use of suitable food, guarding rigidly the varied processes of digestion. Clearness of brain and strength of muscle are gained by living close to Nature. How frequently food leaves the stomach for the alimentary canal unconverted into normal chyme! This semidigested material gradually produces results far reaching in character. Dilatation of the colon, partial or general, frequently follows. The gas generated in the dilated colon, the outcome of imperfect assimilation, reflects a poisonous influence on the alimentary ganglia of the nervous system. About this attractive region takes place the mysterious conversion of vegetable and other food products into blood. The nervous system plays an important part in this remarkable

chemical transformation, histogenetic in character. This entire process is subject to defeat by surrounding abnormal conditions. A gradually debilitated state of the system frequently follows, marked by moderate oedema of the extremities entirely outside of cardiac, hepatic, or renal complications. Under such circumstances, the local application of electricity to the abdominal walls brings about gradually a decided change for the better, the result of restored energy to the ganglionic centres, marked by subsidence of the dilated colon and the gradual and complete disappearance of serosity in the legs, owing to increased activity of the absorbents. I have frequently observed in regions of the limbs a lessened degree of sensation to the electric current of short duration. This defective electric response is interesting in the light of the *clefts*, or *indentations* in the medulla of the axis cylinder, defined as small irregular masses, separated by fluid (Foster, *Physiology*, page 122). Such conditions may account for an imperfect nervous impulse, the importance of which cannot be overestimated, provided the sudden return of complete sensation is the result of electrolytic action, restoring the continuity of the medulla of the axis cylinder.

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THE IDEAL LIGATURE.*

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To be ideal, a ligature should be absolutely free from germ life and should remain sterile as long as it is retained in the tissue of the body; it should be strong and flexible; be absorbed or replaced by living tissues after it has fulfilled its function. Since the advent of asepsis and antisepsis, investigators and scientists the world over have been putting forth their best efforts to obtain this ideal. If we harken unto the past, we may wonder that there is not today a degree of contentment, of satisfaction with what we have, so marvellous have been the strides toward perfection. The

* A very interesting discussion took place tonight to which my attention had not been directed. My paper was well accepted, and the *British Medical Journal* has accepted it. I met Sir James Spence, Dr. Kohn, and Mr. Russell. I saw a specimen of a *Streptococcus communis* and then saw a good description of the micro-organisms of putrid wound, the results of which experiments in treatment I have been able to repeat. I saw a very good specimen of the same, which would be very interesting. This specimen was taken at a point where the blood vessels were cut, and I saw that the bacteria had not started from the wound. The material of the wound before exposure was contained in the blood vessel. A specimen of this material was taken. I had seen the first specimen of the same sort of thing. I had seen the first specimen of the same sort of thing. I had seen the first specimen of the same sort of thing. I had seen the first specimen of the same sort of thing.

thought, however, that there is something better keeps urging us on to renewed efforts. When the ideal shall have been obtained, credit must be given not alone to him who first reaches the goal, but also to the hundreds who have evolved it for him.

From the time of the creation there have been wounds and there has been hæmorrhage from wounds. Intentional, or surgical, wounds are made fearlessly to-day because of our ability, first and foremost, to check bleeding. Can we not readily imagine those of olden times, ignorant of the methods to control or check hæmorrhage, shrinking in terror from the use of the knife? It is small wonder that they generally "performed operations slowly and imperfectly by means of burning irons," that they treated wounds with "oyle of elders scalding hot."

What excites greatest wonder, in the light of modern knowledge, is the fact that the ligature had such a rough road to travel before it was thoroughly established as the best and surest means of checking hæmorrhage in the vast majority of cases. Because of the secondary hæmorrhage, which frequently followed the application of the ligature, and the suppuration, which invariably did, other means were strongly advocated by various surgeons to take its place. The ingenuity displayed by some deserved a better fate. As late as 1637, William Clowes, in his *Profitable and necessarie booke of observations*, described a method of checking hæmorrhage which shows to what ends one would go to stop the flow of blood. His "restrictive to staie the flux of blood" was composed of the following ingredients: "Boli armeniaci, Oz. 3; Sanguinis draconis et Aloes, ana Oz. 1; Olibani, Oz. 1½; Terræ sigillatæ et mastichis, ana Oz. 1; Lapidis hæmatitis, Oz. ½; Calcis ex testis ovorum, et Mummie, ana Oz. 1; Gypsi, dr. 6; Fariñæ volatilis, Oz. 4." His directions for using this "restrictive" were as follows: "Take of this powder as much as will serve your turne, and mixe with the said powder, Pilonum leporis et ovorum albuminum ana quod satis est, let your Hare haire be the whitest and the softest that is taken from under the belly of the Hare, and cut so fine as possible may be, and with the said powder let all be mixed together, and brought to a reasonable thickness." Clowes constructed several buttons or bolsters of very fine "towe" which was "wrought up in vinegar and water," on which the "restrictive" was applied to the bleeding points. In amputations, the wound was filled with "towe" to a "size so that it be fit as neere as you can guess it, to the compass of the stumpe or member that is taken off." He advised, if his "restrictive" could not be obtained, the "use either of Vigoes order, to cauterize the place with a bright cauterizing iron, or else with M. Gule's powder, which is a very worthy invention."

Clowes notes that "one Gulemew, a famous Chirurgurgeon in France, with other very learned and skillful men, counsellth us to draw out the veins and arteries with an instrument caled a Raven's bill, and then tie those vessels with a double strong ligature or thread." He advocated his own method in preference to the ligature.

We find that "the first account of the application of the ligature for the purpose of preventing hæmorrhage is given by Sus'rutas, a disciple of the divine

Dhanvantari in his *Ayar Vedas* (1500 B. C.), who tied the umbilical cord in newly born infants, with a string, eight inches from the navel previous to cutting it" (Senn).

Hippocrates (460-377 B. C.) is credited by many writers as the discoverer of the ligature.

Archigenes, a Greek physician who practiced in Rome at the beginning of the Christian Era, used the ligature to check hæmorrhage after amputations.

Celsus (30 B. C.-45 A. D.), whose *Encyclopædia* gives a complete account of the medical system of his time, filled the wounds with lint over which he laid a sponge dipped in cold water. If the hæmorrhage continued, he repeatedly applied fresh lint wet with vinegar. This failing to check the bleeding, he applied two ligatures to the bleeding vessel and divided it between them. When he could not ligate in these cases he advocated the use of the actual cautery.

During the Dark Ages, the ligature fell into disuse, "giving way to such barbarous and inefficient methods of arresting hæmorrhage as the employment of the actual cautery, the performing of operations with red hot knives, or the application of boiling pitch, or of molten lead to the bleeding and freshly cut surfaces."

Aëtius (500-550 A. D.), whose medical works were translated into Latin in 1542, ligated for aneurysm, excising the sac, although he used a red hot iron to stop bleeding in excision of the breast.

The Hindu surgeons of the eighth century checked hæmorrhage by means of torsion, astringents, spices, caustics, and the actual cautery. Stumps, following amputations, were first dressed with boiling oil, afterward with pitch, vegetable decoctions, etc.

Ambroise Paré (1517-1590 A. D.) revived the use of the ligature in amputations, giving credit to the ancients for its origin. He thought its utility so great in amputations that "he considered himself as inspired by the Deity in having first adopted this practice." Vesalius (1514-1564 A. D.), however, condemned the ligature as a relic of the past.

Kirkland (1721-1798 A. D.), in describing his experiments made in 1755 to determine the method Nature takes to close the ends of a severed vessel, asserted that "nothing can more powerfully intercept the course of blood (than a ligature), provided it be properly applied." He advised the use of ligatures "made of long twelve penny flax without either end being the least twisted or waxed further than just the end, to make it pass through the eye of the needle." He also stated that "it is not uncommon for surgeons in performing operations to apply lint soaked in scalding oil of turpentine" to check hæmorrhage.

Sharpe, a surgeon of Guy's Hospital, London, in 1761 made a formal appeal for the employment of the ligature to arrest hæmorrhage from wounded arteries, in preference to styptics or the actual cautery. His excuse for his formal advocacy of the ligature was that "it is not as yet universally practiced among surgeons residing in the more distant counties of our kingdom."

Great strides forward were made in the methods of arresting hæmorrhage after the publication of the researches of Petit, Jones, Kirkland, and others,

who set forth the manner in which the ligatures aided Nature in affecting obliteration of the tied vessel. Secondary hæmorrhage was, thereafter, less frequently seen. Suppuration, however, was considered necessary to facilitate the removal of the ligature, for which purpose, also, both ends of the ligature were brought out of the wound. What was considered a great improvement was suggested by "James Veitch, Esq., at one time Surgeon to the Naval Hospital, Plymouth," who cut one end of the ligature close to the knot, bringing the other end out of the wound. This method was also strongly advocated by Samuel Cooper in 1816 and by Sir Astley Cooper in 1831.

Both ends of the ligature were cut off close to the knot by some surgeons. This method was proposed by Mr. Lancelot Haise (Haire?), assistant surgeon to the Haslar Hospital in 1786. The method was adopted by Mr. Maxwell, of Dumfries, in 1798.

Samuel D. Gross, in 1872, in speaking of this

the ox; Hartshorn, strips of parchment; Clover, a very fine copper wire covered with gutta percha. Tendons from various animals have been proposed as ligatures, among them being those from the hind legs of the moose and caribou, from the tail of the fox squirrel and of the kangaroo, of the opossum and the rat, and from the whale.

To Philip Syng Physick (1768-1837) is probably due the honor of introducing animal sutures and ligatures to the medical profession. He used dog-skin and also chamois, cut into strips and rolled on a slab for the purpose of giving them the proper degree of hardness, firmness, smoothness, and roundness. John Syng Dorsey, after numerous experiments made at the suggestion of Physick, used French gut as a ligature. He was one of the first to cut both ends of the ligature short, and to treat the wound as he would have done had no ligature been used.

The modern ligature, the aseptic or antiseptic, ligature, must be credited to Sir Joseph Lister. His



FIG. 1.—Petri dish experiment. Silver gut immersed in lapulacae inoculated with pure culture of *Staphylococcus aureus* and placed

FIG. 2.—Petri dish experiment. Formaldehyde silver iodide gut laid on agar which had been inoculated with *Staphylococcus aureus*.

FIG. 3.—Petri dish experiment. Formaldehyde silver iodide gut laid on agar inoculated with pure culture of *Staphylococcus aureus*.

FIG. 4.—Petri dish experiment. Silver gut immersed in lapulacae inoculated with pure culture of *Staphylococcus aureus*.

procedure, stated that it "is now universally abandoned, and very justly so, on the ground that the noose, after performing its duty, creates irritation among the parts with which it lies in contact, leading thus to the development of abscesses."

Agnew, as late as 1880, stated that "the knots, not being aseptic, act as irritants, retard healing, provoke abscesses, and are subsequently discharged from the wound; so that the plan (of cutting both ends of the ligature close to the knot) may be regarded as an unsurgical procedure."

The materials that have been used as ligatures include almost every known thing that can be tied into a knot. "The silk ligature was first proposed in Germany by Ph. Fr. von Walther. For the purpose of overcoming the defects of the ordinary ligatures in use, various materials were introduced on proposal with a chamberlain by Physick, catgut by Sir A. Cooper; silkworm gut by Wardrop, elastic rubber string by Levert, tendons by Paul Eye, human hair by Porta, gilt iron wire by Wagner and Sims. Levert experimented with gold, silver, and platinum. Chant, Nathan Smith used strips of catgut cut from a kid glove. Barwell, a learned man, made the middle ear of the cat of

researches and his results laid the foundation of one of the greatest blessings ever given to mankind—*clean surgery*. His methods are no longer used, but his idea is the basis of all ligature preparation to-day, namely, to procure one that will not cause suppuration. A study of the various endeavors that have been made throughout the world during the past thirty years to obtain the perfect ligature (and the end is not yet), not only demonstrates how painstaking are those who have to deal with wounds, but also shows that the satisfactory ligature has not been obtained.

The ideal ligature must be absorbed or replaced by living tissue after it has fulfilled its function. This qualification practically bars from consideration silk, silkworm gut, hair, linen, or any of the metals, as they are not absorbed or replaced by living cells. They may become encysted, but are always found unchanged in the cyst.

We have seen that the ideal ligature must be absorbed or replaced by living tissue after it has fulfilled its function. This qualification practically bars from consideration silk, silkworm gut, hair, linen, or any of the metals, as they are not absorbed or replaced by living cells. They may become encysted, but are always found unchanged in the cyst.

period of their absorption furnish proper pabulum for any bacteria that may come in contact with them. In consequence of this, we find many late abscess formations, not in my opinion due to germs that have been buried in the interstices of the gut or tendon and liberated during their absorption, but to pathogenic bacteria in the tissues which come in contact with the ligature and find conditions suitable for their growth and multiplication. Under the modern methods of sterilization of catgut and kangaroo tendon, both can be made sterile, and they seldom, if ever, convey germ life to the tissues, unless they have been contaminated after sterilization. They will not, however, remain sterile until they have been absorbed or replaced by living tissue if bacteria come in contact with them during the period of absorption. The majority of so called antiseptic animal ligatures that have been proposed and used in surgery have germicidal properties when they are introduced into the tissues. They lose this property before they are entirely absorbed, because the tissues take up or away from the material the chemical used much more rapidly than they absorb or replace the material itself. In the vast majority of instances the germicidal agent used does not, cannot, penetrate the entire thickness of the ligature. The outer portion of the ligature is temporarily antiseptic, even germicidal, while the centre of it is but aseptic.

Three years ago, with the hope of obtaining the perfect or ideal ligature, I began a study of what is universally known as *catgut*.

The term *catgut* is used in modern times to designate a cord or string made by twisting together strips derived from the intestine of the sheep. Various derivations of the word *catgut* have been advanced, any one of which is probably as accurate as another in explaining its etymology. One authority gives the following: "Apparently derived from *cat* plus *gut*; but as *catgut* does not seem ever to have been prepared from cat's intestine, the word is supposed to stand for *kitgut*, by confounding 'kit,' a little cat, with 'kit,' a fiddle." Another authority states that "so far as the name can be traced back, it distinctly means guts or intestines of the cat, though it is not known that these were ever used for the purpose. Some have conjectured a humorous reference to the resemblance of the sound (produced on the fiddle by the gut) to caterwauling." Still another suggestion is that the name is a contraction of "cattle gut," as the word *cattle*, except in its modern usage, signified or included all "domestic quadrupeds which serve for tillage or other labor, or as food for man." Hence "cattle gut" might have been applied to the product made from the intestine of sheep, or of the horse, of the ass, or of the mule, from which animals one authority states it has been made.

One of the few makers of the article in this country asserts that the "word 'catgut' was adopted by our Uncle Sam as a substitute for the Italian word 'gad,' which in English means, or is, the interbred between a sheep and a mountain goat."

Another authority views the subject as follows: "How this name came to be applied to the strings it designates no one can explain. Shakespeare, in an old copy of *Cymbeline*, alluded to horses' hairs and calves' guts, which in later editions is changed

to cats' guts. In Bacon's *Natural History* mention is made of strings of guts for a viol; but no early allusion to the intestine of the cat being used for the purpose is anywhere to be met with. The dulcet strains that are emitted by the organs of this animal all cease with its life, and the viscera of the quiet sheep are almost exclusively used to draw forth from the harp, guitar, and viol those heavenly sounds which harmonize so little with the nature of the material which produces them."

Sir George Grove, in a *Dictionary of Music and Musicians*, says: "The origin of the term *catgut* has not been traced. It is difficult not to believe it to be a corruption of some similarly sounding Italian term, of probably quite different meaning."

In a study of *catgut* it is interesting to note the opinions expressed as to the tissue composing the final product. One of the best known firms of *catgut* handlers in the country writes that "we would say (to the best of our belief) *catgut* is usually made from the inner or softer surface of the intestine of the sheep or lamb." This opinion intimates that the mucous membrane is the layer of the gut used.

A manufacturer of *catgut*, in describing his process of preparation, states that the "gut is split into strands and scraped through a machine to remove the inside coating, leaving only the inner fibre or gut proper."

Senn, in a description of the manufacture of *catgut*, states that "the inside and outside surfaces are scraped with a dull knife, the intention being to remove the mucosa, the transverse fibres of the muscular coat, and the peritonæum, leaving only the subserous tissue with a small part of the longitudinal fibres."

A representative of a firm which handles *catgut* in large quantities states that "in my opinion the attempt was made to remove everything except the submucous and the peritoneal layers." He did not explain how this was accomplished.

Another firm writes that "we understand that the peritoneal covering or sheath is the part that is used."

Schimmelbusch quotes Lister and Halsted to the effect that the mucous, peritoneal, and muscular coats are scraped from the gut, leaving only the submucous layer from which the cords are made.

Senn, in another article, says: "In examining numerous transverse and longitudinal sections of raw *catgut* in the surgical laboratory of Rush Medical College, we had no difficulty in finding remnants of the mucous lining and transverse muscular fibres."

Commercial *catgut* which I examined in like manner at the German Hospital gave similar findings. This is possible on account of the manner of scraping the gut as it comes from the sheep. During this process no attempt is made to have the same surface of the split gut come in contact with the scrapers every time the gut is scraped. An attempt is made to have the gut clean, and the scraping is continued until that result, in the opinion of the manufacturer, has been obtained. If the mucous surface of the gut comes in contact with the scrapers but once or twice during the process, there must necessarily remain remnants of the mucous membrane. Different strands of commercial gut will have

a greater or less number of these remnants of mucous membrane, of muscular tissue, or of peritoneal coat, according to the surfaces that comes in contact with the scrapers during this part of its preparation. This presence of remnants of the various tissues accounts readily for the variability in strength of different strands of catgut of the same size.

The following description of the manufacture of catgut by one who follows that business may be of interest. He says: "The guts are taken immediately after the sheep are slaughtered, stripped, and cleaned, and then taken to my factory. They are again washed out thoroughly, split into strands and scraped through a machine to remove the inside coating, leaving only the inner fibre or gut proper. They are then drawn through rollers containing a set of knives, in order to remove every particle of foreign matter, this is repeated every day for six to eight days, leaving the gut proper absolutely clean, and to take out all the stretch, then the strands are treated in a bath of hydrogen peroxide four to five hours. This removes any and all obnoxious odors, making them aseptic. The further process is taking them from the bath, washing them again thoroughly in several waters, then they are spun or twisted in different sizes of string, according to the thickness required, allowing so many strands to each string; then they are stretched tight on a frame in twenty foot lengths, and when thoroughly dried are polished smooth with pumice stone. Then comes the wiping off and rolling, and the string is ready for the market or for sterilization."

The catgut with which I experimented was prepared in a slightly different manner. The following statements concerning it are based upon knowledge gained from another manufacturer of catgut and from a personal study of the gut before and after it was twisted. Catgut is made from the small intestine of the sheep. After being stripped from its mesentery, the gut is put into cold water to take out all animal heat and to check putrefaction. It is then split into two portions, or flat ribbons, by means of a splitting apparatus, which consists of a blunt pointed piece of wood, round, through which a razor blade has been passed some little distance from the end. The gut is drawn over the tool and is split by the blade into two portions. The split gut is then placed in a tube containing a 1 per cent. solution of sodium bicarbonate. It is taken from the sodium solution and scraped by means of a machine, consisting of a set of rollers which draw the gut between a smooth cylinder, below, and a rapidly revolving paddle wheel, above, the latter revolving in a direction opposite to the movement of the gut. The ends of the blades of the paddle wheel are provided with a more or less flexible flapper, which beats and scrapes the surface of the gut which is uppermost. The gut goes from the scraping machine into fresh sodium solution, this process of scraping and washing in the sodium solution being repeated, generally six or eight times, until the gut is clean. It is then bleached by immersion in a solution, consisting of hydrogen peroxide one third and two thirds water, to which has been added sufficient sodium bicarbonate to make it slightly alkaline, as determined by litmus paper. The solution is

heated to 90° F., and kept at this temperature for about six hours, after which the gut is ready for twisting. It may be preserved practically indefinitely by packing it in salt.

In this stage of its preparation the gut is a very thin strip of tissue varying from a quarter of an inch to three quarters of an inch in width. It naturally rolls on itself on account of its thinness, but can be very readily flattened out. Every strip that I examined was prepared by this method, and every one showed the same structure, namely, a fibrous reticulum, probably the connective tissue of the intestine. All strips were devoid of all recognizable muscle, mucous membrane, or peritonæum. A study of a number of transverse sections of a bundle of these strips and of teased portions of the same viewed on the flat surface showed that the scraping process had been most thorough, and that the gut as presented was clean.

Chemically considered, this gut consists principally of collagen, a substance found in all connective tissue which, upon boiling with water, yields gelatin. In addition there are proteids and albumenoids not convertible into gelatin, a small percentage of fats, resins, waxes, and a still smaller percentage of inorganic matter.

There is a decided adhesive quality in the thin strip which makes it possible to twist almost any number of them into one practically solid string, which can be separated into its component parts only with great difficulty. The various sizes of commercial catgut are made by twisting varying numbers of these thin strips together. Each finished gut must be gaged to determine its size, as the thin strips vary so much in width that it is impossible to judge of the size of the finished product by the number of strips twisted together.

The twisting process of the manufacture of catgut is done by an apparatus, which consists of a stationary hook to which one end of the gut is fastened, and a hook in the centre of a small wheel placed about twenty feet from the fixed hook, to which the other end of the untwisted gut is fastened. The small wheel and its hook are set in motion by means of belting running to a much larger wheel, which is turned by hand. The strips that are to be twisted into the finished product are strung between these two points with enough tension to keep them from sagging. The number of the revolutions of the small wheel and consequently of the hook are determined by the revolutions of the larger wheel. These vary with the number of strips that are to be twisted together.

After the twisting, the catgut is taken from the twisting apparatus and stretched between two fixed points, where it is allowed to dry under tension. After it is thoroughly dried, the surface is more or less rough on account of the inequalities in the original thin strips. The gut is sandpapered while under tension, and again rubbed with very fine emery paper. It is then washed in water to remove any fine dust from the surface of the gut, again dried, gaged, and made into rolls which are found on the market.

Viton strings, the best of which are made in Italy, have generally been considered the best catgut obtainable for ligature material. These strings are highly polished and are very compact. It is

probable that no stronger animal material could be obtained for ligature purposes than this, if it could be used without further preparation. Unfortunately, this is impossible on account of the great danger of conveying pyogenic bacteria to the wound. The gut must be rendered free from germ life. The sterilization of catgut as found on the market, no matter what method be employed, causes marked deterioration in the material. Some methods render the gut practically useless by removing from it most of its tensile strength; others, unless done with the greatest attention to detail, leave the sterile product strong and very weak in various portions of the same strand; others so affect the gut that it will not retain its strength very long after it has been subjected to the treatment. It is reasonable to suppose that any agent which will invade every portion of the hard, firm, polished gut must necessarily remove from the gut some of those qualities which are so essential in a ligature.

In a series of tests made to determine the loss of tensile strength resulting from various methods of sterilization, it was determined that in no instance was the loss less than 20 per cent. on a straight pull, and very often exceeded 30 per cent. Those who sell catgut for surgical purposes have, as a rule, a "qualifying breaking point" for each size of gut. If the gut will withstand the straight pull designated for its particular size, it is said to qualify as to tensile strength. The actual breaking point of gut varies, however, even among strands of the same size. This is markedly so after sterilization of the finished product.

To obtain an ideal ligature it was thought necessary to begin treatment of the gut before it was twisted into the catgut of commerce. If the gut could be impregnated with some antiseptic or germicide before it was twisted, it necessarily would follow that every portion of the gut would be subjected to the action of such chemical. This would give a product which would not only be free from germ life, but would also possess antiseptic or germicidal qualities. It was also thought that gut so treated and firmly twisted afterward would possess greater tensile strength than the sterilized commercial catgut.

The ideal ligature should remain sterile until it has been absorbed or replaced by living tissue. To obtain this quality in the gut, it was necessary to use some form of germicide which would not be absorbed from the gut by the living tissues more rapidly than the gut itself was absorbed or replaced. In other words, it was necessary to place in the gut some chemical which would remain there and retain antiseptic powers as long as the gut remained in the tissues. To obtain this chemical, the field of photography was invaded and advantage taken of the work done in the deposition of silver in the production of a negative. This art depends upon the fact that the halogen salts of silver are so affected by sunlight that their component elements are predisposed to disassociation and thus more readily yield to the influence of reducing agents. When silver iodide, for instance, unless it is chemically pure, is exposed to the light, it is partially decomposed with the production of silver subiodide. This subiodide combines with the unchanged iodide producing a molecular

product is reduced with the elimination of silver, iodide, and various combinations of these elements when brought in contact with a reducing agent. Gildersleeve (reports unpublished) has determined by experiments, made on the guinea pig and the rabbit, that the fluids of the body act as reducing agents, and that they break up the silver iodide.

It was thought that, if the catgut was thoroughly impregnated with silver iodide before it was twisted so that every portion of the gut would be affected, the fluids of the body would gradually come in contact with the silver iodide as the gut was absorbed, and that there would be a continuous elimination of silver, iodine, and the products of these elements, until the last vestige of the gut had disappeared.

To make a practical test of this theory, silver iodide was made by adding potassium iodide to a solution of silver nitrate. These combined to form silver iodide with a byproduct of potassium nitrate. This mixture was washed to remove the nitrate, the silver iodide settling to the bottom of the vessel as a slime, if we may borrow a term from the metallurgists.

Strips of the untwisted gut were thoroughly impregnated with this slime, dried, and tested for tensile strength and sterility, and also for germicidal qualities. The gut was very strong and was generally uniformly sterile. It was not, however, immediately active enough in its germicidal powers. Experiments were made by dipping the twisted gut into solutions of silver nitrate for the purpose of causing a more rapid reduction of the silver iodide. This added somewhat to the germicidal quality of the finished product. Experiments were then made by adding to the silver iodide slime various chemicals in sufficient quantity to make the slime contain 1 to 1,000 of the chemical used. The untwisted gut was impregnated with these various mixtures, twisted, dried, and submitted to the laboratory tests. In every instance the finished product was sterile and had definite germicidal powers.

Experiments were also made by impregnating the untwisted gut with pure silver and also with other chemicals. Ammonium hydrate was added to a 2 per cent. solution of silver nitrate in sufficient quantity to dissolve the precipitate which forms upon the addition of the hydrate to the silver salt. This solution was prepared in a room from which the actinic rays had been cut off. The untwisted gut was immersed in this solution in the dark room, and then exposed to sunlight. This resulted in a reduction of the silver salt with the production of one of the allotropic forms of silver. The gut was then twisted, dried, and tested. It was firm and solid, and answered most satisfactorily all the tests for sterility and germicidal properties.

To determine the sterility and germicidal properties of the gut, laboratory tests were made as follows: Pieces of the finished product were placed in culture tubes containing bouillon or peptone medium and incubated. If the media remained clear, subcultures were made on agar agar slants.

Another series of tests was made by dipping the pieces of the gut into pure twenty-four hour cultures of *Staphylococcus pyogenes aureus*, *Streptococcus pyogenes*, *Bacillus pyocyaneus*, *Bacillus subtilis*, and the *Bacillus anthracis* from which, after varying length of time during which the inoculated

gut was retained in a sterile tube, the pieces were placed in the media and incubated.

A third series of tests was made in which agar agar medium was inoculated with pure growths of the various bacteria used in the tests of the second series, and plated in Petri dishes. As soon as the medium had cooled, pieces of the gut were laid on the surface of the inoculated agar. The dishes were then incubated.

In making these tests no precautions were taken against infecting the gut. It was handled freely in the open, the instruments used in cutting and handling it were not sterilized.

Control or comparative tests were made with commercial catgut sterilized by the cumol method, by the dry heat-alcohol-iodine method, and with so called aseptic commercial gut.

A general summary of the tests made follows: With very few exceptions all samples of the gut which were treated before the gut was twisted were sterile. With few exceptions, the samples of gut dipped in pure cultures of the various organisms used were sterile after having been retained in a sterile tube for twenty-four hours. Many of the pieces of the gut so inoculated were sterile after having been in the sterile tube one hour; a few, after thirty minutes in the sterile tube; a smaller number after fifteen minutes in the sterile tube; and a few gave no growth when dipped in the pure culture and then placed immediately in the medium and incubated. A growth was obtained from the cumol and commercial aseptic gut in every instance.

The Petri dish tests were very interesting. These demonstrated that the silver iodide gut required the presence of a reducing agent before the chemical became markedly active. When gut prepared with the pure silver iodide slime was placed on the inoculated agar, the bacteria in almost every instance grew in contact with the gut. In every instance where another chemical was added to the silver iodide slime there was a distinct zone between the visible colonies and the gut, the size and extent of the zone varying somewhat with the chemicals used. The cumol and aseptic gut gave no zone whatever; the iodine gut gave a clear zone about equalling the formaldehyde silver iodide gut zone.

Tests were made of the medium in the clear zone for the purpose of demonstrating the power of the chemical affecting it. Pieces of the zone agar were transferred to bouillon, well broken up, and incubated. The medium remained sterile, thus showing that the gut had germicidal powers and not merely antiseptic qualities.

In living tissues, the first silver iodide gut made was not very satisfactory on account of mechanical difficulties in making the gut into a solid cord. There was a tendency for the gut to untwist and for some of the silver iodide to wash out. After this mechanical difficulty was overcome the gut was satisfactory in every way, especially those containing other chemicals beside the silver iodide, and in no instance in which it was used in living tissues was there any hindrance, either septic or otherwise, to healing by first intention.

CONCLUSIONS

From the foregoing studies and experiments I would draw the following conclusions:

1. The ideal ligature is obtainable by treating cat-

gut before it has been twisted into a solid cord or string.

2. Catgut treated before it is twisted is much stronger than catgut sterilized after it has been made into a solid cord or string.

3. It is possible to thoroughly impregnate the untwisted gut with a chemical which will become a component part of the catgut when twisted.

4. Silver iodide gut will remain sterile as long as it is retained in the living tissues and will possess germicidal powers until it has been absorbed or replaced by living cells, the fluids of the body breaking up the silver iodide into silver, iodine, and various compounds of these chemicals.

5. It is possible and practicable to produce catgut that is absolutely free from germ life and that has antiseptic and germicidal powers, by treating the gut with various chemicals before it is twisted into a solid string or cord.

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TUBERCULOSIS CLASSES.

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One of the greatest problems which confront every community, large or small, is that of tuberculosis. No fact is more striking to those of us especially interested in this question than the knowledge that under present conditions not more than 10 per cent of all consumptives ever go to hospitals or sanatoria. The great mass of consumptives must be treated in their own homes or not at all. The deed, in many instances it is coming to be considered better to have a consumptive linger in his own home than to send him away to some institution. The limitations of sanatorium treatment are becoming more and more evident. Germany has already reached this, and has means of consumptive relief

Schule—day camps—etc., is trying to cope with the disease without destroying the home life or making too radical a change in the patient's surroundings. England is following suit and in Edinburgh, at the Royal Victoria Dispensary, Philip has an almost ideal system. In France, Calmette and Grancher are leaders in this movement to better home conditions.

What physician has not met with most distressing instances of so called "cured" or "arrested" cases that relapse too soon after their return to their homes and former methods of living, or if they remain well, do so at the expense of a morale utterly shattered and all usefulness as citizens gone? I do not in the least mean to depreciate the need of sanatoria for consumptives, nor do I fail to realize the splendid work that sanatoria are doing, but I do feel strongly that where there can be careful supervision of the patient in his own home, where the patient's intelligence is such (it need not be great) that he will cooperate with the physician in learning how to live, it is far better for him to remain at home and fight the disease as best he may rather than change all this for the very different conditions of a far away institution. Too often the patient returning from some institution finds it utterly impossible to carry out in his own home the ideal methods of living which he has been told at the sanatorium are necessary for his future welfare. Let sanatoria increase and multiply—there will be plenty of poor people who cannot take home treatment—but along with them build up a system by which certain consumptives can be taught how to live in their own homes. How best to do this is the great question.

This problem is being solved in many different ways. New York, with its splendid Board of Health Dispensary, its district nursing and home supervision, is doing wonders; other cities and towns choose modifications of this. In Boston and the surrounding towns we are forming "tuberculosis classes," and we have found them to be an efficient, practical, and cheap means of treating consumptives in their homes. This "class" system of handling tuberculous patients is spreading; the methods used are fairly well known in and around Boston and in eastern Massachusetts, but so many inquiries have come from elsewhere that I have thought it wise to publish the practical details of how such a class is organized and maintained.

In July, 1905, Dr. J. H. Pratt, under the auspices of Emanuel Church of Boston, started the Emanuel Church Tuberculosis Class. This was the first attempt to really treat poor patients in their own homes by means of modern sanatorium methods. This was the first "tuberculosis class," although Dr. Charles L. Minor, of Asheville, N. C., had used a modification of this system with marked success among his private patients for the last fifteen years. Dr. Pratt, however, was the first to apply this home sanatorium method to poor patients. The fact that patients were poor made a very great difference in the outlook and greatly lessened the chances of success. This class has been in existence for two years, and is now in flourishing condition. In 1906, 1907, I formed the Suburban Tuberculosis Classes, to care for patients living at a greater distance than those under Dr. Pratt's care.

There are now three of these suburban classes. The methods used are practically the same in every case. Besides treating patients, our suburban classes have another and more important aim, namely, to stimulate the suburban cities and towns, and even places at a greater distance, to care for their own consumptives instead of sending them into the nearest large city for treatment, in this case Boston. For smaller cities and towns this class system as a nucleus of an active campaign against tuberculosis has proved remarkably satisfactory and practicable. The experience of some of these places in starting this work, how it began and how the campaign was managed, may prove helpful to other places contemplating such a move.

Usually one or two physicians interested in the subject came to Boston and there attended some of the classes and saw exactly what was done; on their



FIG. 1.—Tent properly put up on a roof for the use of a consumptive patient.

return they laid the matter before a meeting of the local medical society, which in turn, in order to get help outside the profession, endeavored to interest some other lay organization, such as a woman's club, a large church, a civic league, etc. A meeting was arranged, speakers provided to talk on tuberculosis, usually some speaker from Boston was present to explain what was being done in that city, and to urge their cooperation. Such meetings as these have always aroused great enthusiasm, and have resulted in a practical start. A committee of ways and means is usually appointed to form an antituberculosis society, or whatever it chooses to call itself, to solicit subscriptions, arrange for a nurse, a meeting place for the class, and to get the services of one or two of the younger practitioners to take charge. There must be hearty cooperation of all charities and charitable institutions, medical or social, and physicians should agree to report all their cases of tuberculosis to the general secretary of the society.

A tuberculosis class consists of a group of consumptives, poor, but not so poor but that each can live at home and attend strictly to the business of getting well. A large degree of intelligence is not needed; the great requisite is courage—backbone—a determination to get well. Intelligence is a big asset, but not a necessary one. Almost any stage of the disease is amenable to class treatment, but to be successful the majority at least must be in

such an early stage that they improve rather than grow worse under careful treatment. The motto of every class should be "a large amount of care for a small number of patients." Compare this with the work usually done in the ordinary tuberculosis dispensary or district nursing association, where an amount of care and nursing, large in the aggregate, is spread over so many patients that the amount given to each individual is small indeed. The limit of any class should be twenty-five. Detailed personal care cannot be given to a larger number than this. If need arises, form a new group, but do not enlarge the membership of any one class. The main features of this method are:

1. The keeping of home records by each patient.
2. Weekly meetings of the class as a whole.
3. Visits in the homes of the patients by a nurse in charge of this work or by volunteer friendly visitors.

1. Home Records.

The home record is simply a diary in a book made for the purpose, where on a page for a day a record of temperature, pulse, and all the details as to food and home life is kept. By means of this record, which is inspected every week, the doctor can keep in close touch with his patients. This is absolutely essential to success.

The chief criticism that has been raised against the home sanatorium treatment, especially that part of it concerned with the keeping of records by the patients themselves, has been that it leads to too much introspection; that this system of jotting down pulse and temperature, of writing down all unfavorable symptoms, will surely make the patient nervous and neurasthenic, and so in the end do more harm than good. It is easy and perhaps natural to offer such criticism, but it is hard to find facts to bear it out.

Charles L. Minor, who first used this method, in a letter to the writer, speaks as follows regarding it:

I was brought to devise this method by finding the difficulty of keeping closely in touch with the patients' lives, even if I saw them often. A day or two later they could not give me an accurate account of their doings; also I failed to know of many occurrences which, while the patients might not think they bore on the case, had, nevertheless, important effects on its course. I have used the method now for about ten years, have had plenty of opportunity to test it, and have inquired, and still carefully inquire, of my patients of its effect on them.

In a few I find it desirable to stop it, these generally being very nervous patients who tend to introspection, but this is a very small percentage; the majority (including many doctors whose personal experience should have extra weight) have assured me that such records have helped them greatly to live strictly, have been interesting to them, and are a large factor in careful teaching of methods of personal living.

After a patient is fully instructed, I generally stop all record of temperature and eating, but may often keep up the life record. It is important to have patients understand that reports of things that affect them mentally, like family worries, love affairs, financial trouble, etc., should be noted, as otherwise they think one only needs a report of physical happenings. Many say it is too much trouble, but that it is important at all though personally it gives me much trouble and many questions.

In my own work, and there have been over two hundred patients who have kept these home records, there has never been any trouble. Careful inquiry has been made of all patients, men, women, and children of all ages, types, and temperaments, and in no case has any one offered objections. Were the disease an incurable one, it would be different, but the majority of patients are getting better, and those who are not are cheered by the sight of others improving. When a patient gets so sick as to be a source of discouragement to others, he is too sick to attend class meetings, and hence has no bad effect.

It requires careful teaching to get these records properly kept, but when well kept the amount of time and trouble they save is enormous, and the accurate insight they give of the patient's home life is a most essential factor in the treatment. The



FIG. 2. Tent used by a patient in the sanatorium.

great trouble with treating tuberculous patients in a dispensary without home records has been and still is that, be as emphatic and as painstaking as you will with patients, even of a high order of intelligence, you cannot find out what they do or do not do at home, nor can they, try as they will, possibly remember. I am absolutely convinced as to the truth of this; and in the opinion of all who have used it this home record keeping is not only an aid, but a necessity.

How the Home Records are kept. Exactly what the keeping of "home records" means has been clearly described in Dr. C. S. Minor's original communication on this subject, as well as in Dr. J. H. Pratt's description of the Emanuel Church Class. To those who have not access to either of those articles a brief description is here given.

The record books are of tough but pliable paper. It is very essential in every case that the books be kept carefully covered and all records written on

milk. The suggestions printed on the cover will help the patient to remember what he is to write, but more can be done by a few minutes' careful instruction than by anything else. A page is for a day. The patient writes his name and the nature of the weather in the places indicated. In the columns for temperature and pulse he puts down his observations as he is told to take them—three or four times a day. In the column marked "food" he should indicate everything that he eats and the time at which he eats it, not merely "breakfast," "dinner," and "supper," but "a glass of milk, bowl of oatmeal, two eggs, cup of coffee, spoonful of oil," etc. The lunches taken between meals must also be recorded as well as the time. Under "notes" he



FIG. 3. Balcony used for sleeping purposes in the poor part of Cambridge. The cost of this was \$11; it was put up by the landlord. This patient has gained over fifty pounds in Dr. Pratt's class.

writes what is suggested in the printed directions; if he is doing well there is little to say, but the total amount of milk and oil, the number of hours out doors, and the amount of sputum raised in twenty-four hours should be put at the bottom of each day's record. If he is not doing so well, the exact nature of the trouble should be specified, such as "slept poorly on account of cough," "had a pain in my side to-day," or "felt tired and discouraged," etc. It should be explained that the rules for exercise apply only when exercise is allowed.

There is danger that the writing of these notes may become a mere routine; some of our children, until we found it out, used to write up their "notes column" for days ahead. This must be carefully guarded against and the reason for writing the details explained to the patient. The great majority of patients, when they realize that this note keeping is purely for their own good, will cooperate splendidly. With the children and the less intelligent, it is well to approach the matter gradually. The first

are keeping a complete record. By doing this the stupidest patient can be made to do what, if given in a mass at first, he would promptly declare to be impossible. To the majority of patients the idea is simple enough and a full record can be kept from the start.

2. Weekly Class Meetings.

A. *How New Patients Are Handled.*—A patient once taken on trial is given a slip with the date and time of the next class meeting written on it, and is told to return on that date. The nature of the treatment is briefly explained, and the patient is shown the reasons for his joining the class and why it is considered the best thing for him to do. In the meantime a visit is made to the patient's home, if possible, and a report is prepared ready for the doctor in charge of the class. On coming to the class meeting the patient's temperature, pulse, and weight are taken by an assistant, a record blank filled out, and the whole placed ready for the doctor, who, on his arrival, explains in some detail what the patient must do and why he must do it. The giving of reasons for what you advise is important, in getting the patient to cooperate with you. The history is taken, a physical examination made and recorded, and weight chart made out. Sputum and chest examinations are made once a month. After the doctor is through with the patient, the nurse or assistant takes him aside and shows him how to take his temperature and pulse, provides him with a thermometer—for which he pays fifty cents—a record book—five cents—shows him how to keep his record, demonstrating by some other patient's book, and how to fill out an outdoor chart. After finding out how much sputum the patient raises in a day, he is given a large bundle of paper napkins, containing a hundred or so, and a bunch of paper bags, for which he pays ten cents, or if he raises a good deal, a bundle of sputum cups, which cost fifty cents, unless all this has already been done. The patient then goes home, to return a week later on the following class day.

The work done at these class meetings in getting a patient well started is but a small part of what must be accomplished; the nurse or volunteer visitor into whose charge the patient is given carries the real burden of attending to details and getting the patient and his family awakened to an understanding of what must be done.

B. *What Is Done at the Regular Class Meetings.*—At the weekly class meetings, the nurse or assistant prepares the room for the clinic, gets out the records, and as each patient appears takes the temperature, pulse, and weight, and records it, with the date, on the patient's daily record book. When the doctor is ready he sees each patient in turn, and looks carefully over his home record of the past week. The patient's hospital record is ready at hand and in it temperature, pulse, and weight are recorded, with a brief summary of the results of the past week, such as "Doing well and gaining weight," or "Appetite poor; has coughed and raised more." If a patient is doing well, the interview is a short one; usually, however, there is some question to be answered, some special difficulty to be overcome, and encouragement given. Among the children, we have a special class for them; it

is hard to maintain discipline, and each weekly interview is a short but emphatic lecture on obedience. This process of going over the details of each patient's case takes a great deal of time, but is well worth the trouble. The patients regard us as their friends, and we soon come to call them by their first names; they talk over the inmost details of their lives, and in most cases confide every worry to us.

3. *Visits in the Homes of Patients by a Nurse or by Volunteer Visitors.*

The great item of expense in maintaining a tuberculosis class as well as its most important feature is some means of visiting the homes of the patients themselves. This can be done either by one paid nurse who devotes her time to this except the morning of the class meeting, or else by means of volunteer visitors. If the money for a nurse is forthcoming, and if a good nurse can be found who enters into the spirit of the work and makes her patients her friends, this is undoubtedly the best arrangement. In Boston, in the suburban classes, both methods are used. Our nurse visits patients in and around Boston, while those at a distance, in other towns and cities, are visited whenever possible by some volunteer living in that neighborhood. Such volunteers can almost always be found if persistent inquiry is made. In every community there are women with time to spare who are anxious to do some kind of practical charitable work. Young society girls, college girls, settlement workers, doctors' wives, nurses, teachers, all kinds of women will help if gotten hold of and told what they are to do. To each volunteer is assigned one or two cases, i. e., members of the class, whom she promises to visit once a week. The use of volunteers for this work has been an entirely new experience and has presented many interesting problems. I feel very strongly that the element of danger may be absolutely eliminated, yet it was fear of the work either on the part of the visitor or her relatives that kept many from helping, who yet expressed a desire to do something of this sort. There are two great qualities most to be desired in a person who does visiting of this kind—perseverance and common sense.

How Much Training is Necessary.—Volunteers constantly ask the question: "How can we do this work without training?" A lack of special training is not an insuperable obstacle. All of our volunteer visitors are practically without previous training. The general nature of the work is first explained to them; then they come to a class meeting and see what is done there, and are told in the greatest detail exactly what is wanted of them. This resulted in so much repetition that I drew up and had printed a pamphlet on this subject: *Visiting the Homes of Poor Consumptives*, and after an oral explanation, a copy of this is given to each volunteer to take home and study. (Part of this is given later.) After this a typewritten list of the patient's name, where each article needed can be obtained, and in what order is given to the volunteer; she is taught how to take pulse and temperature, given the address of the patient assigned to her, and told to go at once and do the best she can. A *Written Report of the First Visit* is given her to fill out if

the patient is a new one; usually a new volunteer is, if possible, assigned to an old patient, and then later, as she becomes accustomed to the work, she is given a new one. We always try to arrange it so that a visitor has a patient in or near the town or part of the city in which she herself lives. The report of the first visit is sent to the class headquarters. This report is a necessarily elaborate affair and, if properly filled out, will give to the doctor a fairly complete idea of the home condition. Later visits are reported on a special blank.

Advantages and Disadvantages of the Use of Volunteer Visitors.—The system of volunteer visitors has some very evident disadvantages. Volunteers are naturally unwilling to take much responsibility; they are bound by no promises or contracts—merely by what attraction the novelty of the work may possess. They are naturally unwilling to be dictated to, and must be taught their work with the greatest patience and tact; and last, they are prone to take vacations from early June to late September.

There are, however, several distinct advantages in the use of volunteer visitors. They are apt to bring something besides technical advice into their work with patients. When they do take hold they give more time and go into greater detail with each case than any nurse can ever do. By assigning not more than two patients to a visitor, we enable her to know her charges personally and to be more of a friend than otherwise would happen; the very fact that volunteers are doing this work constantly aids us in getting more volunteers. Most important of all is the fact that it is an educational process among all classes of people (for each volunteer is sure to talk over her experiences with family and friends), and practical truth about tuberculosis is as much needed among the well to do as among the poor. On the whole, I feel that the use of volunteer visitors under proper supervision and control is an excellent thing and one which I would not willingly give up.

The following pages are the greater part of a pamphlet given to each volunteer visitor:

Visiting in the Home

The first visit is an important one, and there are certain things to be done at this time ahead of the others which to the visitor may seem of equal importance. Let the visitor always bear in mind that both one night and day, here and there, just as well as the fresh air are the things for which she is striving, how to obtain them in the cheapest, simplest, and most practical way is to be her one aim.

The First Visit

1. First get acquainted with the patient and the family simply. Show your position, and let them know that you are not a paid employee, come to the board of health, that you are a friend interested in helping the patient. Do not be too eager to make out patients are doing, but do have in mind your own advice; you are really teaching them to help themselves. It is education and not charity. After making your own position clear and getting acquainted with the person and the family, find out about the financial situation. What is the wage money, and how much must be put away? If the one who is sick is the sole support of the family, and he has no other means of getting money

Does the patient belong to a lodge or benevolent association which only requires a physician's certificate to insure him four or five dollars a week for a number of weeks? Are there married brothers or sisters, relatives or friends, neighbors or church associates who will help? Go into every detail of this subject and write it down in your report. It makes a great difference in your management of the case if you know whether there is a definite supply of funds or whether you must do what you can with little or nothing.

2. Next take up the question of the patient's *giving up work*. Unless you meet with an absolute and definite refusal to do this, or unless you are told by the doctor to make an exception to your rule, accept no compromise. They *must* give up work. Everything depends on it. Unless they do they will surely die; what is getting into debt and questions of pride about receiving help, etc., compared with their own health? Do not mince matters. Speak plainly on this subject. You will doubtless be asked how long they must give up work. Don't make the time too short, or, better still, don't answer this question at all, but let the doctor at the hospital do it. In every case remember that it is months and not weeks, and usually many months. If the patient consents to give up work, find out who is coming to take her place, etc. Remember while you talk that you have your report to fill out, and jot down in a book or in your mind the answers to the questions as they are given in the course of your conversation.

3. Having done this, take up the question of *sleeping outdoors*. Among women especially this question of sleeping outdoors is the hardest one to meet. They will consent to all else but this; they refuse to think of it for a moment, and the word "tent" makes them throw up their hands in horror. There are three or four ways to get fresh air at night. Which of these methods you adopt depends on the patient, the house, and the locality. The decision as to what is best must be made by you. Neither the doctor at the hospital nor the patient can properly decide it. The alternatives are given below in the order of excellence.

(1) A piazza, porch, or balcony on which the bed can be placed. If there is such a thing as this—they are rare—you yourself must decide how best the bed can be arranged and where curtains, screens, or awnings must be placed to obtain the maximum of fresh air and the minimum of exposure, how wind and rain can be kept off, and all such practical questions. Remember that fresh air out of the wind is most desirable, and that in our climate the worst winds are from the north and the northeast.

(2) If there is no piazza or porch, perhaps there is a flat roof. As most of our cases are in the suburbs, flat roofs are not often available, but when a roof can be had it is often a better place for a tent than the yard. If there is a flat roof, is there any way to get to it? If so, go up yourself and see how and where a tent can best be pitched. A board floor is necessary and this is a slight additional expense. You already have a list of what comprises the "outfit," and there you will see that a 7 by 7 wall tent, with poles and an extra roof or "fly," costs \$7.75, the floor about \$5.00 more. If you decide that a tent on the roof is the best thing, show the patient where to put it, what direction to have it face—south or southwest—out of the chimney smoke, and near the stairway. The patient may agree to all this, but make sure that the landlord, who is all powerful, has no objections. Get his name and address and, if possible, see him; if not, write to him and explain things to him. Get his consent and then, if the neighbors object, it makes no difference; they have no voice in it. In deciding whether or not to have a tent on the roof, take into consideration how many flights the patient must climb up and down three times a day to get to his meal. If he lives on the

top floor, well and good; if on the ground floor, it is a serious matter. Tenement dwellers are often very willing to move; if this is thought best, tell them to be sure and get a top floor tenement, or one with a porch, and to select it with the idea of sleeping outdoors.

(3) In the suburban districts a flat roof is rare, but there is often quite a large yard. Here, if there is no suitable porch or piazza, a tent can be put up; usually the best location is on the south side of the house, protected as much as possible from the street and the wind. A board floor is needed here also, which should be at least four inches off the ground; if the cracks are left wide, so much the better. High or sloping ground should be selected, so that the rain will not collect under the floor.

There is a right way and a wrong way to put up a tent. In the first place, be sure that it opens at both ends, and do not let either end be fastened down tight. The sides also, except possibly at the four corners, should be left loose, and tapes arranged so that they can be tied up, while hooks or nails in the ends of the floor boards can be used to fasten the sides down in case of rain. The patient must be instructed in all these details. A tent tightly closed down is as poorly ventilated as many a hall bedroom, while one properly arranged is a nearly ideal sleeping place. The fly should not touch the tent roof at any place, except along the ridge pole; the ropes should be kept taut except during rain, when they should be loosened. In all clear weather the sides should be up and both ends open all the time; in very windy weather one end and one side may have to be fastened down.

Of course these are not the only methods of sleeping outdoors, but they are the cheapest. Some patients have sheds of various kinds or will put up shacks, but such people are so very rare as hardly to deserve mention. If the bedroom has three or four windows it will serve every purpose in most cases where there is serious objection to sleeping outdoors.

You have come provided with a record book, thermometer, sputum cups, paper bags, and napkins. Explain to the patient and the family how these are to be used. First, as to the record book. This should be covered and the records written in ink. The details of how to keep the records have been elsewhere explained. Show the patient how to read the thermometer and how to shake it down and keep it clean; remind him that a temperature taken after a hot drink of any kind will always be high and that this must be guarded against. Explain how to take the pulse either at the wrist or at the heart. All of this is a troublesome task, often quite as difficult for the visitor as for the patient. The thermometers should be of the nonmagnifying variety. Pulse and temperature are to be taken four times a day and at once entered in the book. Last of all, explain about the sputum cups, the paper bags, and napkins. If the patient is raising a good deal, half a cup a day, a sputum cup is best; if less than this, the paper napkins will do. The sputum cups or the bags containing the used napkins must be burned every day. No napkin should be used more than two or three times. They are not expensive.

The need of cleanliness cannot be too strongly emphasized. Hands and face must be washed before each meal and oftener if they become soiled. There should be separate eating utensils and dishes marked with a string. Sheets, etc., must be boiled, and blankets and spreads hung out in the sunlight part of every day. If it is known that other phthisical cases have been in the house before, the floors should be scrubbed, the carpets removed, and the walls and ceilings carefully washed, or, if possible, the house should be fumigated. This the local board of health will generally do.

As to food. First find out if the patient has lost much weight. It is evident that in a well nourished

individual who has lost little or no weight the importance of increased food is very much less than in the case of a weak and emaciated person. Find out what the patient's habits are as regards food—amount and kinds. No one food is a specific, but some foods are better than others because they are cheaper and more easily absorbed. The days of codliver oil are passed. Its place is now taken by olive oil, which contains just as much nourishment, is pleasanter to take, and is cheaper. This is given in every case, a tablespoonful after meals, three times a day. It can be taken clear or its taste disguised by lemon juice or vinegar. It will prove of great benefit not only as a food, but as one of the best remedies that we know for disorders of the stomach and intestines, especially for constipation. Where every item of expense must be carefully considered, cotton seed oil can be taken instead. This does not taste so good, but is cheaper. Men often do not seem to mind it.

Next as to milk and eggs. These are both of the greatest value, but milk is cheaper. In the country, where both are good, plentiful, and cheap, the patient can take his choice. It takes eight eggs to equal a quart of milk in nourishment; eight eggs cost about twenty-five cents and the quart of milk about ten. In either case, whether milk or eggs is used as the basis of the forced feeding, drive home the fact that all of this extra food is to be taken in *addition* to three regular meals a day. The quart and a half of milk or the dozen eggs is *not* to be in place of any meal. Give definite figures whenever you can. Start the patient on a quart of milk a day, to be taken at frequent intervals, a glass the first thing in the morning—hot, if possible—one with breakfast, one at eleven, one with dinner, one at four in the afternoon, one at supper, and one just before going to bed. The milk may be taken in any form and its taste disguised in any way that is thought best. For this end tea, coffee, cocoa, eggs, custard, junket, vanilla, etc., can all be used. The milk may be taken alone or with bread, crackers, etc. It is the amount that counts.

Very frequently patients will say that they cannot eat; they have no appetite, and the sight of food makes them sick. Be *very emphatic* on this point. Appetite has nothing to do with it. The less they eat the weaker they become and the worse their appetite is; make them eat more and they will grow stronger, and their desire for food will increase. As long as the food stays down it is all right. At first, until their stomachs get accustomed to the change, they must expect to have a certain amount of discomfort and distress, but this in a short time will all disappear. Ordinary baking soda in teaspoonful doses after meals will help this; fruit, especially sour fruit, will enable the stomach to do better work, and a dose of Epsom salts or some other active cathartic taken once a week is a valuable adjunct. These complications must be met as they arise. It is not necessary to go over all this on the first visit, but the facts should be borne in mind.

Last, the question of *rest during the day*. This means *absolute rest*, except for sitting up at the table at meals. Patients are not to jump up to tend the fire or care for the baby. This rule must be strictly obeyed. If they have no good, comfortable reclining chair in which they can lie flat, order a steamer chair for them. This costs about two dollars. A Morris chair will not do, nor will a rocking chair. The patient should choose some sunny spot where he can sit every day protected from the wind, and, if possible, from the rain. Many will say that they cannot possibly do this, that they must move around, and that it will kill them to sit still so much. We are all creatures of habit, however, and in a week's time the most nervous temperament will be accustomed to the enforced idleness. It has been done and is being done by others all over the world, though

it takes patience and perseverance for a time. With enough wraps to feel warm and comfortable, the patient should sit in his chair from breakfast to dinner, from dinner to supper, and after supper till it is time to go to bed, which should be early, not later than nine o'clock.

Rest in the reclining position in the open air is one of the most important features of this treatment. The patient can read if he chooses, but he is not to do any kind of work. His lunches in the middle of the morning and in the afternoons must be brought to him. In other words, the minimum amount of exercise must be taken until, with the doctor's permission, a definite amount is allowed.

During the summer months, sleeping and sitting out of doors is not difficult; in the winter it takes careful training to show these people that it is possible to do this and still be warm and comfortable. Oftentimes two blankets sewed so as to form a bag are more effective than two separate ones. Hot water bottles and hot bricks may have to be used; thick underwear, thick socks, coarse and cheap, a hood or a cap to pull down over the ears, all have their place. The mattresses used by the poor are thin and easily let the cold through. To prevent this, a thick layer of newspapers under the mattress, or a blanket between mattress and sheet, will do more than a great number of blankets piled on top.

The first visit is one in which to look over the ground and lay out a plan of campaign for the future. Have a definite and orderly sequence of events in your mind, and do not let yourself be led astray by questions and voluntary information on the part of the patient. In each of the later visits try to see that some one thing is done, if only to make the patient agree to come into the next class meeting, for there the force of example is powerful, and sometimes the most intractable patient can be persuaded to eat, sleep, and rest properly when he sees that others are doing it.

Summary.

1. Get acquainted with the family.
2. Find out the financial condition and the patient's resources.
3. Come to a decision about his giving up work and find out who is to do the work.
4. Decide about sleeping outdoors and how this may best be done.
5. Make out the nurse's report.
6. Explain to him how to use the sputum cups, paper napkins, bags, and thermometer, how to take the pulse, and to keep the record.
7. Start the patient on olive or cottonseed oil, and on at least a quart of milk daily, in addition to his three regular meals.
8. Explain the necessity of sitting quiet out of doors during the day. See that he does it.
9. Make the patients agree to show up at the next class meeting.

These are the most important things to be done. Perplexing complications will constantly be arising, to be met as best they may. It takes a large amount of patience and perseverance under very trying conditions, but the results are worth it.

Every volunteer makes one visit a week for a time, which varies according to the condition and intelligence of the patient. Later, as the patient improves, a visit is required only once in ten days or two weeks. Every patient must be definitely impressed with the fact that he is to attend the weekly class *regularly*; that he is to obey directions *implicitly*, that nothing unreasonable will be asked of him.

Cost of Maintaining the Class—We tried at first

the system of having each patient pay \$2.00 a month, so that the treatment would not be entirely a charity. This fee has been discontinued, however, as even this amount has proved too much of a burden to most of the patients. They do, however, in most cases pay for the cost of their outfit, which if gotten entire may cost from \$15 to \$20; usually, however, only a small part of the entire outfit has to be bought by the patients.

The largest single item of expense to us, except the nurse's salary, is the record books, which cost \$24.50 per 500.

Plates for weight charts and outdoor charts have been made, and the printing of these charts is a

perature is above 99.5°. None if blood in sputum. None if loss of weight. None if fast pulse. Never get out of breath. Never get tired. Never run. Never lift heavy weights. Go SLOWLY. Exercise, if allowed, should be done regularly and systematically, whether rain or shine. Remember always that you will have to return. Rest one hour before and after meals. No hills without special permission. Never to point of fatigue (always stop before you are tired).

Tin tub, sponge, salt, bath thermometer; nonmagnifying clinical thermometer, reclining chair, wraps.

These directions are printed on the inside of the cover of each home record book, and help to remind the patient what to put down.

SPECIMEN OF CARD TO BE FILLED OUT FOR EACH PATIENT.

NATURE OF WEATHER— <i>Cloudy</i>			
NAME— <i>J. R. S.</i>		DATE— <i>Sept 7/06</i>	
TIME	PULSE	TEMP	FOOD
<i>7am</i>			<i>Butter & milk</i>
			<i>Chops</i>
			<i>Chops</i>
			<i>Bread & Butter</i>
			<i>Gravy</i>
			<i>Chops & coffee</i>
			<i>Gravy & milk</i>
<i>8am 82° 98</i>			
<i>10am</i>			<i>Egg & milk</i>
			<i>Chops</i>
<i>12m 86° 97° 6</i>			<i>Butter & milk</i>
			<i>Chops & milk</i>
			<i>Butter & milk</i>
			<i>Gravy</i>
			<i>Chops & milk</i>
			<i>Butter & milk</i>
			<i>Gravy & milk</i>
<i>1pm 87° 97° 1/2</i>			
<i>3pm</i>			<i>Chops & milk</i>
			<i>Butter & milk</i>
			<i>Gravy</i>
			<i>Butter & milk</i>
			<i>Chops & milk</i>
<i>8pm 80° 98</i>			
<i>9pm</i>			<i>Chops & milk</i>

Name
Address
Former Address
Wife or Husband
Children
Names, ages, birthdays, health, school or occupation
Relatives
Address, occupation, social and financial condition
Church (Pastor)
Occupation, wages, rent, hours of work, capacity for work
Employer, address
Benefit Association, Trade Union, Insurance
References, Landlord, Address, Previous Physician
Settlement, Pension
Local Charitable Agencies from whom aid might be obtained in case of need

One of these is given to each volunteer to help her remember certain questions to be asked.

Nurse's Report of First Visit.

This is made out in full as in this specimen, giving every detail. It is then given to the doctor before he sees the patient. It thus enables him to get a fairly clear idea of the exact home conditions in any given case. Subsequent visits are reported on another blank, shown later.

The following is a report filled out by a volunteer visitor on one of our patients. One of these is made out after each visit and sent in to the class headquarters, where essential points are copied in the record:

SUBURBAN TUBERCULOUS CLASS.

Report of last visit at the home of: *Louise L.*

On *August 22nd* by: *K. F.*

T. 98° P.

Is the patient carrying out the treatment? *Yes.*
If not, what seems to you to be the greatest difficulty?
Does the patient sleep out of doors? *Yes.*
Tent? *Yes.* Piazza? *Window tent?* Indoors?
How many hours on the average are spent outdoors each day? *10.*
How much milk is taken each day? *Two quarts.* How much oil? *Three tablespoonfuls.*
Are the meals good sized ones? *Fairly, and four eggs are taken daily besides the milk.*
Is the patient careful about sputum? *Yes.* Sputum cup? *Paper napkins?*
Do the patient and his family and surroundings seem clean? *Yes.*
Does the patient seem contented? *Yes.*
If taking any exercise, how does it affect the patient? *No exercise.*
If the patient is working, how much and what kind of work does he do? *No.*
General remarks:

(Reduced to one-half size. The original is five inches wide and seven inches and a half long.)

small item, \$3.25 per 500. Nurses' reports of both kinds cost also \$3.25 per 500. The use of a room in the Massachusetts General Hospital is given us, and we have no other large items of expense except for the salary of a visiting nurse.

SUBURBAN TUBERCULOSIS CLASS.

Make note in diary of appetite, amount of milk taken, digestion, sleep, spirits, cough (amount, chief time, nature); expectoration (amount in twenty-four hours, color, consistence); sweats, strength, exercise, hours out of doors, time walked, cold bath, temperature, pulse, visitors, amusements.

RULES FOR EXERCISE.

Exercise means walking; special permission must be obtained before indulging in other forms of exercise. None if ten

NURSE'S REPORT.		NURSE'S REPORT OF FIRST VISIT.		HISTORY NO.		PLACE AND DATE OF APPLICATION.	
NAME.	E. S. P.	ADDRESS.	AGE.	AGE.	PLACE AND DATE OF APPLICATION.	PLACE AND DATE OF APPLICATION.	PLACE AND DATE OF APPLICATION.
N. M.		5 D Street, Arlington.	Eighteen years on July 15, 1906).				
HOUSE.		STORIES.	NUMBER OF ROOMS.		OCCUPIES.		FLAT ROOM.
Double house, standing apart. Two stories and pitch-roof. End to street. Faces northwest.		attic.	Twelve.		Six (four chambers, kitchen, parlor).		No.
BALCONY.		YARD.	LOCALITY.		DEST.		SUNLIGHT.
No. Two piazzas, but neither good for sleeping purposes.		Good size at back and side of house.	Pleasant. Small, quiet street.		Very little.		Plenty.
SANITARY CONDITIONS.		LENGTH OF TIME IN PRESENT LOCATION.			RECORD OF OTHER CASES.		
Good, except for a stream some hundred feet from back of house. Well in back yard.		Two years.			A sister died in May in room now occupied by patient.		
PATIENT'S ROOM.		BATHROOM.			NUMBER IN FAMILY.		
Good sized and airy, with afternoon sunshine. Two windows, one northwest window.		None in house. Water closet in barn some fifty feet from house.			Eight: father, mother, patient, girl of fifteen, three little boys, girl of one year.		
FINANCIAL CONDITION.		OCCUPATION.			HABITS.		
Father a farmer, who works on his father's farm near by, earning \$10 weekly.		Patient has worked in a box factory.					
PERSONAL OF NUTRITION.		INTELLIGENCE OF PATIENT.			DIET, WITH AMOUNT OF MILK TAKEN.		
Uses paper napkins.		Ordinary amount.			Three meals a day, two quarts milk and three eggs.		
FAMILY HISTORY.					PERSONAL HISTORY.		
Father and mother both healthy and some of healthy people.					Has been delicate for last two years. Was strong as child, but had a good many illnesses.		
Grandfather in family till the sister's case, which mother feels was brought on by neglected health.							
DATE OF JOINING CLASS.		DATE OF NURSE'S FIRST VISIT.			TIME SPENT.		
		July 6, 1906.			One and one-quarter hours.		
REMARKS.					IMPROVEMENTS SUGGESTED.		
Patient says at first she has decided to give up the treatment. Feels better and does not think it necessary to go on. She finally promises to make a new beginning to-morrow. Inclined to lack perseverance, and though mother is anxious to have her follow rules, she does not seem to be able to make her do so. Patient can have plenty of milk and eggs, as they have hens and milk from grandfather's farm.					Patient at present sleeping in same bed as sister of fifteen. Visitor will see father on Sunday and plan with him, if possible, to have patient sleep out of doors. Dead sister's room has been thoroughly cleaned, except paper, which was only put on a few weeks before she died.		

The patient is eating rather larger meals, and seems to have a rather better appetite.

She has been using the sputum cups, but her stock has been out since Monday.

She uses cloths and burns them, but means to get a new outfit; she hopes to use napkins at the class meeting on Thursday. She is generally pretty well, but rather pulled down by an attack of diarrhæa, which lasted for two or three days.

The Outfit.

To each volunteer is given a printed list of what comprises the outfit, with prices of each article and place where it can be bought. Most of these firms make special prices to us. The list is here given in full:

1. Steamer chair.....	\$1.75
2. Tent	7.25
3. Clinical thermometer.....	.50
4. Bath thermometer.....	.25
5. Olive oil, 2 quart can.....	1.20
or cottonseed oil.	
6. Paper bags (500).....	.75
7. Paper napkins (1,000).....	1.00
Daily record book.	
Nurses' reports.	

Suggestions

1. Pillows for steamer chair.	
2. Rug or heavy blankets.	
3. Nightcap.	
4. Woolen socks.	
5. Woolen gloves.	
6. Woolen night clothes.	
7. Cot bed.....	\$1.50
8. Mattress	1.50
9. Blanket	2.00
10. Sputum cup, with six paper holders. Extra paper holders in packages of 24.....	.50

In the preceding pages I have tried to give the practical details of a tuberculosis class as conducted in Boston. Sample books, report blanks, charts, etc., will gladly be sent on application, and any information given to the best of my ability. It is the opinion of all those who have worked in these classes that this is a practical system of very definite value, especially to smaller cities and towns. The municipal hospital being built in Boston has adopted this

method for its dispensary, as have many other places. It is not an ideal system, and, like any other movement, can usually be improved to meet new conditions. It requires patience, tact, hard work, and a strong personal interest, but it will help in this tuberculosis problem and the knowledge that it will do this is my excuse for giving these details thus at length.

295 BEACON STREET.

MOVABLE KIDNEY IN THE GENESIS OF BILE DUCT DISEASE.*

By A. ERNEST GALLANT, M. D.
New York.

Obstruction, from any cause, to the free outflow of the product of any one of the secreting or excreting organs of the animal body will result in retention and stasis, favoring bacterial development, followed by absorption of toxins, precipitation of solids, overdistention, ulceration, perforation, peritonitis, surgical puncture, and occasionally death.

The urologist is most frequently confronted by this sort of thing as the result of ureteral kinks and inflammatory bands, due to kidney dislocation, involving the urinary tract in ways with which we are all thoroughly familiar. Can the same be said of the relation between the urinary and biliary tracts and the part played by the kidney in the inception of jaundice, gallstones, etc.? The liver has oftentimes been accused of dislodging the kidney, what may be said of the kidney in distending the liver?

CASE I.—My attention was first directed to the coincidence of movable kidney and the gallbladder by a patient referred by Dr. William Neer, of Paterson, N. J. Mrs. E. T., aged thirty-three, multipara. Patient stated on January 24, 1893, that two weeks ago she had suffered from pain in the back below the right shoulder blade, and in the region of the gallbladder. Examination showed the right kidney palpable three centimetres below the chondral border, enlarged and tender, but replaceable. The gallbladder was not palpable; nor was any jaundice present. She was fitted with a corset, and had no further attacks up to November.

* Read at the annual meeting of the American Urological Association, June 4, 1907, Atlantic City, N. J.

ber 7, 1898, when she was found to be pregnant, and was "lost to sight," though, as the first to direct my attention to this phase of the subject, she is still to "memory dear."

During the following year several cases were seen in which jaundice was associated with prolapsed kidney, and relieved by wearing a corset; but it was not until November, 1900, that the writer was brought to realize how serious a jaundice could be induced by traction or pressure of a movable kidney on the bile ducts, as recorded in the *American Journal of Obstetrics*, ii, p. 86, 1901, a case of recurrent jaundice, diagnosed by Dr. Delafield and Dr. Bull as gallstones; jaundice was too severe to warrant operation at that time; but patient was later cured by posture and the wearing of a corset, with but one slight attack during the past seven years. Several cases of the same type have been cured by the same means, and this paper is for the purpose of directing your attention to dislocated kidney as the primary cause of biliary obstruction and the inception of cholecystectasia, cholecystitis, cholangitis, and their unwelcome sequelæ. It does not require a long stretch of imagination to understand how adhesions may constrict the biliary passages; how a neoplasm by pressure or growth within the ducts may interfere with the bile current; or a calculus within the cystic or common ducts or the ampulla of Vater obstruct the outflow of bile; but, in the language of Moynahan, "much has been written and but little known as to the first cause of the first stage in the development of duct disease of the biliary tract.

In the absence of a more reasonable explanation of the inception of cholecystitis, etc., and in view of the experience of the past seven years in the treatment of these cases, we have been led to attribute the genesis of this disease to traction by a more or less movable kidney on the cystic or common ducts, and in substantiation thereof would offer for your consideration the following data:

The Class of Cases.—Cholecystitis, with or without jaundice, is most commonly met with among the same types of women as those in whom we most frequently find dislocated kidney.

The Attacks.—The onset of the trouble is usually in the form of a so called "bilious" attack, characterized by sick headache, indigestion, epigastric pain, bloating, nausea, vomiting, making the patient feel wretchedly enough to be glad to lie down and in a short time go to sleep. The horizontal posture allows the kidney to recede enough to relieve the tension on the ducts, puts an end to the biliary obstruction, and for the time being to the attack.

The Course of the Disease.—Subsequently these attacks recur, but with increasing severity, longer duration, greater frequency—usually designated Dietl's crises. With all these features, and in addition, there is added severe pain extending from the epigastrium or hypochondrium through to the tip of the right scapula, of a boring character, frequently severe enough to require liberal doses of morphine to afford relief, which is rarely secured until the patient lies down and falls asleep. The next morning she may be able to get about, or on sitting up or semireclining the same symptoms may be repeated, sometimes day after day for weeks, or at infrequent intervals, but each one progressively

worse, as the bile tract becomes more seriously involved.

The Examination.—Examination in the semireclining or standing posture shows a considerable mass at the right chondral border, which may be the lower inch or two of an enlarged kidney, adherent, or partially replaceable; or in front may be the distended gallbladder, which can be emptied by gradual, firm pressure (almost pathognomonic); or the elongated edge of the liver may project in front of and over the kidney and obscure its contour. The kidney is usually very tender, the rectus rigid; the conjunctiva of a bilious hue, the skin may be tinged or deeply stained, and bile pigment can be found in the urine. If the attack has lasted several days the stools will be light or clay colored, but transient attacks do not discolor the feces. The gallbladder may or may not be palpable (distended); hydronephrosis is but rarely present.

Operative Findings.—Lilienthal, in 1896, called attention to "the important fact that a swollen gallbladder may exist without liver or gallbladder disease, and emphasizes the necessity for guarded diagnosis even in cases which may look plain at first sight." Richardson in fifty-nine operations on the gallbladder reports ten cases of acute cholecystitis without any known reason, and with no gallstones present. Johnston, Fenwick, Treves, Holmes, Delaney, and others found that the pressure or traction of the kidney on the bile ducts was the only assignable reason for recurrent attacks of typical "gallstone" disease, which did not recur after the kidney had been sutured. The cystic duct has frequently been found occluded by stone and enormously distended, yet intermittent jaundice prevailed without any evidence of common duct obstruction by a supposed stone which was thought to have escaped into the bowel and was but rarely found in the stools. Lilienthal admits that it has seemed to him far from rare to hear of pain, in some instances quite severe, after almost any operation for gallstones; and in two instances colic and jaundice (Cases XXIII and XXVIII, *Annals of Surgery*, July 1904, pp. 62 and 67) followed after complete removal of the gallbladder, no stones being found in the stools.

It is of interest to note that in all cases, so far recorded, which have been operated on for the removal of biliary calculi, without gallstones being found, and the jaundice attributed to mobile kidney, have occurred in female patients.

Post Mortem Observations.—Byron Robinson (*Abdominal Brain*, p. 594, 1906) tells us that the perirenal areolar tissue binds the kidney to the diaphragm and at the upper renal pole it fuses with the meshepaticon on the right side, while on the left side the perirenal tissue fuses with the suspensory ligament of the spleen and coronary ligament.

The kidney may be extended distal (down) to the liver, when its peritoneal and subperitoneal tissue connections may produce traction on the biliary passages, flexing and obstructing them. In one subject Robinson found a peritoneal band extending from the kidney to the ductus choledochus communis. These findings substantiate in part at least the statements of Weixner, Linder, and Landau, that traction of the displaced kidney on the

hepatorenal ligament can and does cause obstruction of the bile ducts, and frequently jaundice.

To this view J. Hutchinson, Jr. (*Practitioner*, xv, pp. 186-194, London, 1902), takes exception and offers the following factors to explain the occurrence of obstructive jaundice with floating kidney: (1) Downward displacement of the third part of the duodenum, with stretching of the common bile duct; (2) displacement of the gallbladder and sharp kinking of the cystic duct; (3) torsion of the third part of the duodenum and perhaps of even the bile duct; and yet he admits "that floating kidney by itself and without intervention of gallstones may produce severe cholecystitis, and obliteration of the gallbladder is a fact proved by one of the cases to be (by him) narrated, and it is, I think, a fact which is not generally admitted by physicians. . . . At any rate, the connection between floating and misplaced kidney with biliary obstruction is an important one, and in order that treatment may be properly directed it deserves to be borne in mind." The "probability" of Mayo Robson must ere long become a certainty; and the importance of recognizing this condition, before stasis and stone formation has begun must be appreciated.

CASE II.—Roosevelt Out Patient Department. Mrs. M. McK., thirty years of age, married eleven years, tertipara; for three to four months has had pain of cramp like nature in the lower scapular region and right side. Abdomen was distended; she belched gas, suffered from indigestion, and at times from epigastric pain. Examination on March 15, 1900, showed the right kidney palpable for two inches, with much tenderness in hypochondrium. Diagnosis: Gallstone colic vs. movable kidney. Treatment: For a time she wore an abdominal binder and later was fitted with a special corset, which gave relief from all symptoms.

CASE III.—Mrs. S. S., twenty-seven years of age, married four years, no children, weighing 115 pounds; referred by Dr. Roy Inglis, Jersey City, N. J. Last May her liver had been enlarged, with marked jaundice, and said to be due to gallstones. At this time (January 12, 1900) she was suffering with pain in the lower scapular and sacral region, and along the right loin; much backache; patient was very irritable and nervous; also annoyed by regurgitation of gas. Examination showed the liver somewhat enlarged; the right kidney palpable ten cm. below the costal border, not wholly replaceable. Diagnosis: Jaundice due to kidney prolapse. Treatment: Corset.

CASE IV.—Mrs. V., multipara, seen in consultation with Dr. T. F. Kelly, November 18, 1902; had been suffering from pain at the end of the scapula, and suffered from nausea and vomiting, for several days. Examination showed the right kidney, 3 by 6 inches, five inches below the chondral border, the hilum directed almost anteriorly, but could not be wholly replaced on account of its large size. The abdominal wall was moderately fat, very lax, with epigastric flat-tening. The lower border of the stomach was one and one half inches below the umbilicus. A heavy bandage was adjusted, the foot of the bed elevated, and in a few days the jaundice disappeared. She has worn a special corset ever since, without any more attacks.

CASE V.—Mrs. E. W., twenty-two years of age, one child, five months old. Patient was seen in consultation for Dr. S. F. Brothers. She complained of burning in her chest and right side; could not lie down, must sit up doubled on herself. She had been ill for the past four months, skin had been jaundiced one week. Examination: January 20, 1904, the right kidney was found half way below the border of the ribs, palpation

caused pain at the sternal junction of the fourth rib on the right of the same nature as she experienced during an attack; lower border of the stomach was two inches below the umbilicus. Diagnosis: Jaundice due to post partum kidney prolapse. Treatment: Rose's plaster applied. February 15th, five days ago, she had had a severe attack with nausea and vomiting, and pain in the gallbladder region, so severe at 2 a. m. as to require morphine. This attack was due to loosening of the plaster, which was reapplied the next day; in spite of which she had another attack the next night, coming on very suddenly, and vomited six times, though she was in bed most of the time up to March 27th, when the corset was put on, which has been worn ever since without any more attacks (*New York Medical Journal*, April 25, 1905).

CASE VI.—Mrs. A. D., tertipara, last child three weeks old, seen in consultation for Dr. E. V. Hubbard, December 15, 1904. Since the baby was born she had experienced almost daily chills, sweats, fever, flushing of the face, a belt sensation at the waist, dragging at the navel, pain in the back and sacral, right iliac, and pelvic regions, and umbilical areas, which came and went. Patient was extremely nervous, apprehensive, and despondent. Examination: Skin and conjunctiva were found to be tinged; abdomen was distended, omental umbilical hernia, right kidney was prolapsed, and had swung toward the navel; it was replaceable; lower border of stomach was located below the umbilicus; uterus was displaced to the left; there were protruding internal hemorrhoids; aciduria. Diagnosis: Post partum malaria, with jaundice due to prolapsed right kidney. Treatment: The mechanical part of the treatment consisted in reduction of the hernia and application of a flat pad over the opening, held in place by a rubber plaster (*International Clinics*, ii, 16 series, 1906); Rose's plaster strapping to the abdomen after postural replacement; and appropriate drugs, diet, etc. But it was some months before she regained her health, in spite of the abdominal support of a corset which she said she could not live without.

CASE VII.—Mrs. M. E., forty years, secundipara, last child nine years ago, referred by Dr. J. Hartranft, Southold, L. I. During the past four years, on an average of once every six weeks she suffered an attack of very severe pain in the right hypochondrium, extending toward the navel, was sick at the stomach, and vomited; her right side was enlarged and was very hard. After loosening her clothes and lying down the attack passed away, and the next morning she was all right again. Examination: Height, 5 feet 3 inches; weight, 171 pounds; waist, 32½ inches; hips, 45 inches; abdominal projection on level with the anterior superior spines, 4¾ inches; the greater curvature of the stomach lay chiefly in the right iliac fossa; the lower pole of the right kidney was on a level with the anterior spine. Conjunctiva was bile stained. Diagnosis: Diet's crises, due to prolapsed kidney; gastrectasia; lacerated perinaum. A special corset was put on February 12th, and a tablespoonful of bran taken each night. All went well until April 8th, when in the afternoon she was taken with violent pain in the right back and loin of a neuralgic character, requiring morphine. The pain eased up the next day, but came back on the third day with fever 100.6° F., pulse 90. The bowels moved freely, but there were two chills during the day, temperature still 100.6° F., pulse 90, and she was feeling much better. Her skin was decidedly mottled, the kidney projecting half way under the chondral border, large and tender, replaceable; gallbladder was not felt. Diagnosis: Cholecystitis with gallstones, due to prolapsed kidney. Treatment: The bed was elevated at the foot, salines ordered. Her brother recently told me there had been no recurrence.

since, in spite of her occupation, which is that of a teacher.

CASE VIII.—Mrs. F., sixty-eight years, seen with Dr. H. L. Moss, Richmond Hill, L. I., on May 2, 1906. For the past two weeks she had had trouble with her urine, which had been dark and bile stained. For four years there had been a bad feeling in the right side, as if her liver was down, with tenderness to the right of the navel. Her skin was at this time markedly pigmented; a cystic mass the gallbladder presented just below the border of the ribs, and the kidney, enlarged and tender, could be palpated for two inches of its lower pole, was adherent and could not be replaced. Diagnosis: Cholecystectasia with gallstones induced by kidney prolapse. Treatment: Elevation of foot of the bed, a very snug abdominal binder was applied; salines and water were given every two hours. In view of the severity of the jaundice she was advised to have an operation later; but the wearing of the binder prevented any further attacks, and she had been satisfied to let well enough alone.

CASE IX.—Mrs. G., quintapara; seen with Dr. C. C. Miles, Greenport, L. I. Ever since the birth of her last baby, one year ago, she had suffered from attacks of pain in the right hypochondrium, with a feeling of being puffed up and for four hour periods as if she was going to be unwell; relieved only by loosening her clothing and lying down. One attack, August 9th, another on the 14th. She was very nervous, but had never noticed any jaundice. She could not fall asleep. Examination: Transverse colon low down; caput coli displaced inward, tender appendix not palpable. Lesser curvature of the stomach was 2 inches below the xiphoid, greater curve 2 inches above the symphysis; there was succussion sound at the umbilicus. Free edge of the liver was one inch below chondral border, gallbladder projected, and was very tender; right kidney was palpable one and a half inches, and adherent. Treatment: A pattern was cut out for a "stock" binder to be worn until a corset could be made, but this had been so satisfactory that she is still wearing it (*Journal of the American Medical Association*, xlvii, p. 1357, October 6, 1906). Operation was advised if fever came on with an attack.

CASE X.—Mrs. J. W., fifty-six years of age, sextapara; youngest child, twenty years old; referred by Dr. B. D. Skinner, Greenport, L. I. About three weeks after the birth of her last child she had had an attack of vomiting, some fever, and very severe pain in the right hypochondrium, requiring morphine. These attacks came on suddenly, the abdomen swelled up, and the discomfort could only be relieved by loosening the clothing. The eating of rich food seemed to bring on an attack, and there had been on the average one or more a year. During the past five weeks she had had four attacks, coming on suddenly, with fullness and pain in the epigastrium, free vomiting of a green matter, and a cold feeling. The pain left suddenly, but during the attack she could not lie down, as it aggravated the pain. Her skin had been jaundiced during the past four weeks, and the urine was saffron color. Dr. Skinner diagnosed gallstones thirteen years ago, but none were ever looked for in the stools. Last attack was two days ago. April 18, 1907: Examination showed the right kidney was down 3 inches, enlarged to $4\frac{1}{2}$ inches, partially replaceable; the greater curvature reached 2 inches below the umbilicus. Diagnosis: Retention in the cystic duct due to kidney traction. Treatment: A special corset was put on May 7th, readjusted after some alterations on the 14th, and her son reported that she was the happiest woman on Long Island. As she was a very stout woman the quantity of fat and lax abdominal wall with the dilated stomach, which was elevated by the corset, was so great as to hang over the top of the corset.

The Corset.—This must be made to order, of fashionable design, fitting very tightly over the hips and suprapubic area, gracefully curving in at the waist and with ample room above the waist line for the accommodation of the replaced abdominal organs, especially the stomach. When about to put on the corset the lower lace must be loosened, the garment wrapped around the waist; the woman then lies down on her bed, bends her knees, raises the hips as high as possible, rubs the abdomen upward so as to massage the stomach and colon toward the diaphragm, hooks the corset in front, beginning with the lowest and working up to the top, and then, with the hips still raised, draws in the lower lace from the waist down until it is as tight as can be made. In thin women it is necessary to cushion the inside of the corset from the anterior spines back to the middle line. A properly constructed corset does not require any straps, belts, buckles, cushions, airpads, or elastic in its construction, except the ordinary garters, which are only put on for convenience in holding up the stockings. The corset must be worn all the time except when lying down (*Therapeutic Gazette*, July, 1902).

Treatment.—Under the regular methods of treatment, with the patient half sitting up in bed, as he much prefers to do, the attack may last for a few days or weeks; while on the other hand, if the patient is made to lie flat on the bed, with the foot raised ten to twelve inches, the head only resting on a pillow, the kidney being replaced and the gallbladder emptied by careful manipulation, the abdominal wall supported by my "Stock" bandage (*Journal of the American Medical Association*, xlvii, 1357, 1906), or Rose's plaster strapping, the nausea and vomiting will cease, the pain subside, the temperature if raised will drop, and the discoloration of the skin quickly fade away under the active use of salines. In a short time the kidney becomes free, diminishes in size and returns to its normal bed, and if a properly fitting corset is worn the attacks will not recur unless the patient goes about without it.

Conclusion.—From the foregoing data we feel justified, at least tentatively, in adopting the following conclusions:

1. That the inception of disorders of the biliary tracts arise from traction or pressure on the bile ducts by a prolapsed kidney. At first there is but slight mobility, slight traction, and a slight attack, of a "bilious" nature, with or without jaundice. It is owing to the transitory nature of the attacks during its incipency that examination is but seldom made, or the kidney cannot be palpated because it has slipped back, as soon as the patient lies on her back, and the gallbladder empties itself as soon as the tension is released. The mobile kidney gradually increases in size and mobility, exerting greater traction, causing greater obstruction, greater bile stasis, greater colic and jaundice, with infection, precipitation, stone formation, ulceration, perforation, and sometimes cremation.

2. That these attacks can almost always be arrested and the diagnosis established by placing the patient in a bed with the foot raised 10 inches, and replacing the kidney by careful manipulation.

3. That by the early recognition of the kidney

mobility as the cause, in the early stage of the disease, and the early wearing of a special corset, exacerbations can be prevented, further progress of duct disease avoided, gallstone formation eliminated, operations for its removal reduced to a minimum, and at the same time by the use of the corset we overcome the bad effects arising from ptosis of other abdominal viscera.

4. When pain, fever, and jaundice do not diminish or subside within twenty-four to forty-eight hours, or unmistakable signs of severe infection or peritoneal invasion are present, operate quickly and thoroughly.

60 WEST FIFTY-SIXTH STREET.

THE DETECTION AND ESTIMATION OF REDUCING SUGARS.*

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If a one per cent. dextrose solution is boiled for a few moments with half its volume of a ten per cent. solution of sodium or potassium hydroxide it almost completely loses the power of reducing Fehling's solution. Similar treatment of a lactose solution yields a solution capable of reducing Fehling's fluid instantaneously in the cold. Through the substitution of carbonate for hydroxide in these experiments solutions capable of reducing Fehling's fluid in the cold are obtained in both cases.

The foregoing results lead to the following conclusions: 1. It is not the sugars themselves which reduce so strenuously in alkaline solution, this reducing action being due to some new compound formed from the carbohydrate as a result of the action of the alkali. 2. The alkali hydroxides have a destructive action upon sugars, particularly upon dextrose. 3. Sodium carbonate is not so destructive to dextrose as is the corresponding hydroxide. 4. Under certain conditions (e. g., boiling with alkali), which completely destroys the reducing power of dextrose, lactose yields a substance capable of reducing Fehling's fluid in the cold.

The preceding facts are capable of application to analytical work. Thus lactose can be detected in the presence of dextrose; or it is possible to distinguish between solutions of these substances. The procedure is as follows. To five to ten cubic centimetres of the solution to be tested is added one half volume of a 10 per cent. potassium hydroxide solution, and the resulting mixture boiled vigorously for about a minute and a half. The solution is then cooled to room temperature and added to an equal volume of Fehling's fluid. Almost instantaneous formation of a heavy, bright yellow precipitate indicates lactose. Dextrose under similar conditions has lost most or all of its reducing power. The solutions used for this test should contain between 0.5 and 1.0 per cent. of the sugar. It is not a particularly delicate reaction and will not give definite results where the amount of lactose is under 25.0 per cent. of the total sugar present.

Since very few substances besides sugars will yield compounds capable of reducing Fehling's

fluid in the cold, as a result of boiling with alkali, we may use this reaction as a specific test for sugars. This test is made as follows: To about five or six cubic centimetres of the fluid to be tested is added about one half gramme of solid sodium carbonate. Heat the solution to boiling for one half minute or a little longer. Cool to room temperature and add an equal volume of Fehling's solution. If sugar was present a precipitation of a yellow cuprous compound will occur within one minute. As thus carried out this test will detect sugar in solutions containing 0.1 per cent. or more of the substance. Slightly warming the tube will increase the delicacy to 0.05 per cent. These figures apply to relatively pure solutions of the sugars. While this method is not nearly so sensitive as the usual Fehling's test, it may become of material value in establishing the presence or absence of sugars in solutions containing other reducing substances which would interfere with the ordinary Fehling procedure, and is delicate enough for many purposes.

Particular attention is called to the fact mentioned in the foregoing that sodium hydroxide destroys the reducing power of glucose much more rapidly than does the corresponding carbonate. From this it may be inferred that where very small amounts of dextrose are present, or where some substance is present which temporarily interferes with the reduction of the copper solution, a reagent in which the alkalinity is secured by means of sodium carbonate instead of the hydroxide should prove more satisfactory.

Experimental investigations bear out this conclusion. Upon careful application Fehling's test will indicate the presence of dextrose in pure aqueous solutions containing 0.001 per cent. or more of this sugar. Applied to the urine, Fehling's test will detect sugar when present up to or in excess of one tenth of one per cent., but not less.

By the use of copper solution in which the alkalinity is secured by means of alkali carbonate instead of hydroxide, dextrose may readily be detected in pure solutions containing 0.00005 per cent. of this sugar. Urines containing dextrose yield a positive reaction when the sugar present equals or exceeds 0.0015 per cent., the results usually being more positive than those obtained with Fehling's solution in the presence of ten times the amount of sugar.

A New Method for the Detection of Sugar, Especially in Urine.

The solutions used are

Solution A.
Crystallized copper sulphate..... 0.5 grammes;
Distilled water to..... 1,000.0 c.c.

Solution B.
Pure Rochelle salt..... 350.0 grammes;
Anhydrous sodium carbonate..... 2000.0 grammes;
Distilled water to..... 1,000.0 c.c.

For use solutions A and B are mixed in equal proportions and the mixture diluted with three times its volume of distilled water.² To about six

¹ The solution of these substances may be facilitated by heating.

² For detection of sugars in pure solution the mixture of solutions A and solution B is diluted with only an equal volume of water and to a portion of this is added an equal volume of the test solution. Then the procedure is as described.

* This paper contains a brief summary of an investigation published in detail under the same title in the *Journal of Biological Chemistry*, 111, p. 101, 1907.

cubic centimetres of this solution in a test tube are added from seven to nine (not more) drops of the suspected urine. The mixture is heated to vigorous boiling for about one fourth to one half minute and allowed to cool spontaneously to room temperature. The heating and cooling may then be repeated if desired, though it is usually unnecessary. In the presence of sugar a precipitate forms more or less rapidly, depending upon the relative amount of the carbohydrate present. If the sugar present exceeds 0.6 per cent. the precipitate usually forms at or below the boiling temperature and is yellowish or reddish in color. With smaller amounts of sugar the precipitate forms more slowly, often only upon cooling, and is usually greenish in color. Normal urine will not, under these conditions, produce the slightest turbidity in the reagent. The results obtained in this test, even with the smaller amounts of sugar, are very definite, and according to my experience leave no room for uncertain interpretation. This method is about ten times as delicate as the tests hitherto proposed for the detection of sugar in the urine. It is rapid, the manipulation is simple, and the results are positive.

Conclusion.—Thus it may be seen that the carbonate-copper solution has the following advantages over Fehling's fluid. It is many times more delicate for the detection of sugar in pure solution, and in the urine. This is directly in keeping with the theory of the solutions. Fehling's solution, containing as it does a substance strongly destructive to dextrose, should not be used so long as we can substitute something which is just as effective in promoting the reducing action of the sugar and has not this destructive action. The carbonate solution yields more specific results than does Fehling's fluid, since there are fewer substances which interfere with its reaction. This can be shown by comparative tests with the urine, and further is well exemplified by comparisons of the reducing action of chloroform upon the two solutions. A solution of chloroform in water will reduce Fehling's solution copiously even below the boiling point; whereas it has very slight, if any, action upon the carbonate solution, and then only after prolonged boiling.

Regarding the stability of the carbonate solution it should be stated that for definite work in sugar detection, either in pure solution or in the urine, the solutions making up the reagent should be freshly mixed and diluted. If it is especially desired to keep the mixed reagent on hand the two solutions should be mixed in equal proportions and to every litre of the undiluted mixture should be added from five to ten grammes of sodium hydroxide. This mixture will remain for weeks more delicate as a reagent than Fehling's solution, and is not nearly so caustic. It will, however, undergo deterioration, and the best results are only obtained with freshly mixed solutions, diluted and used according to the directions given above.

The Quantitative Estimation of Sugars.

On account of the confusion of color produced during the reduction of ordinary Fehling's solution this process is highly unsatisfactory for volumetric sugar estimation. Pavy modified Fehling's process by addition of ammonia in large quantity to the solution, thus retaining the cuprous oxide in solution.

His method is open to the familiar objections that the ammonia boils out of the solution very rapidly and is unpleasant to work with. Furthermore, the titration must be carried on in a vessel from which the air is completely excluded, if satisfactory results are to be obtained. In Gerrard's method potassium cyanide is added to prevent precipitation of the copper oxide. This procedure has the objection that reoxidation of the copper may occur if the titration be carried on too slowly. Furthermore, the use of potassium cyanide solution requires two titrations. This latter solution is very unpleasant to work with and is unstable.

In the method proposed by the writer the reduced copper is precipitated as chalk white insoluble cuprous sulphocyanate. This compound is not liable to undergo reoxidation and because of its snow white color permits a direct titration to a colorless endpoint without difficulty. The solutions used are readily made up, are stable and are not nearly so destructive as is ordinary Fehling's fluid. Although potassium sulphocyanate could be added in large enough amount to retain the precipitate in solution, there is no apparent advantage in such a procedure, the white precipitate being an aid rather than a hindrance to observation of the endpoint. Since the writer's method was devised Rudish and Cellar³ have suggested a volumetric method for sugar determination, requiring the addition of large quantities of sulphocyanate to ordinary Fehling's solution, thus retaining the product of reduction in solution. The writer's method appears to have the following advantages over that of Rudish and Cellar: 1. Owing to the fact that the reduced copper is precipitated from the solution, but very slight reoxidation can take place, however slowly the titration be carried on. 2. The amount of sulphocyanate used is not nearly so large as in Rudish and Cellar's method. 3. The use of carbonate instead of hydroxide yields a solution which not only gives more accurate results owing to the less destructive action of the carbonate upon the sugar, but also gives a perfectly colorless solution in which to observe the endpoint, whereas, when the hydroxide is used, solutions may be obtained at the end of the titration which are yellowish or even brown in color, thus partially obscuring the end point.

A Rapid Volumetric Method for the Estimation of Dextrose in the Urine.

The solutions required are

Solution A.

Crystallized copper sulphate,.....69.3 grammes;
Distilled water to.....1,000.0 c.c.

Solution B.

Pure Rochelle salt,.....340.0 grammes;
Anhydrous sodium carbonate,.....200.0 grammes;
Distilled water to.....1,000.0 c.c.

Solution C.

Potassium sulphocyanate,200.0 grammes;
Distilled water to.....1,000.0 c.c.

For use these solutions are mixed in equal proportions. Thirty cubic centimetres of the resulting solution are equivalent approximately to 0.073 gramme of dextrose.

The Process.—To thirty cubic centimetres of the

³Rudish and Cellar, *Journal of the American Medical Association*, January 26, 1907, page 324.

mixed volumetric solution in a beaker is added two or three grammes of anhydrous sodium carbonate¹ and the mixture boiled until this is dissolved. The urine to be titrated is now run in from a burette rather rapidly (not so quickly as to interfere markedly with continuous boiling) until a heavy chalk white precipitate is formed and the dark blue color of the solution begins to lessen perceptibly, whereupon the fluid from the burette is run in more slowly until the blue color just completely disappears. The last portion should be introduced in quantities of from two to ten drops (depending on depth of color remaining and the relative strength of the sugar solution) with vigorous boiling of about one fourth minute between each addition. The end point (disappearance of the blue color) is sharp and satisfactory.

A simple device to prevent the bumping of solutions during the process of titration consists in placing in the titration beaker a medium sized piece of pure, previously well washed absorbent cotton. By stirring this about with a glass rod as the titration proceeds, it is possible to entirely prevent the bumping which otherwise may become troublesome.

Certain substances (notably chloroform) may occasionally be encountered which interfere slightly with the titration by causing a portion of the reduced copper to be precipitated as the suboxide even in presence of the sulphocyanate. In case such substances are present the following solution (solution D) should be used in place of solution C:

The formula for solution D is

Potassium ferrocyanide	.....30.0 grammes:
Potassium sulphocyanate	.....125.0 grammes:
Anhydrous sodium carbonate	.....100.0 grammes:
Distilled water, to	.....1,000 c.c.

This solution is used just as is solution C and will obviate any difficulties from interfering substances. Solution D does not alter the value of the copper solution in terms of dextrose, and may be used entirely in place of solution C if desired. Since, however, interfering substances are seldom, if ever, encountered, and solution C is a little more easily made up than is the other, solution C is recommended for ordinary use.

78 LEEB PEARCE

TRAUMATIC OEDEMA OF THE CORNEA IN THE NEW BORN INFANT

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Oedema of the cornea in the new born infant is a very rare condition, and is not mentioned in the textbooks at my disposal. In glancing over the literature through its various indices I was unable to find any record of a case reported. I shall take advantage of the opportunity offered to me and place this very interesting case on record. Oedema of the cornea of traumatic origin in the new born may so closely simulate many other conditions as to tax the diagnostic acumen of the clinician to enable him by a process of exclusion to establish the diagnosis. The case reported here was very complicated and it was difficult to distinguish between

the following conditions: (1) Congenital corneal opacities resulting from a keratitis in utero; (2) anomalies of the cornea due to faulty embryonic development; (3) keratitis superficialis; and (4) hydrophthalmus. Of course the complications that increased the perplexity make the case the more interesting.

The little patient was referred to me by Dr. Max Staller who, on account of some complication during labor, was compelled to deliver the child by forceps. The following day the doctor was surprised to notice that the little child had a white covering over the cornea, which condition greatly alarmed the parents.

I saw the patient thirty-six hours after the delivery, and found the following condition: Right eye quiet, cornea and pupil normal. Left eye closed, but no discharge, a slight discoloration of upper lid was noticeable; there was no swelling of the lids, but a little scar resulting from a small laceration was seen at the external angle of the superciliary ridge. The eyeball appeared to be markedly enlarged and was bulging. On separating the lids I found no signs of inflammation, no oedema of the conjunctiva, but a small area of subconjunctival hemorrhage with a sharp line of demarcation below the cornea. The eyeball appeared larger, the cornea was manifestly larger than in the corresponding eye, and the eyeball was markedly proptosed. The cornea had a conical shape with the summit in the centre, was smooth and of shining lustre, but nearly the entire surface was covered with a bluish white opacity, excepting the periphery, where the clear cornea was seen about 3 mm. through the entire circumference. The opacity was most dense in the centre, shading toward the margin; it was circular in shape, covering the entire pupillary area. The iris could be seen through the clear periphery, responded to light, but fundus reflex was not obtainable. The diagnosis being obscured I thought of a possible inflammation of the cornea in utero, which would have resulted in an opaque cornea. The conjunctival hemorrhagic excudate I attributed to trauma. I also suspected that the bulging of the eyeball had been caused by the traumatic element of forceps delivery, but was not ready to give any prognosis on the corneal condition. The bulging of the eyeball and the apparent large size and somewhat conical shape of the cornea had also recalled to my mind the possibility of hydrophthalmus and only added to the perplexity.

I informed the parents that it would take a few days before a positive diagnosis could be made, that the eye was not totally blind. I also explained to the doctor the complicated condition, saying that it would require a few days during which time the obscurity of the clinical picture resulting from the trauma would clear up by absorption. Two days later the opacity was less dense and much smaller in size, the clear periphery was much larger, the eye did not bulge as much, and appeared smaller in size, the subconjunctival hemorrhage was much lessened, fundus reflex faint, the conjunctival picture had assumed a different aspect. I was still of the opinion that the infant had a chronic opacity in the centre as a result of an inflammation in utero, and that the opacity would remain, giving, however, a good prognosis. Six days later the cornea was clear, the eyeball assumed the normal shape and position, fundus reflex was well seen, the cornea was of good lustre, the opacity had entirely disappeared, and the correct diagnosis was now Traumatic oedema of the cornea caused by pressure exerted by instrument during delivery.

Traumatic or pressure oedema of the cornea differs from an infiltration of a superficial keratitis, and is well exemplified in glaucoma. That the

¹ Hence, the quantity of the STANDARD salt may be used.

cedema is noninflammatory in its origin can be gathered from the fact that it disappears as soon as the high intraocular tension is reduced. In inflammatory infiltration the absorption is slow, taking often two or three weeks for its complete disappearance, and very often some small opacities remain. The infiltration is cellular in nature, taking place within the stroma of the cornea, and the infiltration as well as the resorption is slow in its process, in cedema of the cornea the exudation is of a liquid character within the epithelial layer of the cornea, comes and disappears more rapidly, leaving no trace in the form of opacities behind. Among the corneal opacities of noninflammatory origin Fuchs mentions pressure opacities, which he describes as a diffuse smoky opacity, most marked in the centre of the cornea, and gradually diminishing towards the margin. In these opacities we are dealing simply with an cedema of the cornea, which is situated mainly in the epithelium and which is capable of rapid absorption. The appearance of infiltration of inflammatory origin differs markedly from the one due to cedema of the cornea, especially in the new born infant. In inflammatory infiltration the surface of the cornea becomes dull, the epithelium losing its polish, the cornea has lost its lustre, while in the case of cedema in the new born described in the foregoing, the cornea was not dull, did not lack polish, and its lustre was not lost, but the surface was rather shining of bluish white tint. It is well to remember also that in cedema of the cornea of non-inflammatory origin all other symptoms of inflammation, such as redness, photophobia, and the usual ciliary zone is absent; and of course the absence of these symptoms of inflammation greatly helps in the distinctive diagnosis in cases where the clinical picture is not obscured by complications.

Congenital opacities of the cornea are not very rarely observed in the new born infant, and are seen with or without other anomalies. They are usually situated in the centre. When they are accompanied with other anomalies they are most probably due to a faulty embryonic development and are never absorbed so that the defect is permanent; when not accompanied by other anomalies of development they are the result of inflammation of the cornea in utero, resulting in a fibrous opacity. This opacity, while it remains permanent, very often becomes much less dense and more transparent as a result of some absorption of the nonorganized cellular infiltration, accompanying the fibrous opacity, but the cornea never regains its normal transparency.

The treatment for cedema of the cornea is, of course, expectant, and when the diagnosis is positive no treatment is necessary, as time will restore the cornea to its normal condition. I have employed in the case reported by me a one per cent. solution of dionin, and, I think, with very gratifying result. The dionin, I believe, hastens by increasing the activity of the lymphatic elements in the cornea the absorption of the exudate.

In conclusion I wish to thank Dr. Max Staller for the opportunity of studying this rather interesting and rare case.

917 SEVENTH STREET.

INSTRUCTIONS TO THOSE HAVING CHANCROIDS.

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Preventive medicine concerns two elements: First, that of checking extension of a given disease from one victim to others, innocent persons; and, second, that of avoiding complications in a given attack by the best possible mode of treatment, the greatest watchfulness by the physician, and the most intelligent care by the patient founded upon suitable instructions from the doctor.

The venereal diseases are the most common of all diseases in the community and sooner or later affect the largest proportion of the community, not excluding even the children in the sum total. It is a lamentable fact that of the genitourinary dispensaries in New York city only three publish circulars of instruction to the patients, showing just what are the dangers of these diseases, the aims of treatment to be reached, and such outlines of the treatment as the patient should carry forward.

The ideals of our profession in its specializations and in its broadest practice are to protect the innocent, to promote the health of the community, and to instruct the ignorant and the unsuspecting, as well as to cure the afflicted and diseased. The formal and persistent instruction as to tuberculosis, concerning its cure and its prevention, which is now being given by schools, charity organizations, labor unions, hospitals, and health boards, will soon bear fruit in a decrease of this scourge of humanity. The acme of benefit may even be extinction of tuberculosis during the next century. Similarly formal, careful, consistent, and persistent instruction as to venereal diseases in the form of printed matter, making impossible any mistakes or omissions by the patient in his ignorance or by the doctor in the stress of his crowded office or clinic hours, will be productive of much greater respect by the community for these dangerous and common diseases, of more intelligent care as to obeying the directions of the doctor in their treatment, and of fuller protection of the innocent husbands, wives, and children. The fulfillment of this ideal is well worthy of our best efforts as progressive medical men.

As great an authority as Professor Fournier in his work on the *Prophylaxis of Syphilis*, states that such circulars are necessary, advisable, and convenient, and gives therein a form suitable for the victims of syphilis.

The writer had the responsibility of preparing those circulars which are in use at the genitourinary and venereal clinics of the New York Hospital, and has found them of the greatest possible value to the patients of his classes at the hospital and the House of Relief, so that each individual receives in printed form directions as to what to do for himself and for the protection of others.

The merit and value of the circulars seem to warrant their publication and discussion. The following are the main points and the epitome of the circular issued to those having chancroid:

The patient should receive information on the point that this disease passes under several names in order to prevent confusion in his mind arising

from apparently different diagnoses by various physicians. The circular should, therefore, state that the disease is called not only chancroid, but also eating chancre, soft chancre, soft sore, hair cut, chafe, simple chancre, simple sore, nonincubatory chancre or nonincubatory sore, noninfecting chancre, and noninfecting sore. Thus it will be possible for the patient to understand that a sore which different doctors call by any of the foregoing names is one and the same disease.

The next matter of value to the patient is specific instruction along general lines as to the nature of the disease. He should know that its tendency is to spread, usually slowly but sometimes rapidly, usually destroying the part attacked only to a moderate degree, but sometimes to a high degree unless speedily checked.

The victim should also know that the time to check the process to the best advantage and in the shortest time is just as soon as it appears. Neglect of a small and innocent looking chancroid may allow it to become a severely painful destructive lesion that may prove most difficult to cure.

He should understand that such complications as bubo and the appearance of fresh sores either near the first one or remote therefrom, follow neglect or delay in treatment. The time to cure a chancroid quickly and surely is when it is of pinhead size.

Cleanliness is in general the first law of rapid relief from chancroid. The patient should, therefore, be taught to wash the affected part at least every night and morning with hot water and soap; if three such washings may be had, so much the better. In the washing, however, gentleness must be used so as not to chafe the healthy parts near the sore. In order to prevent spreading the disease to others, a special cake of soap and special pieces of old linen should be used. The soap in turn must be destroyed when the treatment is over, and the pieces of linen burned after each washing.

The sore and the affected organs should be dried carefully after each washing, and for this purpose clean, soft, old cloths should be used rather than towels and then destroyed after each and every treatment. This step has also in mind prevention and spread of the disease to others.

After the sore has been washed and dried the patient should be instructed always to put on a fresh dressing, which may consist of either absorbent cotton or gauze.

Naturally the cotton or the gauze soaks up the poison from the surface of the sore and, therefore, soon becomes loaded. For this reason the dressing should be changed with each washing, that is, at least twice, better still, three or four times a day.

Another purpose of the cotton or gauze upon the sore is to carry the medicines into the surface of the ulcer, much as a sponge holds water. This fact should be carefully explained, and also the fact that the medicines should be applied often enough to keep the cotton or gauze wet all the time. This means, as a rule, every hour or two, depending, of course, on the size of the dressing. The smaller the dressing the oftener as a rule must the medicine be applied.

After the wet dressing has been stopped, as is the rule when the poison is destroyed, some form of powder is commonly employed to promote dryness.

The patient should be told that this powder must be removed by the washing, one or two times a day already spoken of, and that after the washing and the drying of the sore the powder must be reapplied.

Necessarily the washing, dressing, or powdering of the sore requires handling of it more or less, thereby the fingers become more or less contaminated. The patient should be warned to remember that the fingers may carry this poison to any other part of the body, and that in this way the sores may be spread to any part of the skin by scratching, to the nose by picking, and the eyes by rubbing. It is, therefore, exceedingly necessary that the hands be washed each time after dressing the sore.

Few patients realize that these chancroids may communicate the disease during sexual intercourse, even after the visible period of the sore has passed away. Still fewer understand that a sore which has just healed having then a thin layer of skin or mucous membrane over it, will almost invariably break out again if intercourse is indulged in. For these reasons the patient, male or female, must be told never to have intercourse while the sore is open and not to have intercourse for at least a month after it is healed.

While sexual relations are, of course, the commonest means of transferring the disease, bed linen and toilet articles may likewise be the origin of the sores. For this reason it is best for the patient to sleep alone, or at least on one side or part of the bed, and to have for his own use such toilet articles as soap, towels, and wash cloths.

As in all infections, the general health, or, in other words, the resistance of the patient to the disease, should be maintained at its highest standard. Therefore, the patient should give attention to such details as regular movements of the bowels and plenty of good food, fresh air, and sleep.

Answers to the questions of when a sore will heal and when it is healed are two which patients frequently insist upon knowing. It seems to the writer that the former had best be answered by saying that as soon as the poison has been destroyed, the sore heals like an ordinary cut or break in the skin. The greater the obedience to directions the sooner will the poison leave the sore and, therefore, the sooner will it heal. Careful examination alone will reveal when the surface of the sore is entirely covered. For this purpose the writer prefers to use a good hand glass such as is employed in examining the skin. After the sore has been covered he always directs that intercourse should not be indulged in for about a month.

The foregoing might be called a brief discussion of the points of chief importance.

The following is the circular which aims to cover these elements in brief form:

This disease is called chancroid, eating chancre, soft chancre, soft sore, hair cut, chafe, simple chancre, simple sore, nonincubatory chancre, nonincubatory sore, noninfecting chancre, and noninfecting sore.

Your disease is serious because its poison destroys flesh. If you do not obey the directions of the doctor carefully, this destruction may be great and result in severe complications, such as bubo, which may lay you up in bed for many weeks.

You must wash the sore at least every morning and every night with hot water and soap.

You must use a special piece of soap for the washing, and destroy the soap when you are well.

You must dry the sore carefully after each washing.

You must use for this purpose clean, soft cloths, burning them immediately after each and every use.

You must put on a fresh dressing as directed after each washing.

You must change this dressing at least three times each day.

You must keep the dressing wet to the skin with the medicine exactly as directed by the doctor.

You must keep the sore covered with powder as directed by the doctor, but not before he orders you to use it.

At each washing the old powder must be washed off and then fresh powder must be applied as directed.

You must always wash the hands after dressing the sore, because its discharges are dangerous to the eyes and may be carried to the eyes by dirty fingers.

While the sore is unhealed you must not have sexual intercourse in any circumstances, because you are sure to transfer the disease to the other person.

You must sleep alone or in one part of the bed, and be sure that no one else uses any of your toilet articles, especially soap towels, and wash cloths.

Your bowels must move once each day. If you are constipated, take a small dose of Rochelle salts in hot water before breakfast.

You will not be perfectly well and out of danger until the sore is completely healed. The doctor is the best person to decide this question after careful examination. Do not therefore cease treatment until he has pronounced the sore healed.

After the sore has been pronounced healed by the doctor you must not have sexual intercourse for at least one month, because a freshly healed sore may readily be broken open by intercourse.

45 WEST 9TH STREET.

AN ANALYSIS OF THE CARDINAL SYMPTOMS OF ILEUS.*

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In discussing the symptoms of intestinal obstruction, my object is to treat the subject in a general way and not to go into the pathology of the different forms of ileus, but rather to analyze the cardinal symptoms and findings common to all varieties.

In a well established case of acute intestinal obstruction, it matters not from what cause, the cardinal symptoms are classical and diagnostic. These are collapse, vomiting, tympanites, pain, and obstipation. Why do these symptoms occur in occlusion? Is it because the poisons of the digestive tube are no longer expelled per rectum? In constipation we have this condition, yet we do not have the symptoms we get in ileus. We have all seen cases in which there has been no evacuation of the bowels for a week, ten days, or even longer, with no symptoms except malaise, headache, dizziness, etc., so that the stoppage of the intestinal contents is not the main factor in producing the conditions characteristic of ileus. Other important changes must be added to give us the symptoms that are present in a complete occlusion.

Three theories have been advanced to explain the symptomatology of ileus. First, that it is due to a reflex action, and to support this theory, the German

clinicians point out the initial slowing of the pulse, followed later by weakening and rapidity, which is caused by a paralysis of the pneumogastric, at the same time producing vasomotor troubles, congestion of the abdominal viscera, lowering of the blood pressure, anemia of the skin and central nervous systems; in fact, the symptoms of shock. Second, the infectious theory, the symptoms of which are attributed to the absorption of intestinal bacteria and their products. The exponents of this theory cite in proof the changes that are found in the blood of these patients—there nearly always being microorganisms in the circulation. Third, the toxic theory, that the symptoms are produced by the absorption of poisons from the intestinal contents, proximally to the obstruction.

I believe that all three of these theories play a part. For instance: In a case of internal strangulation, the immediate symptoms may be produced by a reflex action, but they are prolonged by the continued absorption of poisons. These poisons are partly due to microbic action, but the principal factor is the absorption of the poisons which are secreted by the intestines themselves.

In the support of this toxic theory, the brilliant experiments of Roger coincide with clinical observations. He has proved conclusively that the intestinal secretions are the most poisonous in the duodenum where there are no bacteria nor putrefaction, and that the toxicity lessens as we pass down the intestinal canal. A significant point is that as the putrefactive process increases, the toxicity lessens. It is a clinical fact that an obstruction in the small intestine is a graver condition than when in the large, and the higher up in the small intestine the graver the symptoms and the more quickly a fatal termination.

In an animal if the jejunum is ligated, the animal will die several days sooner than if the sigmoid be tied. In the latter case, the arrested contents is more abundant, putrefaction is more intense, the growth of the microorganisms more active, the surface of resorption more extensive. Why, then, is an obstruction in this part of the bowel not more quickly fatal? We know clinically that the severity of the symptoms, and the fatality of these cases decrease in direct proportion to the distance from the pylorus, that the obstruction is located. In the upper portion, for example, if the jejunum is completely occluded, the patient usually dies in forty-eight to seventy-two hours, while if the colon or sigmoid is obstructed, the patient will live ten days or longer.

Therefore we are brought to the conclusion that the colon is a sort of reservoir, where the intestinal contents can stagnate without much absorption occurring, and it seems probable that the real toxic substances found in the upper part of the small intestine must, by some unknown means, loose their toxicity in their passage down the canal.

Maury, of New York, published in *Surgery, Gynecology, and Obstetrics* for May, 1906, the results of a series of experiments upon dogs, in which gastroenterostomy with ligature was done and the intestine ligated at different distances from the pylorus. He found that, when the ligature was placed anywhere within 35 cm. from the pylorus, in each case the dog died before seventy-two hours

had elapsed. (Seventy-two hours being the time required for the ligature to cut through.) Any place beyond the 35 cm. limit the dogs lived unless infected. This place in the intestine, Maury named the *lethal line*. All of the dogs showed tetanoid symptoms, which fact bears out the clinical observation that in dilatation of the stomach, which is nothing more or less than an obstruction high up in the intestine, tetany frequently develops.

Our textbooks and writers upon the subject of intestinal obstruction do not make a distinction, or rather a differentiation, in regard to the prognosis and the time of a fatal termination of an obstruction due to a simple stricture, tumor, adhesions, or an ileus in which we have a loop of bowel involved. This, I think, is a most important distinction and one which has interested me very much since studying the experiments of Albarran and Causade along this line. By their experiments they have proved quite conclusively that the poisons which arise in a strangulated loop are more virulent than when only one part of the intestine is compressed.

These investigators operated in twenty dogs, dividing them into two lots of ten each. In the first ten a simple ligature of the intestine was done. The dogs lived on an average of seven days. In the second ten, a double ligature of the bowel was done. This shut off a loop of the bowel and produced a closed cavity. These dogs succumbed in from twenty-four to forty-eight hours. The loop became distended with gas and liquid, and the surrounding peritoneum showed signs of an intense inflammation.

The dogs with the single ligature showed but a slight peritoneal irritation, and the microorganisms from above the constriction, when injected into guinea pigs, caused their death only after about ten days. The bacteria from the dogs in whose intestine a closed cavity had been produced by the use of a double ligature, were much more virulent, killing the guinea pigs in forty-eight hours.

We know that there are always present, in the intestinal tract, many virulent bacteria which lie dormant or are rendered inert by the intestinal secretions, but which may give rise to serious trouble when the conditions are favorable for their growth.

It is upon this theory that Dieulafoy has formulated his conclusions regarding the aetiology of appendicitis. He believes that the anatomical build of the appendix favors the formation of a closed cavity, in which are elaborated intense poisons by the imprisoned microorganisms, and from this septic focus a general infection and intoxication takes place.

It is not necessary to have the circulation shut off in a loop of intestine to get these symptoms, but if the constriction is sufficient to impede the progress of the intestinal contents, we get the pathological changes in the walls and the intensified virulence of the microorganisms enclosed.

What takes place in a part which has thus become constricted? The constriction causes an obstruction to the venous outflow, producing thereby a slowing of the blood in the veins and capillaries of the loop. This causes a rise in the blood pressure in the part, and an increased amount of serum is poured out into the intercellular spaces, also into the lumen of the bowel, and from its peritoneal sur-

face. The lymphatics are unable to carry this away, and the condition of oedema results. This oedema further compresses the vessels at the point of constriction, and is the final factor in producing a strangulation. The imprisoned bacteria become more virulent, and the changes, which have occurred in the walls of the intestine, allow them to pass out into the neighboring tissues with more ease, the result being a peritonitis by propagation and not by perforation.

In a simple occlusion or one in which there is no closed cavity formed, the changes in the wall of the bowel do not occur so rapidly and the contained microorganisms are not so virulent. The walls do not become permeable to the microorganisms so soon.

The results of the experiments of Klecke and Claude coincide with those of Albarran and Causade, strengthening the belief that bacteria, in a closed cavity, become changed biologically, increased in virulence, and become capable of traversing the intestinal walls. For instance, the *colon bacillus*, which is ordinarily found throughout the intestinal canal, is an inert parasite, when shut up in an appendix or in a loop of intestine becomes exceedingly virulent.

We do not get a peritonitis in cases where a loop is not involved in the constriction until we have necrotic changes occurring in the bowel, for the simple reason that organisms do not pass through the intestine unless it is necrosed or perforated, except where a closed cavity exists, then we may readily have the infection carried by propagation.

Collapse may or may not be present in ileus, depending on the form and the cause of the obstruction. When it is observed at the onset, it is largely a reflex phenomenon, but it is kept up later by the absorption of toxic substances. I have seen a case of strangulated hernia where the collapse was so profound that the patient died within two hours. On the other hand, I recall a case of strangulated hernia of six days' duration, in which the woman had had faecal vomiting for two days, with no evidence of collapse. A resection was done, and the patient recovered.

Vomiting is one of the most constant symptoms in ileus, occurring in almost every case of acute obstruction, and the higher up in the canal that the occlusion occurs, the quicker vomiting appears. The vomitus, at first, consists of undigested food from the stomach and later mucus and bile, and, lastly, the contents from the small intestine, which give it the characteristic faecal odor. Faecal masses never appear in the vomited matter, owing to the fact that the contents of the small bowel are always liquid and the masses found in the large intestine cannot pass the ileocecal valve.

The vomiting in ileus is not accompanied by much nausea, it is rather of an expulsive or "gushing" character, and is particularly copious, the patient sometimes being drowned by the expelled contents of his alimentary tract. The continued vomiting causes intense thirst, lessens the quantity of urine secreted, and sometimes suppresses it completely. Excessive vomiting, the serous exudation into the intestine, and the make of liquids, produces a dehydration of the blood with a relative increase in the corpuscular elements, amounting in some instances to

one third over the normal. This concentration of the blood and the excretion of poisons through the kidney often produce a toxic nephritis, which in many cases is the essential cause in the production of the nervous symptoms present in ileus.

Vomiting, at first, is a reflex phenomenon and later is kept up by the upward axial current established by the descending peristaltic wave, an overflow due to an increased distention and an increased abdominal pressure, and, lastly, it is, no doubt, due to the stimulation of the vomiting centre by the poisons circulating in the blood.

Another of the constant, but not always an early, symptom in ileus is meteorism or tympanites. This results from the putrefactive changes which take place in the intestinal contents and from a lessened expulsion of the gases, as well as a decreased absorption from the intestinal mucous membrane due to the changed conditions therein.

When a loop becomes strangulated, a local meteorism is said to occur, and the outline of the distended gaseous loop against the abdominal wall is known as the *sign of von Wahl*. This condition is mentioned by the majority of writers upon this subject, but as my experience goes, it does not occur, and in reviewing the pathology of a strangulation one readily sees that it would not occur. In all of the cases which I have seen of strangulation of a loop of the bowel occurring within the abdominal cavity, or in cases of external hernia, the bowel has been distended with fluid and not with gas. In two cases that I have seen lately of internal strangulation of a loop of the intestine, the loop was enormously distended with fluid, giving rise to a localized area of dullness, which materially aided me in the diagnosis. If a loop of intestine is tied off experimentally it becomes distended with gas, caused by the fermentation of the contents of the loop, but the circulation in the loop is not altered, therefore there is no pouring out of the fluid into the lumen of the bowel. In a strangulation of a loop, occurring clinically, the condition is different. The lumen of the bowel is gradually closed, the circulation of the loop is at the same time interfered with, producing a supersecretion and a pouring out of the serum into the lumen, and so displacing the gas which is forced out of the yet open ends of the loop, the gas becoming entirely displaced by the fluids.

Pain is much more severe in strangulation and volvulus than in an occlusion due to a slowly growing tumor or a stricture of the lumen of the bowel. At first the pain is intermittent, but later it becomes constant.

In every case of intestinal obstruction there is usually present obstinate constipation. If the occlusion is high up in the small bowel and the large intestine is filled with feces, there may be several movements after the ileus occurs, the movements coming from the bowel distal to the obstruction. This often misleads the physician in his diagnosis. In intussusception there occurs rather frequent movements of mucus and blood, and the condition is, on this account, sometimes mistaken for colitis.

As a rule in ileus, there is no rise in the temperature until the obstruction has existed long enough to produce a toxæmia fever, or inflammatory changes in the bowel and the surrounding tissues occur.

Conclusion.

When the physician understands the pathological changes which occur at the seat of the obstruction, and that the principal factor in the causation of a fatal termination is the absorption of the toxins, he will spend no time in medical treatment, but will at once resort to surgical measures, for each hour of waiting puts the patient into a deeper state of intoxication and allows irreparable damage at the seat of the obstruction to occur, thereby lessening the possibility of a successful operation.

Ileus is one of the accidents of medicine, and is a condition for emergency work; therefore every practitioner (where a surgeon is not available) should be able to do a laparotomy at the onset of an obstruction. If done in the early hours, it is not a serious operation, nor one that should be attended with much technical difficulty, nor a high mortality. It is only when the bowel becomes gangrenous and it is necessary to do a resection, or after the patient has developed a peritonitis, or is prostrated by long and continued vomiting, that the operation becomes formidable.

300 BEE BUILDING.

Therapeutical Notes.

For Chronic Rheumatism.—Grasset prescribes (*Journal de médecine de Paris*, July 28, 1907):

R Chloride of gold and of sodium, 0.10 gramme;
Distilled water, 300.0 grammes.

M. Take a tablespoonful of this solution with each meal for fifteen or twenty days of each month.

Homogeneous Ointment Basis.—K. Ludenscheid, in *Pharmaceutische Zeitung*, employs the following composition as an ointment basis, stating it forms a mass of good consistency and appearance, capable of absorbing 100 per cent. of water:

Anhydrous wool fat, 1 part;
Petrolatum, 2 parts.

An Agreeable Castor Oil Mixture.

R Oil. ricini, 30.0 grammes;
Syrup. rhed., 20.0 grammes;
Alcoholis, 15.0 grammes;
Oil. menthæ piperitæ, 2 gtt.

M

Journal de médecine de Paris, July 14, 1907.

An Easy Method of Overcoming the Habit of Smoking.—Kolomeitser (*Bulletin médical*, 1907) states that if the mouth be rinsed with a solution of silver nitrate (one fourth of one per cent. strength), it will overcome the desire for tobacco, because after this is done the smoke causes a gustatory sensation, which is most repugnant, and which removes, for a long time, all desire to smoke.

Ether Applications in Threatened Suppuration.—Marcille (*La Tribune médicale*), in cases of adenophlegmon and suppurative parotiditis (mercurial) has applied, with success, compresses of gauze moistened ether, which are covered with a piece of oiled silk, and held in place with a roller bandage. From time to time, the corner is lifted and a little more ether poured on the compress.

Syndrome of an Angina Pectoris, Due to Tape Worms.—S. Gronzdev (*Praktichesky Vrach*) reported a case simulating angina pectoris, in which

the symptoms appeared to be connected with the presence of tænia in the intestines. The patient also had arteriosclerosis, to which the angina had been attributed; but the facts that the symptoms, in spite of their gravity, did not take away the patient's appetite, and that they often were absent after a meal, joined to the circumstance that the patient had recently visited Finland, where he had frequently eaten fish, led to a microscopical examination of his stools, in which numerous eggs of bothriocephalus were found. It was decided to administer male fern; but without a thought of relieving the angina, which was supposed to be due to coronary arteriosclerosis. The reporter, therefore, was astonished to see all the cardiac symptoms disappear completely and definitely, after the expulsion of five specimens of *Tania bothriocephalus*.—Through *Le Bulletin médical*, July 20, 1907.

Treatment of Acne and Chronic Eczema.—Boggs observes that the local treatment of acne consists in the removal of comedones, infiltrates, and abscesses. The employment of sulphur and ichthylol soaps and hot water accomplishes the removal of excessive fat and opens the follicles so that their contents can be evacuated. Subsequent vigorous scaling of the skin is of use, and may be carried out by means of resorcin or naphthal paster or by painting with tincture of iodine or iodine glycerin. The Röntgen rays remove the comedones and usually this takes place during the first few treatments; it is most likely due to the first or stimulating actions of the rays. Following this, there is marked desquamation, and, thirdly, a decrease in the size of the sebaceous gland. The first two effects of the rays can usually be accomplished by medication and will generally cure the mild cases, but medication has little or no effect in decreasing the overactive sebaceous glands. In pustular acne, the rays seem to have a fourth action on the staphylococci by rendering the soil inert. In eczema internal treatment is important in a certain percentage of cases, but as a large majority of patients suffering from eczema are in perfect health, and the disease is due to some local cause, local treatment only is necessary. Among the local measures which may be employed are drugs with which all physicians are familiar, and physical agents. Of these, radiant energy is probably the most efficient. The rays are certainly not indicated in the acute forms of eczema, unless it be to relieve the pruritus which cannot be controlled by other remedies, and in most forms of sub-acute eczema. But in many chronic and rebellious cases which resist other therapeutical agents the x rays have proved efficient. The effects of the rays are most marked in squamous eczema, since it is more chronic and less liable to yield to other forms of treatment. It requires more intense radiation to relieve the pruritus in papular eczema, and there is a greater tendency to recurrence than in any other form of the disease. It has been noted by a number of operators that after a few applications of the rays the discharge and itching ceased. The rationale of Röntgen treatment lies in its stimulation of metabolic processes, especially in chronic inflammations. It has been stated that the rays influence eczema by stimulating the bioactivity of the cells.—*The Journal of the American Medical Association*, August 31, 1907.

The Bactericidal Action of Wine in Typhoid Fever.—In the *Annales de l'Institut Pasteur* (April, 1907), Sabrazès and Mercandier report the results of experiments made to determine the bactericidal effect of wine, and to ascertain if its reputation as regards the bacillus of Eberth is sustained by experience. These specialists in bacteriology gave the following deductions from their investigations: Wines kept for a long time in bottles are sterile, while those that are kept in jugs, from which small quantities are daily used, contain bacteria. It is remarked, however, that whereas the wine in bottles is absolutely sterile for pathogenic germs of man, there are numerous exceptions for the pathogenic germs of the wine itself, when the bottles have not been pasteurized. On account of this general condition of asepsis, the wines kept for a long time in bottles may be utilized by surgeons and accoucheurs, in cases of emergency, in the absence of other antiseptics, which by the way has been the habit for a long time of certain country physicians. Pure wines were found to exercise a powerful bactericidal effect on Eberth's bacillus, but this action naturally varies in intensity with the nature and quality of the wines. White wines showed more activity than the red, and among the former, champagne occupies the first rank. It is the degree of total acidity of these wines, which appears to be the preponderating agent in destroying Eberth's bacillus, as is shown by the fact that the addition of an alkali reduces proportionately the bactericidal effect. Each of the natural acids of the wine brings its contingent to this bactericidal action, but the sulphurous acid (of the sulphur used for fumigating the casks) appears to be the most active. The proportion of alcohol (within the limits of 8 to 15 per cent.) has little if any influence in producing the bactericidal effects of the wine. Dilution with water, which attenuates the normal proportion of all the elements of the wine, has the same action upon its antiseptic action. Thus, the ordinary red wine which kills the bacillus of Eberth in two hours, does not produce the same effect until four hours have passed, if it has been diluted with an equal quantity of water. In the same way, champagne which sterilizes this microbe in ten minutes does not produce the same effects until the end of one hour and a half, if it has been mixed with an equal quantity of water. The differences become more marked if the wine has had a slight excess of sulphur. The United States Customs, in view of this fact, is asked to be more tolerant in regard to the dose of sulphurous acid in the sweet white wines of the Gironde, which are much favored in America, and which can only preserve their quality by the aid of the sulphurous acid. The germicidal power of a wine is diminished by the number of bacteria present. The temperature is also important, as the bactericidal effect is diminished by lowering the temperature. Thus the wine of St. Estèphe is less antiseptic at 15° C. than at 37° C., which is that of the human body. When water is added to wine, in advance, the wine has time to kill all the bacilli of Eberth, which existed in the water. This object is attained the more easily because this bacillus is very vulnerable. It follows that the administration of wine is beneficial in typhoid fever. If cases occur in which the alcohol is not well borne or is objectionable, it may be expelled by boiling the wine.

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AMERICAN FLOUR AND THE VERMIFORM
APPENDIX.

Our English friends seem to be growing imaginative on the subject of the appendix. Some months ago an English surgeon announced his conviction that he had discovered a frequent cause of appendicular disease in the use of red rubber for the stoppers of bottles containing effervescent beverages and of jars holding jams and the like. The rubber, he said, contained antimony, to which he attributed its malign action, and was made chiefly in the United States. When we commented on this gentleman's supposed discovery, we gave it as our impression—an impression to which we still hold—that more red rubber was used in the United Kingdom than in the United States. So far as we have observed, there has not been forthcoming a particle of evidence to show that there was any real foundation for the red rubber theory.

Now another English surgeon, Mr. William Henry Battle, of St. Thomas's Hospital, London, in a clinical lecture entitled *Stricture and Traumatism of the Vermiform Appendix*, with a *Note on Foreign Bodies in the Appendix* (*Lancet*, August 24th), surmises that American "white flour," passed between fluted iron rollers, often gives rise to the lodgment in the appendix of particles of iron detached from the rollers. We are bound to say that Mr. Battle does not appear to lay great stress on this supposition, though he certainly traces a connection between the use of "white flour," which he seems to think rather

a new thing, and the increased frequency with which, as he maintains, appendicular inflammation has occurred of late years. He says:

A statement was recently made on the authority of an American physician in an English paper that appendicitis was caused by white flour. The reasons given were the following: When white milled flour was introduced into the cities of a certain State, appendicitis began to be prevalent, but it was not yet found in the country. As it became cheaper it was introduced into the villages and appendicitis became common there, yet the negroes escaped. When, however, the flour became so cheap that it was more profitable to buy it than to grind the corn at home, then negroes began to suffer from appendicitis.

We wonder how far back it was that "white flour" was introduced into "a certain State." Certainly we cannot remember the time when it was not the staple breadstuff in this country, and our memory goes back far beyond the time when disease of the vermiform appendix received the attention of the profession. Mr. Battle says "corn," but in Great Britain that is the generic name for grain, and we see no reason to doubt that he means wheat. It may be that in some of our States it is only within comparatively recent years that the general use of wheat flour has superseded that of maize meal, but it is quite certain that the more populous portions of the country have used fine "white" wheat flour as the material for making almost all their bread for at least more than half a century, that is, from a time far antedating any definite knowledge of disease of the vermiform appendix among the medical profession in general.

Editorially the *Lancet* seems to make more of Mr. Battle's conjecture than he does himself. "If this explanation be correct," it says, "we should expect to find iron particles in the centre of appendical concretions, and so we do." Apparently the statement "so we do" rests on nothing but the fact of Mr. Battle's having found "an irregular fragment of iron" in such a concretion, which does not in the least prove the case against American flour. Who can say where that fragment of iron came from? As a matter of fact, the steel rollers used in flouring mills do not shed fragments.

The whole story is that of a mare's nest, but almost anything may serve as a peg on which to hang an aspersion of American products, and, according to press dispatches, the *Lancet's* article has already led to talk in Austria of excluding American flour, but the Austrians will never do so for any such reason as may be deduced from this yarn. It is true that steel rollers have superseded millstones, and it is well that they have. As we have said, they do not shed particles of steel, whereas it is notorious that the old fashioned millstones did part with fragments of their substance to such an extent that they had to be recut frequently. Now, neither Mr. Battle nor the

Lancet, as we understand, contends that there is anything toxic in particles of iron; they are held to act only as foreign bodies, and such also are pieces of stone taken into the digestive tract.

But even if what we have said were not true, the use of steel rollers in flouring mills is not confined to the United States. Rollers for milling flour were first employed in Hungary, but they were originally made of porcelain. Now the porcelain rollers have everywhere been superseded by rollers of steel, which are used in all countries where the production of wheat flour is extensive, including many South American countries, France, Germany, Hungary, and England. It is the height of absurdity to impute the prevalence of disease of the vermiform appendix to the use of American flour.

THE PERSISTENT NEEDS OF SAN FRANCISCO.

When the metropolis of the Pacific Coast was suddenly stricken with earthquake and conflagration, a year and a half ago, we expressed our apprehension that sanitary defects more or less dependent on the calamity would arise and be likely to persist for a long time. The fears which we entertained at that time have proved to be well founded. The August number of the *Pacific Medical Journal* calls attention pointedly to some of the urgent needs of the city from the sanitary point of view. The most pressing perhaps is that of an adequate supply of potable water. Our contemporary points out that there is an abundance of as pure water as is to be found in the world going to waste from rivers and mountain water sheds not far away from San Francisco.

The streets devoted to traffic are beset with pitfalls and open trenches that make many of them "dangerous to pedestrians and almost impassable to vehicles without breaking a wheel or an axle." Some of the asphalt pavements on the hills are rendered perilously slippery by the drippings from motor carriages. The filth of the streets is daily stirred up by the wind and by dry sweeping, imbuing the atmosphere with pathogenic germs, garbage is not properly collected and disposed of, and the sewers require immediate reconstruction. Above all, a new hospital, thoroughly modern in construction and equipment, should be built on the site of the old City and County Hospital, not at a distant point on the outskirts of the city, as seems to be contemplated.

Verily the needs of San Francisco are many and urgent, and there has now been added to her perils an outbreak of the Oriental plague. That disease will in all probability be mastered speedily, but we cannot close our eyes to the fact that danger of its spreading exists.

THE FERMENTATION OF GLUCOSIDES BY BACTERIA OF THE TYPHOID COLON GROUP.

The close resemblance of the members of those groups of bacteria which are called the colon group, the typhoid group, or the typhoid colon group to each other is well known by all who do any work in bacteriology. While there are characteristic differences enough between the organisms at the extremes of the series, the intermediate members differ from each other only in very minute details. One of the methods of distinguishing these organisms is by their action on various sugars, saccharose, glucose, and lactose being the three sugars most frequently used for the separation of species.

Twort (*Proceedings of the Royal Society*, lxxix, B. 532) has studied the members of this group of organisms from the point of view of their behavior when grown in media containing a great variety of glucosides. Forty-nine glucosides were tested with eighteen species of bacteria belonging to the typhoid colon group. The organisms were grown in the ordinary peptone water medium containing two per cent. of the glucoside to be tested. A number of interesting results were obtained. The author found that a large number of glucosides might be fermented by many members of the group, that the fermentations varied with the microorganism tested, and that the variations were as marked inside each subgroup of bacteria as between adjacent subgroups. The most important result of the study is the development of the fact that the sugar fermenting powers of a given organism may be artificially changed by growing the organism for a succession of generations in media containing a sugar which, at the beginning of the experiment, it was unable to ferment. By this means a pathogenic organism may be altered until it gives fermentative reactions characteristic of a nonpathogenic member of its group. It is possible, indeed, that pathogenic organisms in this group may become so altered in their characteristics that they are unrecognizable when grown for some time outside the body, as in soil, water, etc. It also seems possible that a nonpathogenic organism may lose its fermenting powers and become pathogenic should it find a suitable medium, such as the alimentary canal, and regain its old characters when outside the body.

Although it may not have been said aloud, many observers have had a sort of conviction or suspicion that the members of this highly interesting and most important group of organisms become changed in their pathogenic characteristics under certain unknown conditions. The important question is, Can the *Bacillus coli communis*, in suitable environment, become converted into the *Bacillus typhosus*? Can

servative opinion would unhesitatingly answer no. And yet there have been men of logical mind who have suspected that such might be the case. If it is possible for a member of this group of organisms to change its fermentation characteristics, why would it not be possible for the *Bacillus coli communis* to become pathogenic, under certain conditions of extracorporeal existence, and give rise to an epidemic of typhoid fever? At any rate, the fact that Twort has been able to change the fermentation characteristics of the members of this group of bacteria makes it still more incumbent on sanitary authorities to prevent the pollution of potable water supplies with human fæces and urine.

CHLOROFORM IN WHOOPING COUGH.

Some months ago de Rothschild and Brunier (*Revue d'hygiène et de médecine infantiles*, v, 1906) recommended the administration of chloroform by inhalation in cases of whooping cough. The inhalation was to last from five to ten minutes, and the anæsthesia to be carried to the extent of producing muscular relaxation. The authors seem to have observed the effects of this treatment in nine cases. The paroxysms are said to have been shortened and rendered less frequent, and it was thought that the duration of the disease was abbreviated, a fact which the authors attribute in great measure to a supposed germicidal action of the chloroform.

We have not seen de Rothschild and Brunier's article itself, so we do not feel warranted in criticising their views and recommendations very pointedly. We must, however, agree with Dr. R. Weigert, of Breslau, whose abstract appears in the *Berliner klinische Wochenschrift* for July 22nd, when he intimates that the dangers of chloroform anæsthesia are such as to make one hesitate to employ it for the amelioration of whooping cough. It does not appear from the abstract whether or not the chloroform is to be given with every paroxysm or, if it is, by whom it is to be administered. We should advise our readers not to try this method of treatment in the absence of convincing testimony to its safety and efficiency.

THE DERMATOLOGICAL CONGRESS.

The Sixth International Dermatological Congress, which has been in session in New York this week, under the presidency of Dr. James C. White, of Boston, a veteran student and teacher of dermatology, has been powerfully promotive of investigations of wider import to the world than the special practitioner in skin diseases might appreciate at first sight. It is chiefly in connection with leprosy, we may take it for granted, that the study of dermatology is now most likely to produce results of widespread useful-

ness, but there are many other morbid conditions included in the dermatologist's field that are of great importance to the world at large.

ERUCTIONS.

Eructations of gas from the stomach, occurring chiefly in nervous subjects and popularly designated "windy dyspepsia," were explained by Georges Hayem, in 1898, as the result of unconscious or automatic swallowing of air, which he accordingly denominated aerophagy. Quite recently (*Archives des maladies de l'appareil digestif et la nutrition*, January; *La Clinique*, June 28th) he has reviewed the subject, and for this class of cases attended by eructations he now suggests the novel title of "sialophagy," because he found that the air was really carried into the stomach by the saliva. In point of fact, these patients all have more or less ptialism, and the increase of secretion leads to unconscious acts of swallowing in order to remove it from the mouth.

This act may accompany or complicate various morbid conditions of the stomach which react upon the nervous centres so as to cause the flow of saliva. This is to be distinguished from simple spasmodic aerophagy, in which air is merely taken into the pharynx or œsophagus, and immediately expelled. In "sialophagy" the air is carried into the stomach with saliva, and, retained there, may produce distention of this organ, which may extend to the intestines. In such cases, it may produce, mechanically, respiratory or cardiac functional disorder. From time to time the stomach suddenly contracts and expels a portion through the œsophagus by the process of belching, or eructation.

Hayem considers this matter of importance chiefly as revealing the existence of a nervous disturbance which in the course of time may develop into some serious condition, or, in fact, as acting as the precursor of some other derangement, which in character would be more general and more complex. The early recognition of its pathogeny should therefore lead to the adoption of a regimen directed to the relief of the underlying pathological condition, in order to prevent the evolution of some graver affection which would be far less amenable to treatment.

THE CANADIAN JOURNAL OF MEDICINE AND SURGERY.

In its September issue our excellent Toronto contemporary publishes articles of special interest in connection with the annual meeting of the Canadian Medical Association, which was held in Montreal this week, freely and effectively illustrated. The other contents, too, are of sterling merit. The appearance of the number is very handsome.

News Items.

Typhoid Fever in Harrisburg, Pa.—An epidemic of typhoid fever in Harrisburg, Pa., of small proportions, has been traced to a dairy.

The Richmond, Va., Academy of Medicine and Surgery.—The programme for a meeting of this academy, held on Tuesday evening, September 10th, included a paper on Municipal Sanitation, by Dr. E. C. Levy.

The Woman's Medical College of Pennsylvania is planning to erect a new hospital building and operating theatre on the ground next to the college in Philadelphia. The hospital building is to be six stories in height and the operating theatre is to be a two story building.

The Medical Society of the Borough of the Bronx.—The programme for a meeting of this society, held on Wednesday evening, September 11th, included the following paper: Some Cases of Homicidal Mania and Moral Degeneracy, by H. Gerald Chapin, L. L. M., counsel of the society. Discussion opened by Dr. William G. Eynon.

The Memphis and Shelby County (Tenn.) Medical Society.—At a meeting of this society, held on Tuesday evening, September 3rd, the following programme was presented: The Treatment of Burns, Dr. W. F. Clary, Jr.; Results of Two Trephining Operations, Dr. Edwin Williams; report of trephining operations, Dr. W. T. Black.

The Medical Society of the State of Pennsylvania will hold its annual meeting at Reading, on September 23-26, 1907, under the presidency of Dr. Isaac C. Gable, of York. Dr. Cyrus L. Stevens, of Athens, is secretary. The House of Delegates will hold its first session on Monday evening, September 23rd, at 8 o'clock.

Charitable Bequests.—By the will of Mary A. Krieg, of Philadelphia, the following bequests are made: \$500 to the Chestnut Hill Hospital, \$500 to the Orphans' Home and Asylum for the Aged and Infirm of the Evangelical Lutheran Church, Germantown; \$500 to the German Hospital, \$300 to the Germantown Dispensary and Hospital and Infirmary.

New Miners' Hospital at Shamokin, Pa.—A commission appointed by Governor Stuart, of Pennsylvania, met at Shamokin, on the 4th inst., to discuss plans for the erection of a new hospital at that place. The commission is composed of W. C. McConnell, president; C. C. Leader, treasurer; J. C. Steel, secretary; and C. W. Witmer, F. A. Godcharles, John T. Gibbons, and U. R. Reinhardt.

For the Care of a Leper.—The city council of Harrisburg, Pa., has decided to allow an eight roomed frame cottage to be erected on the grounds of the Harrisburg Hospital, for the care of Mock Sem, a victim of leprosy. The city will pay half the cost of the building and of the maintenance of the patient, and the State Department of Health will pay the other half.

The Health of Pittsburgh.—During the week ending August 31, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Typhoid fever, 80 cases, 18 deaths; scarlet fever, 7 cases, 2 deaths; diphtheria, 18 cases, 0 deaths; measles, 7 cases, 1 death; whooping cough, 8 cases, 1 death; pulmonary tuberculosis, 18 cases, 3 deaths.

The Kentucky State Board of Health.—At the annual meeting of the board, held at Bowling Green, on August 23rd, the board was organized as follows: President, Dr. J. M. Matthews, Louisville; secretary, Dr. A. T. McCormack, Bowling Green; members, Dr. William Bailey and Dr. C. A. Mayer, Louisville; Dr. I. A. Sherley, Winchester; Dr. W. A. Quinn, Henderson; Dr. George T. Fuller, Mayfield; and Dr. W. K. R. O'Brien, Owensboro.

The Rhode Island Medical Society.—At the quarterly meeting of this society, held at Little Point on August 20th, 1907, officers for the coming year were elected as follows: Dr. Charles V. Chapin, Providence, president; Dr. Frank B. Fuller, Pawtucket, first vice-president; Dr. Eugene Kingman, Providence, second vice-president; Dr. Stephen A. Welch, Providence, secretary. Dr. George S. Matthews, Providence, was elected.

Seven the Society Meetings in Philadelphia for the Week Ending September 21, 1907.—Monday, September 16th, Northeast Branch, Philadelphia, Comp. Abolition Society; Tuesday, September 17th, North Branch, Philadelphia,

County Medical Society. Wednesday, September 18th, Association of Clinical Assistants of Wills Hospital; Franklin Institute. Thursday, September 19th, Medical Society of the Woman's Hospital. Friday, September 20th, American Philosophical Society.

A New Pathological Building for Johns Hopkins Medical School.—On account of the extensive growth of this school a new pathological building has become necessary. The new building will be on the Wolfe Street side of the hospital grounds. It will be two stories high and 30 by 80 feet. On the first floor will be an amphitheatre, and the second will be devoted to the use of students in their work. Plans and specifications are now in the hands of the architect, and ground will be broken for the new building within a short time.

Zoologists in Philadelphia.—About fifty delegates to the International Zoological Congress, which was held in Boston recently, visited Philadelphia on September 2nd and 3rd. The delegates were entertained at luncheon at the Academy of Natural Sciences on Monday and at Houston Hall, University of Pennsylvania, on Tuesday. In addition to visiting the University of Pennsylvania, the Academy of Natural Sciences, and the gardens of the Zoological Society of Philadelphia, the delegates visited numerous points of historical interest about the city. On Tuesday afternoon the delegates left for Washington, D. C.

The Mortality of Baltimore.—The report of the health department for the week ended August 31, 1907, showed a total of 214 deaths, as compared with 145 the corresponding week of last year, 164 in 1905, and 184 in 1904. The annual death rate in a thousand of population was: Whole, 18.22; white, 17.30; colored, 23.11. The principal causes of death were: Typhoid fever, 6; measles, 1; whooping cough, 2; diphtheria, 3; consumption, 24; cancer, 10; apoplexy, 3; organic heart diseases, 2; bronchitis, 3; pneumonia, 5; diarrhoea, under 2 years of age, 40; Bright's disease, 13; congenital debility, 17; old age, 6; suicide, 1; homicide, 1; accidents, etc., 15.

The Cumberland Valley Medical Association.—At the fifth annual meeting of this association, held at Pen Mar, Md., on September 5th, officers were elected as follows: President, Dr. A. R. Allen, Carlisle, Pa.; vice-presidents, Dr. W. P. Miller, Hagerstown, Md.; Dr. J. W. Bowman, Lemoyne, Pa.; and Dr. J. W. Graft, Waynesboro, Pa.; secretary, Dr. J. J. Coffman, Scotland, Pa.; assistant secretaries, Dr. E. S. Berry, Shippensburg, Pa.; Dr. D. C. R. Miller, Mason and Dixon, Pa.; and Dr. H. C. Devilbiss, Chambersburg, Pa.; treasurer, Dr. J. J. Koser, Shippensburg, Pa. The next annual meeting will probably be held at Mount Holly Park, Cumberland county, Pennsylvania, in September, 1908.

The Mortality of Chicago.—According to the report of the department of health, for the week ending August 31, 1907, there were during the week 616 deaths from all causes, as compared with 561 for the corresponding week in 1906. The annual death rate in a thousand of population was 15.24. The principal causes of death were: Apoplexy, 7; Bright's disease, 36; bronchitis, 4; consumption, 39; cancer, 31; convulsions, 11; diphtheria, 6; heart diseases, 37; intestinal diseases (acute), 170; measles, 5; nervous diseases, 17; pneumonia, 53; scarlet fever, 10; suicide, 8; typhoid fever, 13; violence (other than suicide), 43; whooping cough, 5; all other causes, 121. There were 204 deaths of males under 1 year of age; 63 between 1 and 5 years of age; 46 between 5 and 20 years of age; 203 between 20 and 60 years of age; and 100 over 60 years of age.

Changes in the Staff of Johns Hopkins Hospital.—With the close of the fiscal year of 1907 (August 31), the old staff of the hospital, with a few exceptions, retired. The new staff consists of the following: Resident physician, Dr. C. P. Emerson; assistant physicians, Dr. B. O. Cohoe, Dr. E. J. Sladen, Dr. P. W. Clough, Dr. R. L. Cunningham, Dr. Gladys Rowena Henry, Dr. J. G. Hopkins; resident surgeon, Dr. R. T. Miller; assistant surgeons, Dr. J. H. Chestnut, Dr. C. F. Davidson, Dr. W. D. Gate, Dr. G. J. Heyer, Dr. F. Churchman, Dr. S. Remsen, Dr. G. Ortschild; resident gynecologist, Dr. Hudson; assistant gynecologists, Dr. Casler, Dr. Richardson, Dr. C. G. Guthrie, Dr. W. F. Shallenberger, Dr. P. T. Watson, Dr. G. Storrs, Dr. W. O. Patten, Dr. G. A. Smith, Miss Gladys Ravenna, Honorary member of the staff, Miss Mary E. Starnes, Junior Lecturer, University from the University of New York.

The Health of Philadelphia.—During the week ending August 24, 1907, the following cases of transmissible diseases were reported to the bureau of health: Malarial fever, 1 case, 0 deaths; typhoid fever, 105 cases, 14 deaths; scarlet fever, 31 cases, 1 death; chickenpox, 2 cases, 0 deaths; diphtheria, 54 cases, 11 deaths; cerebrospinal meningitis, 2 cases, 1 death; measles, 8 cases, 0 deaths; whooping cough, 17 cases, 6 deaths; pulmonary tuberculosis, 67 cases, 46 deaths; pneumonia, 16 cases, 12 deaths; erysipelas, 2 cases, 1 death; cancer, 26 cases, 31 deaths; mumps, 1 case, 0 deaths; septicæmia, 1 case, 0 deaths; tetanus, 1 case, 2 deaths. The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 4; dysentery, 3; diarrhoea and enteritis, under two years, 86; puerperal fever, 2. The total deaths numbered 489, in an estimated population of 1,500,595, corresponding to an annual death rate of 16.94 per 1,000 population. The total infant mortality was 169; under one year, 145; between one and two years, 24. There were 42 still births, 22 males and 20 females. The temperatures were seasonable. The total precipitation was 1.84 inches.

The Mortality of New Jersey.—According to the *Monthly Statement* of the Bureau of Vital Statistics of New Jersey, there were reported to the bureau, during the month ending August 15, 1907, 3,232 deaths. By ages there were 1,066 deaths among infants under one year of age, 311 deaths of children over one year and under five years of age, and 686 deaths of persons aged sixty years and over. Infantile diarrhoea caused 639 deaths, an increase of 30 over the corresponding period last year. The deaths from scarlet fever numbered 28. During the previous four months this disease has caused deaths as follows: April, 34; May, 25; June, 24; and July, 27. These figures are noticeably higher than those for the preceding seven months, the average for which was 9.85. Diphtheria caused 41 deaths, the average for the previous twelve months having been 56. Cerebrospinal meningitis (38 deaths) shows an increase above the average. The diseases of the respiratory system shows the usual diminution which occurs in summer. The principal causes of death were: Typhoid fever, 32; measles, 17; scarlet fever, 28; whooping cough, 27; diphtheria and croup, 41; malarial fever, 0; tuberculosis of lungs, 258; tuberculosis of other organs, 51; cancer, 130; cerebrospinal meningitis, 38; diseases of nervous system, 372; diseases of circulatory system, 254; diseases of respiratory system (pneumonia and tuberculosis excepted), 96; pneumonia, 112; infantile diarrhoea, 689; diseases of the digestive system (infantile diarrhoea excepted), 223; Bright's disease, 181; suicide, 23; all other causes, 660.

Personals.—Dr. Margaret Rogers Riley, wife of Dr. J. A. Riley, of Chicago, has the distinction of being the only woman to pass the recent civil service examination for school medical inspector. Dr. Riley is a graduate of the Medical School of Northwestern University, and for three years was resident physician of the Dunning institutions. Only 58 of the 412 applicants made a passing grade.

Dr. Frank P. Knowlton, associate professor of physiology in Syracuse University College of Medicine, has been advanced to the head of the department of physiology.

Dr. Mary Hess Brown, after an absence of several months abroad, has resumed practice at 541 West One Hundred and Twenty-third Street, New York.

Dr. Stephen M. Watts, who was a member of the Johns Hopkins Hospital staff, has been appointed professor of general surgery at the University of Virginia.

Dr. Thomas F. Harrington has been appointed director of physical training in the Boston public schools. Dr. Harrington will also be in charge of the medical inspection of school children.

Dr. Henry H. Rusby, dean of the New York College of Pharmacy, Columbia University, has been appointed official expert in drug products for the United States Government.

Dr. W. A. Wilkins has resigned the chair of pathology in McGill University, Montreal.

Gustav M. Meyer, B. S., Sc. D., for several years assistant to the chair of physiological chemistry at Columbia University, New York, has been elected to the chair of physiological chemistry in Syracuse University College of Medicine.

Harold Dickenson Senior, M. B., F. R. C. S., an associate in anatomy at the Wistar Institute of Anatomy, Philadelphia, has been elected to the chair of anatomy and as director of the anatomical laboratory at Syracuse Uni-

versity, to take the place formerly held by Dr. George M. Price.

The United States Civil Service Commission announces an examination on October 23-24, 1907, to secure eligibles from which to make certification to fill a vacancy in the position of anatomist (male), at \$1,600 per annum, in the Army Medical Museum, office of the Surgeon General, and other similar vacancies as they may occur there. The examination will consist of the subjects mentioned below, weighted as indicated: (1) Human anatomy, weight, 40; (2) Anatomical drawing (competitors will be required to make a pen and ink drawing from a photolithograph which will be furnished), weight, 20; (3) Gross pathology (tissues), weight, 15; (4) Construction, care, and use of microscope (questions relating to the compound microscope, with knowledge of various makes in general use), weight, 10; (5) Training and experience (rated on application), weight, 15. Two days will be required for this examination. The first subject will be given on the first day, and the remaining subjects on the second day. Age limit, 20 years or over. Only male applicants will be admitted to the examination. It is desired that the person appointed to this position should be young, in good health, have a thorough knowledge of anatomy (preferably, but not necessarily, a graduate in medicine), be able to make anatomical drawings, understand microscopes, surgical instruments and appliances, and be able to prepare, card, and keep in order the anatomical specimens of the museum. This examination is open to all citizens of the United States who comply with the requirements. *This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.* Applicants should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 1312. No application will be accepted unless properly executed, including the medical certificate, and filed with the commission at Washington. In applying for this examination the exact title, Anatomist (Male), Army Medical Museum, should be used in the application. As examination papers are shipped direct from the commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending August 31, 1907:

	—August 31—		—August 24—	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	164	17	153	17
Smallpox.....	16	0	2	0
Varicella.....	16	0	0	0
Measles.....	141	9	170	14
Scarlet fever.....	112	10	98	2
Whooping cough.....	21	14	16	14
Diphtheria.....	257	28	196	22
Tuberculosis pulmonalis.....	392	149	353	149
Cerebrospinal meningitis.....	42	9	10	9
Totals.....	1,095	236	1,003	227

Society Meetings for the Coming Week:

MONDAY, September 16th.—Hartford, Conn., Medical Society.

TUESDAY, September 17th.—Buffalo Academy of Medicine (Section in Pathology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings, N. Y.; Binghamton, N. Y., Academy of Medicine (annual); Syracuse, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association; Medical Society of the County of Westchester, N. Y.

WEDNESDAY, September 18th.—Medicolegal Society, New York; New Jersey Academy of Medicine (Jersey City); Buffalo Medical Club; New Haven, Conn., Medical Association.

THURSDAY, September 19th.—German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society; Æsculapian Club of Buffalo, N. Y.

FRIDAY, September 20th.—Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society; Brooklyn Medical Society.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

September 5, 1907

1. Some General Considerations Regarding Tumors, By W. T. COUNCILMAN.
2. Stenosis of the Pylorus in Infancy, By CHARLES L. SCUDDER.
3. Lead Poisoning in a Rural Community, By WILLIAM N. COWLES.

2. **Stenosis of the Pylorus in Infancy.**—Scudder, in speaking of the operation for stenosis of the pylorus in infancy, says that the abdominal wall is extremely thin. The abdomen may be opened unexpectedly. The liver is large. The median incision will be best made both above and below and to the left of the umbilicus. The incision should be large rather than small, perhaps three inches long. The small opening necessitates greater handling of the abdominal contents. The little larger opening enables the operator to secure the jejunum very readily without the trauma of much handling. Nothing should be removed outside the abdomen excepting the parts to be operated on, the stomach's posterior wall and the jejunum. The great omentum, containing little or no fat tissue, is drawn upward as a thin film from over the intestines. Care should be exercised lest the very transparent and veil like gastrocolic omentum be incised too vigorously and the stomach wall itself suffer by being nicked by the knife. The mesentery of the jejunum is short in proportion to the width of the gut as compared with the adult mesentery, consequently it is with difficulty at times that the intestine can be brought forward to the anterior stomach wall for an anterior gastroenterostomy without constricting the transverse colon unduly. The stoma in the infant's intestine should be from three fourths to one inch long when sutured. If a very large stoma is made, obstructive difficulties may be caused by the wall of the gut opposite the stoma blocking its lumen, as suggested first by Cannon. After suture, the parts are returned to their natural places so far as possible, the jejunum to the left of the spine. In closing the abdominal wound no attempt should be made to close by layers. Through and through sutures of silkworm gut are satisfactory. These sutures should not be drawn too tight, for the suture cuts its way through the young skin readily. Some one has suggested that these sutures be tied over bits of tiny rubber tubing to prevent them cutting the skin. In placing the sutures the needle should avoid wounding the large vessels of the suspensory ligament of the liver which may lie very close to the right edge of the wound. The sutured wound is covered with a gauze sponge, and the abdomen is supported by two or three narrow straps of zinc oxide adhesive plaster. Traction on the sutures is reduced thus to a minimum. The position of these plasters may be changed to avoid their chafing the skin. An ordinary binder helps to support the abdomen.

3. **Lead Poisoning in a Rural Community.**—Cowles reports a group of cases of lead poisoning, the many forms in which it makes its appearance, and the various kinds of damage done by it. He observes that the acute cases are few, the chronic painful and disabling affections and arteriosclerosis are in the majority. He points out the often painful and crippling affections of the extremities, called often rheumatism, of which patients have vainly tried to be cured, and which might as well have been due to poisoning by lead.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

September 7, 1907

1. Smoke in Relation to Health, By A. JACOBI.
2. Education of Medical in the Campaign Against Tuberculosis, By LIVINGSTON LAMAR.
3. Public Provision for Advanced Cases of Tuberculosis, By EDWARD C. OTIS.

4. Glycosuria in Its Surgical Relations, By ALBERT E. HALSTEAD.
5. The Treatment of Traumatic Rupture of the Kidney, By EDMUND A. BABLER.
6. Involvement of the Cornea and Bulbar Conjunctiva in the Secondary Stage of Syphilis, By BROWN PUSEY.
7. Lupus Erythematosus, By M. L. HEIDINGSFELD.
8. Abdominal Pain. Especially Pain in Connection with Ileus, By K. G. LENNAXDER.
9. Physiological Observations on Experimentally Produced Ileus, By W. B. CANNON and F. T. MURPHY.
10. The Symptoms and Diagnosis of Strangulation of the Intestine, By JOHN B. ROBERTS.
11. The Occurrence of Typhoid Bacilli in the Stools of Typhoid Patients, By J. H. PRATT, F. W. PEABODY, and A. D. LONG.

1. **Smoke in Relation to Health.**—Jacobi, in reviewing the coal smoke question, cites Ascher, of Stuttgart, who comes to the conclusion that the mortality from acute inflammatory pulmonary diseases in England, Germany, and America is on the increase, mainly that of children and old people. The cause is to be sought for in the contamination of the atmosphere by smoke. In industrial districts the mortality of nurslings was six times larger than in agricultural communities. It was found that dense smoke districts had a larger mortality than other industrial centres, for instance, the textile industries. The mortality of coal miners surpasses that of the rest of the male population by 130 per cent; the indigenous suffer more than the immigrant workmen. Animals infected with aspergillus without having been previously exposed to smoke inhalation did not contract pneumonia like those which were forced to inhale smoke. Bartel and Neumann, in their work on experimental inhalation tuberculosis of the guinea pig, found that such guinea pigs as had inhaled a moderate amount of smoke on account of their being kept in a large city, died of pulmonary tuberculosis in less time than those which showed smoke free lungs. A seriocomic contrast, says Jacobi, is furnished by the opinions of those who assert that soot in the lungs prevents tuberculosis. On that theory the metal grinders of Sheffield had until twenty-five years ago the habit of going into places filled with coal dust after having been in metal dust all day. What was called "grinders' asthma" was and is tuberculosis. There were few that escaped. Jacobi gives the laws regulating the smoke in New York city, and concludes that, as usual, the laws appear to be made to protect not the people, but their enemies.

3. **Public Provision for Advanced Cases of Tuberculosis.**—Otis, in conclusion, says that it is evident from the present agitation that the public is determined to control and eventually to eradicate tuberculosis, and that we now possess sufficient knowledge of the disease and its prevention to intelligently work with this end in view. An efficient and complete plan for public execution in the pursuance of this object would be as follows: (1) Compulsory registration and disinfection; (2) free examination of sputum; (3) State or municipal law against promiscuous spitting; (4) sanatoria for incipient cases; (5) hospitals for advanced cases, with maternity wards for tuberculous pregnant women; (6) tuberculosis dispensaries; (7) farm colonies for those discharged from the sanatoria; (8) sanatoria or hospitals for tuberculous and scrofulous children, preferably situated on the seashore, as France, England, and other countries have done; (9) efficient school inspection by physician and nurse with special reference to tuberculosis; (10) factory and workshop inspection with the same purpose in view. The majority of these measures are already in operation in a number of cities and States. None is more urgent or will contribute more to prevention than consumptive hospitals with sufficient accommodations for advanced or hopeless cases. We must isolate the dangerous, hopeless, and

survive, the community has a right to demand it and should take steps to enforce it.

5. The Treatment of Traumatic Rupture of the Kidney.—Babler observes that the secret of success in the treatment of traumatic rupture of the kidney lies in the elimination of the "mortality of delay." The first essential question presenting in every case of renal injury refers to the severity of the lesion: Is there profuse hæmorrhage or a perirenal collection of urine and blood or a soiling of the peritoneal cavity? When we can, after a careful consideration of the history of the accident, and study of the clinical picture presented, etc., feel confident that prompt exploratory incision is not necessary, the treatment is palliative. The shock is treated according to its severity. With exploratory incision comes the question of nephrectomy. Before determining whether simple lumbar incision, packing and drainage, or prompt excision of the lacerated kidney is preferable, we must ascertain the condition of the injured organ, the possibility of partial nephrectomy, and the presence or absence of a second kidney. When lumbar incision shows that the large vessels are intact and that the rupture does not involve the renal pelvis, suture and drainage, or packing and drainage, are indicated. The fact that simple packing may produce intestinal obstruction by pressure must not be forgotten. When a median incision has enabled the surgeon to find a healthy functioning kidney, and when the hæmorrhage from the injured organ has been severe, it is safer by far to perform primary nephrectomy than to resort to packing and drainage—measures that may prove inefficient to prevent a secondary hæmorrhage, or, eventually, death from sepsis.

7. Lupus Erythematosus.—Heidingsfeld states that lupus erythematosus, in the absence of bacteriological proof, appears to be a local infectious disease. The course of the disease varies with the special clinical types, and the severe forms do not yield readily to the present complex and inadequate therapeutical measures. The severe types, when favorably situated and sufficiently well circumscribed, should be extirpated; merely the border if the centre is undergoing visible signs of retrogression and cicatricial atrophy, otherwise the entire lesion. The conjunctival mucous membrane may become involved by direct extension of the process, and in severe cases blindness may become a complication. The primary pathological focus appears to be in the epidermis and its annexa, rather than in the vessels of the corium. The earliest changes are observed in the hair follicles and sebaceous glands, when they are present, in the form of an active proliferation of the cellular structure. These in turn call forth a focal exudation of plasma cells from the immediate capillaries, which imparts to the affection a characteristic pathology, and is often accorded primary rather than secondary importance. The sweat glands share in the same process. The process is accompanied with free superficial keratinization and plugging of the orifices. In the absence of hair follicles and glandular elements, the stimulus is primarily directed against the epidermis, resulting in its down and over growth, and the resulting plasma exudation is more superficially placed and directed against the lower layer of the epidermis. The inflammatory change ultimately calls forth a connective tissue degeneration.

8. Abdominal Pain.—Lennander says that in estimating abdominal pain, and especially in connection with illnesses giving the symptoms of "ileus," we must bear in mind, briefly, that pains do not originate within the abdominal organs which are supplied only by sympathetic fibres and the vagus nerves. All pains originate in the abdominal wall, more especially in the parietal serous membrane and subserous connective tissue structures which are innervated by the cerebrospinal

nerves of the stomach and intestine, as well as of string or band like adhesions to the abdominal parietes, invariably elicits pain. The same thing holds true for the displacement of the parietal serosa from its normal relation to the muscles or aponeuroses of the abdominal wall. Most of the diseases connected with ileus are, at their commencement, attended by increased and, as a rule, irregular peristalsis. Chemically different substances, such as the contents of the stomach, gallbladder, intestine, or abscesses, give rise to severe pains when they come into contact with a healthy or hyperæmic parietal peritoneum (pain due to perforation). Even that form of acute peritonitis which goes under the name of peritoneal irritation (*peritoneale Reizung*) greatly increases the sensitiveness of the parietal serous membrane. The sensitiveness of the parietal peritoneum at first increases pari passu with the inflammation, but later decreases again when the inflammation has reached a certain high degree, and in many cases may ultimately cease altogether.

11. Typhoid Bacilli in Fæces.—Pratt, Peabody, and Long conclude from their observations, that the typhoid bacillus is an invasive microorganism. It is able to develop in the blood and the tissue juices of the body. It does not develop in the intestinal contents except under unusual conditions. It more frequently occurs in large number in the urine than in the fæces. The gallbladder is a favorite habitat of the typhoid bacillus and it develops luxuriantly in the bile. The typhoid bacilli in the intestine come in large part from the bile. They are rapidly destroyed in the duodenum and jejunum, and it has recently been shown that the wall of this portion of the intestine has marked bactericidal power. It is probable that destruction of all the typhoid bacilli that enter with the bile rarely occurs in the lumen of the bowels. The number, however, becomes so greatly diminished that their presence cannot be demonstrated in the stools of many patients with typhoid fever. Employing the most approved methods for isolating *Bacillus typhosus* from fæces the authors were able to recover this microorganism in only 21 per cent. of the febrile cases. Usually when present they occurred only in small number. They were found in greatest number in a stool containing much blood. It is not improbable that if there was a method that permitted the bacteriological examination of the entire stool for typhoid bacilli as has been devised for detecting the presence of cholera bacilli, a few microorganisms might be found in every stool. This, however, would not affect the authors' conclusion, that the typhoid bacillus does not find conditions favorable for its growth in the intestinal contents. It is demonstrable in the fæces in such a considerable proportion of cases because it is eliminated in great number by the bile. It is also not infrequently excreted in the urine and sputum, and it may be found in these secretions when absent from the stools. The portal of entry of the typhoid bacillus is not known. There is no more evidence in favor of entrance through the intestine than through the tonsils or the gastric mucosa.

MEDICAL RECORD.

September 7, 1907

1. The Attitude of Public Health Authorities Regarding the Preservation of Moll. by Heat.
By R. W. RAUDNITZ.
2. Sixteen Years' Experience with Tuberculin and with Other Products of the Tubercle Bacillus in the Treatment of Pulmonary Tuberculosis.
By KARL VON RECK.
3. Congenital Occlusion of the Choana, with Report of Two Cases.
By JOHN EDMUND MACKENTY.
4. The Abuse of the Voice and Its Cure.
By N. J. POORE VAN RAGEN.
5. Impaction of Fæces.
By LEWIS H. ADLER, JR.
6. Instructions to Those Having Syphilis.
By VICTOR C. PRIEDEN.

7. The Determination of Sex. By ARTHUR H. JACKSON.
8. Phthisis Tent for Outdoor Life.

By NORMURNE B. JENKINS.

2. Sixteen Years' Experience with Tuberculin and with Other Products of the Tubercle Bacillus in the Treatment of Pulmonary Tuberculosis.—Von Ruck says that during the sixteen years that have elapsed since the introduction of tuberculin by Professor Koch, this remedy or similar preparations have been used continuously in most cases of pulmonary tuberculosis treated by him in the Winyah Sanatorium, in conjunction with the usual hygienic and dietetic methods and such symptomatic measures as appeared of advantage in individual cases. Owing to the opposition to tuberculin which, after a short period of its popularity, led to its almost entire abandonment, the specific method of treatment of tuberculosis has, until the last few years, made but little progress, and, although there have been individual observers who, like the author, believed they derived material aid from the so called combined method, their influence was inadequate to remove the early adverse judgment to a sufficient degree to reopen the subject for consideration. During the years passed, specific treatment of tuberculosis has, however, not been entirely abandoned, although those who have adhered to it from the beginning are few in number. The method made occasional new friends and their number has grown more rapidly of late. The literature now is growing voluminous with contributions, this time almost without exception favorable to a combined method of treatment, in which the specific part with products of the tubercle bacillus is given an important place. In the meanwhile improvements in preparations and in the method of administration have also been made, and a better understanding of their action and of the selection of suitable cases has enabled those who have availed themselves of their use to improve their clinical results to a degree that speaks unmistakably in favor of their value. The total of 1,893 cases treated and reported by the author to January 1, 1907, represents all stages. Only such cases were excluded in which the prognosis had become practically hopeless by reason of the advanced stage of the lung affection or of its acute character, or of complications which precluded the prospect of a therapeutical result. Cases treated for less than one month were not reported. The total results obtained with the various preparations as they appeared at the time of the patient's discharge were: Apparently cured, 904, or 47.8 per cent.; improved, 718, or 37.9 per cent.; failed, 271, or 14.3 per cent. A division of the cases according to the particular preparation employed shows for the original tuberculin in 379 cases: Apparently cured, 135, or 35.5 per cent.; improved, 142, or 37.5 per cent.; failed, 102, or 27 per cent. Modifications of tuberculin in 348 cases: Apparently cured, 132, or 38 per cent.; improved, 167, or 48 per cent.; failed, 49, or 14 per cent. Watery extract of tubercle bacilli in 1,166 cases: Apparently cured, 637, or 54.6 per cent.; improved, 400, or 35.1 per cent.; failed, 129, or 10.3 per cent. An inquiry as to the permanency of cures of patients from 1897 to 1904 shows that 602 answers were received, relapse had occurred in 62, or 10.2 per cent., 126, or 20.9 per cent. had died; and 414, or 68.8 per cent., were said to be in good health.

7. The Determination of Sex.—Jackson, of Los Angeles, says that it would hardly be reasonable to think that the female has an influence in the division of the ovum, since it is known that her own will as to the sex of the future offspring cannot be gratified. This will exclude her nervous influence over the ovum while her physical contribution can be seen in the offspring independent of the sex which it may happen to be. Therefore, the mother as a factor will have to be considered. In speaking of the cause direct as determining factor, the author states that in watching the process which governs maternal time of cohabitation, we have observed that

there is always a struggle for the survival of the fittest, from the highest to the lowest form of animal life. Why cannot the same struggle take place in the ovum, leaving only the fittest element to survive, and the struggle for a future existence may as well begin in the individual cell as later in life. Hereditary tendencies may play a prominent part which might influence the element. It can be seen that in some females the male element may predominate, while in others it is the female. Then we have females who reproduce nothing but females, no matter how many males may be the factors of fertilization of the ova, while others reproduce males. From this we can reason that in these instances one definite element is constantly predominating over the other, while in others the elements vary. As to the ratio of births, statistics differ. Some assert that more females are born, while others allege the reverse. However, Nature never intended to put the birth rate on monogamistic laws, for monogamy is not the process of evolution, but merely a factor in the history of the development of the human race. It has been proved that the female must predominate for the survival of the species, from the lowest to the highest form of animal life. Natural laws can never be altered, no matter how we may try to shape the individual cell, no matter how we may try to oppose Nature's forces, the struggle for existence constantly goes on in spite of civilized methods and laws. Therefore, reproduction cannot be based or regulated by any set rules. It is Nature's own force. We can only study, reason, watch, and observe the forces as they are constantly shaping themselves so as to remain fittest in the survival of the great human race.

BRITISH MEDICAL JOURNAL

August 24, 1907.

1. The Unborn Child: Its Care and Its Rights.
By T. A. HELME.
(Seventy-fifth Annual Meeting of the British Medical Association.)
Section of Obstetrics and Gynaecology.
2. Puerperal Morbidity. By E. H. TWEEDY.
3. A Discussion on the Justification for Artificial Dilatation of the Cervix to Hasten Delivery at Full Time, and the Most Appropriate Method of Producing this Dilatation. Introduced by R. JARDINE.
4. A Discussion on Measures to be Recommended to Secure the Earlier Recognition of Uterine Cancer. Introduced by H. R. SPENCER.
5. Chorion Epithelioma. By W. C. SWAYNE.
6. The Operative Treatment of Carcinoma of the Cervix. By C. LOCKYER.
7. A Case of Complete Rupture of the Uterus, with Escape of the Fetus Into the Peritoneal Cavity: Panhysterectomy; Recovery. With Reference to Thirteen Other Cases. By J. M. MUNRO-KERR.
8. The Indications for Operations on Uterine Fibroids and the Methods of Performing Them.
By P. STRASSMANN.
9. A Note on the Technique of Abdominal Hysterectomy for Fibroids. By F. EDEL.
10. Fibroids and Fibromyosarcomata: Criteria in Unusual Sites. By S. J. CAMERON.
11. Notes on a Series of One Hundred Consecutive Abdominal Sections in Hospital Practice.
By J. I. PARSONS.

1. The Unborn Child.—Helme states that we must recognize the rights of the unborn child: 1. To life. 2. To protection from the hereditary taint of degeneracy. 3. To health, that is, to conditions conducive to the safeguarding of its health. 4. To Nature's food (when born), that is, its mother's milk. 5. To its natural protection (when born), that is, its mother's care. The recognition of these rights demands the recognition of the following duties on the part of the parents, the profession, and the state: 1. On the part of the parents, a clean and normal life before and after conception. 2. On the part of the mother, the maintenance of good health and of her milk at birth, and the determination upon delivery, if the health of the child is the better, to breast-feed it.

care of the child after birth. 3. On the part of the medical profession. a. The restriction of therapeutical feticide. b. The education of a healthy public opinion. 4. On the part of the state. a. Restriction of procreation to the fit—i. By the regulation and restriction of marriage to the fit either by education or legislation. ii. By the prevention of procreation by the unfit—whether by segregation of the unfit, or sterilization of degenerates, or the evolution of a healthy public opinion. b. Regulation of the life of the pregnant woman—i. By state provision of food for the necessitous. ii. By provision of hospitals for the reception of women during pregnancy. iii. By state prohibition of woman's work and employment during pregnancy. c. Immediate registration of (a) still births, (b) premature labors, (c) abortions, and (c) if practicable, pregnancy. d. Registration of birth within twenty-four hours. e. Regulation of the life of the woman who has given birth to a child—i. By state provision of food to the necessitous. ii. By state prohibition of woman's work for at least six months after confinement.

7. Rupture of the Uterus.—Munro-Kerr reports a case of complete rupture of the uterus, occurring in a ricketty woman during labor. The fœtus escaped into the peritoneal cavity. Panhysterectomy was performed and the patient made a good recovery. In many cases of this kind, the rupture of the uterus is not recognized until after the birth of the child, many of the classical symptoms being absent. The sudden feeling of something having given way is present in but very few cases, and only where the laceration is extensive and the fœtus has escaped into the abdominal cavity or the cellular tissue under the peritonæum. Alterations in the shape of the abdominal swelling can also only occur where the child passes wholly or in part out of the uterus, when two abdominal swellings become apparent. A bipartite uterus may simulate this condition. The fetal parts are much more easily palpated after the child has passed into the abdominal cavity, than when it is still in the uterus. The amount of hemorrhage which occurs as a result of rupture of the uterus varies greatly. In only three of the author's thirteen cases was it severe. But there may be but little bleeding from the vaginæ, much of the blood escaping into the peritoneal cavity. But as a rule the bleeding is very gradual, the child's body acting as a plug. After the fœtus is extracted the hemorrhage may become much more profuse. The situation of the tear as regards the uterine bloodvessels is of great importance. The pulse rate gradually rises, and uneasiness, general abdominal pain, and the ordinary symptoms of collapse become more pronounced. The diagnosis between complete and incomplete rupture can be arrived at only by vaginal examination. When the rupture is complete the intestines can be distinctly felt; this is not possible where it is incomplete. Of fourteen cases seen by the writer, three were incomplete and all recovered; two of the complete cases were operated on and both died. Of the remaining nine cases in which hysterectomy was done, six died. Plugging is the safest treatment for the practitioner, providing collapse is not extreme.

9. Uterine Fibroids.—Strassmann discusses the indications for operations on uterine fibroids. It is admitted that a bleeding polypus, a giant tumor of rapid growth, or a tumor which by pressure seriously interferes with the function of neighboring organs such as the bladder or causes insupportable pain, demands surgical interference. Cardiac troubles, in young patients with fibromyoma, are also indications not against, but for operation. In such subjects the progressive myocarditis due to loss of blood, pain, etc., exaggerates the dangers of shock, thrombosis, and embolism which are known to be common after myomectomy. The writer specially calls attention to the complications of fibromyoma, and to the danger of other disease of the genital

organs. Cancer of the body of the uterus seems preferably to affect uteri which have long, perhaps without apparent harm, been affected by tumors projecting into the cavity. As a rule, fibroids in women over fifty years old should not be operated on, but if bleeding and other suspicious symptoms occur, a diagnostic curettage should be done. Sarcomatous degeneration of fibroids may take place, and complicating carcinoma of the ovaries is common. Amenorrhœa should lead to the suspicion that ovulation has been interfered with. A palpable ovary in an elderly woman is always suspicious. Endometritis due to pressure from the fibroids may lead to hydrosalpinx and pyosalpinx, the latter complication being most disastrous, and the prognosis of operation doubtful. Pediculated subserous tumors expose the patient to the extremely serious dangers of torsion of the pedicle, with resultant gangrene and peritonitis. The enucleation of tumors from the gravid uterus is always a most dangerous proceeding, and total extirpation is to be preferred in the cases where operative interference is imperatively called for. The induction of abortion in such cases is also inadvisable. While the author is a pronounced advocate of operation by the vaginal route, yet he does not hesitate to open the abdomen for colossal tumors, for subserous pedunculated growths, etc. Enucleation is more difficult than total hysterectomy, and has a higher mortality.

LANCET.

August 24, 1907.

1. The Principles of Vaccine Therapy, II. (Concluded),
By A. E. WRIGHT.
 2. Stricture and Traumatism of the Vermiform Appendix.
With a Note on Foreign Bodies in the Appendix.
By W. H. BATTLE.
 3. The Nature and Management of Hypertrophy of the Heart,
By A. MORISON.
 4. Pancreatitis Due to Direct Extension of a Malignant Growth of the Gallbladder Along the Common Bile and Pancreatic Ducts,
By A. W. M. ROBSON and P. S. CAMMIDGE.
 5. Calculi in the Appendix.
By D. T. BARRY.
 6. A Case of Appendicitis Excited by a Clove, the Appendix Being the Sole Viscus in a Hernial Sac,
By W. H. BARNETT and J. W. S. MACFIE.
 7. A Record of the Physical Examination of One Thousand Boys at their Entrance on Public School Life,
By C. DUKES.
 8. A Case of Typhoid Fever: A Note on the Bacteriological Examination of the Blood,
By W. MUIRHEAD.
- 1. Vaccine Therapy.**—Wright, in the conclusion of his lecture on the principles of vaccine therapy, summarizes his personal experience as to practical results, as follows: 1. Type of infection where a single species of microorganism has penetrated into the interior of the body and has established itself in one or more foci without causing any considerable destruction of tissue or constitutional disturbance. Typical examples are where tubercle bacilli have lodged in lymphatic glands and where staphylococci have penetrated into the subcutaneous tissues and yet causing only suppurative (furnucular) as distinguished from necrotic (carbuncular) changes. Here his results have been all but uniformly successful. In furnuclosis cure results in a few days in tuberculous adenitis in from five weeks to eighteen months. The same is true of tuberculous infection of the testicle, kidney, and urinary passages, and also, to a modified degree, in early cases of pulmonary tuberculosis. 2. Ulcerative type of infection, met with in connection with the breaking down of nodules in the deeper tissues and the penetration of superficial infections. This is as tractable to vaccine therapy as type one, except where secondary infections have supervened. If anything, an open ulcer is more tractable than a focus of infection in the deeper tissues which has not found vent or which has not penetrated to the lymph bearing stratum below. 3. Infections of the skin. These

fall into two categories. Dry, scaly, and nonvascular infections, such as "lupus psoriasis," are extremely intractable to vaccine therapy. But where the skin is vascular, or the microbes penetrate deeply, as in staphylococcal sycosis, excellent results are obtained. 4. Infections of mucous membranes and of the glands and ducts which stand in connection with mucous membranes. These are readily influenced by vaccine therapy, good results having been obtained in infections of the middle ear, the antrum, the nasal sinuses, dental alveoli, and salivary glands, also in coli infections of the intestine and gall bladder. But it must be remembered that most mucous membranes harbor on their surface many forms of microorganisms, and as vaccine therapy only does away with one particular form, some other class may multiply and cause trouble. In bladder infections we generally have also to deal with a bacteriuria. 5. Infections of sinuses. Very successful results are obtained in these cases when the inoculation of bacterial vaccines is combined with a course of treatment by local lymphagogues. 6. Mixed infections. Practically every case of suppurating lupus is complicated by staphylococcus infection, and most of them also by a streptococcus infection. And what holds true of lupus holds true, *mutatis mutandis*, of every tuberculous affection to which microbes can find access. In these instances of mixed infection, two cases must be considered: a. Case where vaccine therapy is directed to the destruction of only one of the infecting microbes. In a few instances where furunculosis was due to both streptococci and staphylococci, the extinction of one organism under vaccine therapy has indirectly led to the extinction of the other. But such an event is extremely exceptional, and all other organisms except the one specially aimed at are quite unaffected. Indeed the multiplication of competing microbes may be thereby favored. b. Case where vaccine therapy is directed to the destruction of all the infecting microbes. Where in cases of mixed infection measures are taken to immunize the patient against each of the different infections, very successful results have been obtained—for instance, in lupus, cystitis, and endometritis. 7. Generalized infections. In six cases of Malta fever, distinct clinical improvement occurred in each case in association with an increased development of antibacterial substances in the blood. In two cases of streptococcal septicæmia a complete cure was achieved. In a third case (one of malignant endocarditis) vaccine therapy brought the temperature, which had been elevated for months, down to normal, the patient dying later of cardiac complications. In three other cases of streptococcal endocarditis the patients succumbed, having in each case failed to make any immunizing response to the inoculations.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT

Ergebn. 8. 1907.

1. The Question of Serum Supersensitization. By COHEN.
2. Renal and Rectal Discharge, Artery and Venous Index in Treatment with Marmorel. By HARTLEIB.
3. Hysterical Perspiration. By CURSCHMANN.
4. The Relations Between Pneumonia and Gout.
5. Concerning the Administration of Medicaments in Rumpel's Capsules (Capsule Gelodurata). By SCHUBERT.
6. The Casuistics of Congenital Umbilical Hernia. By RINGEL.
7. The Iodine and Mercury Treatment of Tuberculosis in the Nose, Pharynx, and Larynx. By GRÜNBERG.
8. A Contribution to the Semiology of Infantile Myopia. By RINGEL.
9. Congenital Cystitis in the Embryo and Symptomatology of Cystitis of the Pancreas. By LILIENTEIN.
10. Enchondroma of the Larynx. By HARTLEIB.
11. Atrophy of the Nails After Disease. By GROSS.

12. Casuistics of Poisoning by Cheese. By FEDERSCHMIDT.
13. A Simple Method of Extension. By HOEMANN.
14. The "Free Society of Friends of the Specific Treatment of Tuberculosis" and Its Opponents. By PETRUSCHKY.

1. **Serum Supersensitization.**—Otto finds, from his experiments, that three periods are to be distinguished in all animals that have once previously been treated with serum; (1) One in which the blood is free from anaphylactic bodies, and the animal is not supersensitive; (2) one in which the blood contains anaphylactic bodies, and the animal is not supersensitive; and (3) one in which the blood contains anaphylactic bodies, and the animal is supersensitive. He sums up the results of his studies in the following manner: 1. The organism of the previously treated guinea pig is affected by the single previous treatment with foreign serum that after a certain time a reinjection is followed by a reaction with typical acute symptoms of the disease. 2. These symptoms of disease may be observed also in normal animals when they have been previously treated with serum from the same kind of animals. 3. The supersensitiveness induced by the first injection may be weakened or prevented by remains of antigen in the body so that an apparent insensibility may result. The duration of this period of insensibility is dependent on the dose of serum employed in the first injection.

3. **Hysterical Perspiration.**—Curschmann reports two cases of attacks of copious perspiration which he believes to have been of purely psychical origin.

4. **Relations Between Pneumonia and Gout.**—Ebstein reports three cases which seem to support the theory that there is an active relation between croupous pneumonia and gout.

6. **Congenital Umbilical Hernia.**—Ringel reports two cases of this nature, both of which were operated on, one successfully. The author then discusses three methods of treatment which may be employed in such cases.

7. **The Iodine and Mercury Treatment of Tuberculosis in the Nose, Pharynx, and Larynx.**—Grünberg reports a case of this nature in which he asserts that the diagnosis was absolutely positive and that the result was surprisingly good. The treatment was divided into three periods, that of the administration of potassium iodide from January 21st to March 1st, that of the administration of the iodide, together with intramuscular injections of calomel from March 1st to April 8th, that of abstinence of medication from April 8th to May 25th, and the second period of injections of mercury from May 23rd to June 8th. He considers that he has demonstrated the favorable action of both potassium iodide and of mercury on tuberculosis of the upper air passages.

9. **Cysts of the Pancreas.**—Lilientein reports a case in which a cyst of the pancreas in a man, thirty-two years of age, was successfully opened and drained. Recovery was complete in seven weeks.

10. **Enchondroma of the Larynx.**—Hartleib reports a case in which an enchondroma was removed through an external incision from the larynx below the vocal cords of a man, forty-five years of age. The operation was successful and the microscopical examination confirmed the clinical diagnosis.

12. **Poisoning by Cheese.**—Federschiedt reports three cases of violent gastro-intestinal symptoms following the ingestion of cheese.

LA PR SSE MEDICALE

1. Posttyphoid Tuberculosis.—Lesieur and Janbert

1. of pulmonary and pleuritic tuberculosis following typhoid fever, that a patient convalescing from typhoid should be protected against the contagion of tuberculosis.

2. **Obesity.**—Levy asserts that the true line of conduct in the attempt to cure obesity is a proper, long continued regulation of the diet, but without torture to the patient.

August 24, 1907.

1. Radicular Neurites, By CAMUS and ALBERT SEZARY.
2. Uramic Intestinal Pseudoocclusion, By PAUL DELBET.
3. Treatment of the Aleppo Button, By BENOIT.

1. **Radicular Neurites.**—Camus and Sezary describe the syndrome which has received from Professor Djerine the name of radiculites, which we have translated radicular neurites, or neurites, starting from the roots of the nerves. These neurites are clinically characterized by troubles of sensation in longitudinal bands which follow distinctly the areas of distribution of the affected nerves and also by motor troubles of the muscles supplied by the nerves. Certain of these neurites present peculiarities. Thus when the eighth cervical and the first dorsal are involved certain ocular symptoms are present, myosis, narrowing of the palpebral fissure, retraction of the eyeball; when the third, fourth, fifth, and sixth dorsal, vasomotor troubles of the face; when the lumbar region, the picture presented is that of a radicular crural neuritis. The treatment is that of the cause, meningitis, syphilis, tuberculosis, or compression.

3. **Aleppo Button.**—Benoit reports eight cases cured by applications of potassium permanganate in from nine to thirty-six days.

REVUE MENSUELLE DES MALADIES DE L'ENFANCE.

July, 1907.

1. Epileptic Dementia in Childhood and Adolescence (*To be continued*), By ROGER VOISIN.
2. Contributions to the Study of Anæmia Infantum Pseudoleucæmica, By CHARLES COHEN.
3. Primary Tuberculosis of the Patella, By M. J. ANDRIEN.
4. On Hygiene of the Mouth During the First Dentition, By CAILLON.

1. **Epileptic Dementia in Childhood and Adolescence.**—Voisin observes that the term dementia denotes an incurable condition with complete or partial loss of the mental faculties; therefore, a temporary mental derangement, such as occurs after epileptic convulsions, is not a true dementia, but as the mental confusion after the paroxysms plays an important rôle in the progressive enfeeblement of the intellect, these cases must nevertheless come under the head of dementia. Epileptic dementia in childhood leads to acquired idiocy, that is, not only is there a complete arrest of development, but also a retrograde movement. Epileptic dementia of adolescence occurs mostly in children who have frequent attacks and who present methepileptic hebétude. The main factors in determining the prognosis are the frequency of the attacks rather than their character, and the mental state following the attacks. The ætiological factors are puberty, infectious diseases, autointoxications, and too rapid growth. There are three forms of epileptic dementia: 1. That due to epilepsy coexisting with juvenile paralysis, of which only one case is on record. 2. Dementia with paralysis and spasms, which presents symptoms of a true spastic paraplegia, giving it a resemblance to Little's disease. The convulsive type is characterized by frequent paroxysms, rise of temperature, and coma between paroxysms. The attacks last a few days. The vertiginous type is characterized by periodic attacks of vertigo, loss of consciousness between attacks, rise of temperature, though less marked than in the convulsive type, hebétude after the attacks, gastrointestinal disturbances, retention of urine, and occasionally convulsive movements at the beginning and

end of the attack. The attacks last from a few days to six weeks. In cases which go on to dementia, symptoms of general paresis appear, such as exaggeration of the reflexes, spasticity, paralysis, and enfeeblement of the intellect. The paralysis usually affects the lower, but may affect the upper extremities, or one side. In the beginning it lasts only a few hours after the paroxysm, but soon persists for several days or until the hebétude has passed away. This form of dementia may extend over a long period of as much as ten or twelve years. In the seven cases in which lumbar puncture was done, the results were negative. 3. Dementia without paralysis, as in dementia præcox, which it resembles, four different types are seen: The simple type, which is the one most frequently observed, is characterized by a progressive weakening of the mental faculties, appearing first at the end of adolescence. The paroxysms, which are usually nocturnal, are at first followed by only a slight degree of hebétude, but as the disease progresses the patient becomes excitable, suspicious, and irritable. At the age of thirty to thirty-five the attacks become diurnal as well as nocturnal, the hebétude following them is deeper, and signs of change of character appear with alternating mania and depression, loss of memory for recent events, loss of notion of time, confusion of ideas, and stereotyped motions. The hebephrenic type is characterized by the early onset of mania, followed by depression with marked prostration, delirium, inability to concentrate the mind or anything, unsystematized delusions, and change of character.

2. **Contributions to the Study of Anæmia Infantum Pseudoleucæmica.**—Cohen describes six cases of pseudoleucæmia in infants under two years of age with such marked manifestations of rachitis that the question arises whether grave cases of rachitis terminate in pseudoleucæmia, or whether the pseudoleucæmia causes trophic disturbances which lead to rachitis. The author does not believe that pseudoleucæmia ever merges into true leucæmia, for in pseudoleucæmia the leucocytes never exceed 60,000, mast cells and myelocytes are not found, and the liver, spleen, and bone marrow are infiltrated with lymphocytes and not with myelocytes.

August, 1907.

1. The Temperature of Breast Fed Infants, By P. NOBÉCOURT and P. MERKLEN.
 2. Certain Forms of Tuberculous Splenomegaly, By M. L. RIBADEAU-DUMAS.
 3. Epileptic Dementia in Childhood and Adolescence (*Concluded*), By ROGER VOISIN.
 4. Strangulated Hernia in Infants, By A. BROCA.
1. **The Temperature of Breast Fed Infants.**—Nobécourt and Merklen speak of the uniform temperature of breast fed infants. The temperature in twenty-four hours varies only two or three tenths of one degree in health, but shows daily excursions of several degrees if there are gastrointestinal disturbances. As to the cause of this normal uniformity of temperature in infants the authors think that it has no relation to light, nor to meals, as has been suggested by Dr. Joulouse and Dr. Piéron, since the temperature remains the same during the night. After the end of the first year, or about the time that cereals are added to the diet, the temperature begins to show greater variations in proportion to the increasing activity of the child; therefore the authors conclude that the uniformity of temperature in breast fed infants must be due to lack of activity.

2. **Certain Forms of Tuberculous Splenomegaly.**—Ribadeau-Dumas says that primary tuberculosis of the spleen may be manifested by an enlargement of that organ only, whereas on the other hand, this condition may be accompanied by a general hyperplasia of the lymphatic tissues. In the latter case the disease is often diagnosed as lymphadenoma, but a histological examination will show the tuberculous character of the pathological tissues. The spleen shows diffuse fibrosis, with scattered caseous masses, and tuberculous nodules, at

the periphery of which there is a zone of fibroblasts, impregnated with iron pigment, and in the medullary substance there is a preponderance of large new cells with budding nuclei. These abnormal elements are of an adenomatous character, but their structure warrants their classification as tuberculous.

3. Epileptic Dementia in Childhood and Adolescence.

Voisin, in concluding his paper, states that the paranoid type of epileptic dementia is characterized by systematized delusions, ideas of persecution, loss of all the sentiments of affection, convulsive paroxysms, and attacks of violence, especially at the menstrual periods. The catatonic type is characterized by catatonic stupor, suggestibility, verberigation, and negativism, which may go so far that the patient refuses to eat and has to be fed by gavage. The course is more rapid in this form than in any other. In conclusion, the author mentions two theories in regard to the origin of epileptic dementia. According to one theory the dementia is attributed to the epilepsy, and all the nervous phenomena of epilepsy are thought to be due to a cerebral irritation of toxic origin. According to the other theory the dementia is due to a state of degeneration, and great stress is laid upon heredity. The author is inclined to think that this is true of the form which resembles dementia præcox, while in the spasmodic form the dementia is unquestionably a direct outcome of the epilepsy.

REVUE DE MEDECINE

August, 1907.

1. Investigations Relating to the Pathological Physiology of Diabetes Mellitus, By M. LABBÉ.
2. Contribution to the Clinical and Experimental Study of Sporotrichosis, By LESNÉ and MONIER-VINARD.
3. Investigations Relating to the Treatment of Ankylostomiasis, By J. C. CASTELLO.

1. **Investigations Relating to the Pathological Physiology of Diabetes Mellitus.**—Labbé defines diabetes mellitus as essentially a disease of the glucose regulating apparatus which includes principally the liver, pancreas, and nervous system. Their function is to limit the production of glucose and prevent its accumulation in the blood and tissues. When diabetes is present the tissues are unable to utilize and oxidize the glucose, or the liver is incapable of storing it and retaining it in the form of glycogen, so that glucose in excess passes into the blood. The resulting symptoms are glycosuria, polydipsia, polyuria, polyphagia, etc. Such is the process whether the primary lesion is in the liver, the pancreas, the nervous system, or the pituitary gland, the organism being absolutely or relatively unable to oxidize the carbohydrates. Disturbance in the regulation of glucose is not present in all diabetics to the same degree; in one class of cases the oxidizing power is entirely lost, all the glucose produced by the ingested carbohydrates, all that results from the metamorphosis of albumenoids and fats ingested, and even that which is derived from the changes in the tissues being discharged from the kidneys without benefit to the organism. This is the grave variety of diabetes. In another and more common variety the oxidizing function is not entirely in abeyance, a certain quantity of carbohydrates being tolerated without glycosuria, this condition appearing only when the limit of toleration has been passed. For purposes of the study of a given case of diabetes, it is therefore necessary to compare the degree of glycosuria with the amount of food consumed.

- ## 2. Contribution to the Clinical and Experimental Study of Sporotrichosis
- Laine and Mäkelä-Virtanen found that the parasite in pathogenesis can exhibit, producing a fatal result, also in the case of the yeast of the peritonitis, and study of local lesions, which occurred under the skin. Independent research was conducted in endophthalmitis and disseminated systemic disease, as well as, among others, of the clinical and natural peritonitis.

the spleen, and of the lungs, while the other viscera apparently remained intact. These changes were quite similar to those which were produced by inoculation with Koch's bacillus. The younger the animal the greater the intensity and gravity of the resulting lesions. The most virulent cultures for the rabbit were those which were derived from vegetable media, bouillon cultures being less active. The older the culture and the parasite the less its infecting power. When pus or diseased organs containing the parasite were injected very important lesions and a fatal issue quickly resulted.

3. **Treatment of Ankylostomiasis.**—Castro-Dolì states that in the treatment of this condition two indications are to be met—the destruction of the parasite, and its ejection from the body of the patient. To satisfy the first many substances have been employed. Among them may be mentioned calomel, santonin, and chenopodium, all of which have been found unsatisfactory. Doliaria has been used with success in Brazil, but has found little favor elsewhere. Male fern, thymol, eucalyptol, and essence of wintergreen are highly recommended by many authors. Spanish writers have recently advocated the use of glycerine which has been found especially destructive to the larvæ of the parasite. The author experimented with three substances and presents an analysis of 50 cases. Of these cases five were treated with male fern, twenty-one with eucalyptol and twenty-four with Beta naphthol. The results were moderately successful with the first, more successful with the second, and satisfactory with the third, which is the treatment recommended.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

September, 1907.

1. Dispensary Ideals, with a Plan for Dispensary Reform
Based Upon the Adoption of the Principle of Re-
stricted Numbers, By S. S. GOLDWATER.
2. Benign Stenosis of the Pylorus,
By S. W. LAMBERT and N. B. FOSTER.
3. Heart Clot in Pneumonia, By B. ROBINSON.
4. The Interpretation of X Ray Pictures as an Aid to the
Early Diagnosis of Thoracic Aneurysm.
By H. SEWALL and S. S. CHILDS.
5. The Relative Value of Great and of Low Altitude in
the Treatment of Tuberculosis,
By F. M. POTTINGER.
6. The Relations Between Diabetes and Pregnancy, with
the Report of a Case of Diabetes in which the Glyco-
suria Disappeared with the Inception of Pregnancy,
By A. A. LINDNER.
7. Hyperthyreoidism, By A. R. ELLIOTT.
8. Pyelonephrosis of a Supernumerary Kidney,
By J. C. MONRO and S. W. GODDARD.
9. Tendon Transplantation and Nerve Anastomosis,
By F. H. RICHARDS.
10. The Pleural Pressure After Death from Asphyxia,
A Preliminary Study, By W. B. STANTON.
11. A Study of Normal Living Anatomy in Early Life,
By T. M. ROTCH and A. W. GEORGE.
12. The Use of Ammonium Chloride in the Treatment
Technique, By A. A. EPSTEIN.

1. **Dispensary Ideals.**—Goldwater proposes that the final organization shall be as follows: 1. Limited dispensary licenses, each dispensary being limited to a suitable number of patients, to be residents of an assigned district. 2. Registration of all families claiming dispensary relief and refusal of relief to all families not registered and known to be ineligible. 3. A system of home visiting aiming at the effective treatment of increased and otherwise intractable dependent and semi-dependent cases. 4. The use of the dispensary as a place for the administration of existing and preventive New Hampshire laws as to contagious diseases, venereal diseases, mental and physical disabilities, and to allow for the relief of physical and mental disabilities in those cases where the patient desires to do so. The author thinks these specific will be found to demand a work which the community can sustain.

and by those which have college affiliations and seek a large attendance of a variety of cases.

2. **Benign Stenosis of the Pylorus.**—Lambert and Foster narrate the history of eleven cases which were operated on in the New York Hospital. They affirm that the surgical treatment of the stomach has its most brilliant application in cases of benign stenosis of the pylorus, and sound a warning that surgical interference should not be too long postponed in cases in which medicine does not promptly result in improvement, as evidenced by a lengthening interval between the attacks of obstruction and spasm and a permanent improvement in the general health of the patient. Surgery should not be kept as a last resort, but should be employed before the stomach has become dilated beyond recovery and before the mucous membrane has lost its power to return to the normal and secrete healthy gastric juice. They also emphasize the fact that the mere correction of the mechanical error will not cure these cases. After recovery from the surgical operation the patient must receive treatment to overcome the muscular atony of the stomach, to control the excessive secretion of hydrochloric acid, or to excite the mucous membrane to resume its normal secretory function.

3. **Heart Clot in Pneumonia.**—Robinson thinks the question of cardiac thrombosis in pneumonia is still somewhat undetermined, the pathologists finding it very rarely and believing that it causes death only occasionally. Experimental medicine shows that it may be produced in animals and clinical records are quoted to show that its occurrence in human beings is well authenticated. That it occasionally occurs in diphtheria is unquestioned, especially in those cases in which pneumonia is present as a complication. With the heart clot there is usually pulmonary thrombosis and occasionally pulmonary embolism. If in a given case of pneumonia the proper specific gravity and alkalinity of the blood are maintained the crisis of the disease is precipitated by the continuance of high temperature, which tends to destroy the pneumococcus. This suggests the treatment of the disease with salines. It may be administered in the form of a refrigerant drink, to which citric acid should be added. Venesection is believed to be efficient in certain cases, and this should be followed by saline infusion. Ammonium carbonate or the aromatic spirit of ammonia should also be given at frequent intervals.

4. **X Ray Pictures in Aneurysm.**—Sewall and Childs draw the following conclusions: 1. In a skigram obtained with the central rays perpendicular to the chest at the lower border of the manubrium, the plate being at the subject's back, and the tube twenty inches from the plate, the top of the normal aortic arch should appear opposite the fourth costal interspace behind. 2. The x ray picture is but one link in the diagnostic chain. The clinical history, signs and symptoms must be considered. 3. Dilatations of the aortic arch, especially in its ascending limb, are frequent and must be discounted in patients with atheromatous vessels, as they may be potential aneurysms. 4. If the system of peribronchial glands is well developed the outlines of the bronchial tree, with the attendant arteries, may simulate aneurysm of the descending aorta. 5. In any disorder of the lungs attended by sclerosis the heart is likely to be drawn far out of its normal position. 6. A tumor of the œsophagus could hardly be differentiated from a saccular swelling of the aorta. 7. The mediastinal glands, especially in the tuberculous, often give rise to erroneous diagnosis. 8. Pneumoconiosis may cause precipitation of dense shadows through the thoracic skigram and may simulate sacular aneurysm. 9. The thickened pleura is very opaque to the x rays.

5. **Treatment of Tuberculosis.**—Pottenger thinks the general statement is proper that patients suffering with tuberculosis can get well at various altitudes. Unless a climate is suited to a sick person it is capable of doing

him harm. A change of climate may be very beneficial when the climate is carefully suited to the patient and his disease. The primary effect of climatic treatment is upon metabolism, its fundamental effect is upon tissue change, and its effect depends upon its powers of abstracting heat. The essential conditions for producing immunity from tuberculosis are: (1) A sparse population; (2) abundance of sunshine; (3) pure air with low bacterial content. Great altitude is contrary to the principle of rest in inflammation and in tuberculosis. Even in early tuberculosis only those cases should be sent to high altitudes who are strong enough to meet the extra demand to be made upon them. It must not be forgotten that when one returns to a low altitude a readjustment must take place which may cause retrogression. The author concludes that tuberculosis is best treated at low elevations.

6. **The Relations Between Diabetes and Pregnancy.**—Eshner observes that there is evidence to show that the power of assimilating carbohydrates is diminished during pregnancy, and this deficiency may be manifested by the appearance of sugar in the urine. Transitory glycosuria toward the end of pregnancy or during the puerperium may be considered physiological and related to the activity of the mammary glands in the secretion of milk, and is therefore a resorption phenomenon. Diabetes is a somewhat unusual complication of pregnancy, partly because the disease is less common in women than in men, and partly because it usually occurs later in life than the period during which pregnancy is possible. Pregnancy rarely occurs in diabetic women partly because of their deprived nutrition and partly because of the disorder in the structure and function of the internal generative organs. The combination of diabetes with pregnancy increases the gravity of each. Frequently the fetus dies *in utero* or miscarriage or premature labor takes place, or the child may die at birth or shortly afterward. The child may be diabetic, and the liquor amnii may be increased and contain sugar. The mother often dies of the disease during pregnancy, or at childbirth, or soon afterward. Therefore a diabetic woman should not marry, or if married should not become pregnant.

12. **The Use of Ammonium Oxalate in Blood Culture Technique.**—Epstein states that recent investigations in blood culture work on special cases of infectious disease indicate the necessity of making cultures according to more than one method. In any case it is necessary to make the bedside procedure as simple as possible. This suggested to the author the use of a solution of ammonium oxalate in conjunction with routine blood culture work, the blood withdrawn being thus kept fluid, taken to the laboratory, and studied in any manner desirable. The results thus obtained were controlled by those obtained with cultures made in the usual way. The following are the steps of the author's method: 1. About ten cubic centimetres of blood are withdrawn from a suitable vein. 2. This is introduced into a tube containing a similar quantity of sterilized ammonium oxalate solution. 3. The mixture is thoroughly shaken, or is poured into another sterile tube. The blood remains fluid and is then taken to the laboratory and studied according to any desirable method. This method is suggested as an intermediate step to reduce the work at the bedside to a minimum, and to facilitate more extensive study of the blood than is possible by other methods.

ARCHIVES OF PAEDIATRICS

August, 1907.

1. Pseudo-masturbation in Infants. By B. K. RACHFORD
2. Symptoms of Status Lymphaticus in Infants. By J. HOWLAND
3. Atelectatic Pneumonia. By A. L. GOODMAN
4. Enlargement of the Epitrochlear and Other Lymph Nodes. By A. F. HESS
5. Acrocephalus. By C. H. LINGGREN

1. **Pseudomasturbation in Infants.**—Rachford describes this as a syndrome occurring in infancy and early childhood, sometimes referred to as thigh friction, and infantile masturbation. It is commonly accomplished as the child lies upon its back, the thighs being flexed, crossed, and pressed tightly together, closely embracing the external genitalia; a wriggling or up and down movement is made, the thighs being rubbed together. In other instances the genitalia are rubbed with the hands or feet or against some piece of furniture or other object. These movements are apparently accompanied by pleasurable excitement, the face being flushed, while there is marked increase in the general nervous tension. The act continues for a few minutes and is followed by general relaxation, accompanied by mild perspiration, quiet contentment, and perhaps by sleep. The close anatomical and physiological relationship existing between the bladder, urethra, rectum, and external genitals of the infant, a few months after birth explains the fact that the genitals are capable of responding to reflex excitation originating in the contiguous organs. Pseudomasturbation occurs as early as the fourth month. The average age of its onset in the cases reported by the author is sixteen months. Most of the cases occur in females of distinct neurotic inheritance.

2. **The Symptoms of Status Lymphaticus in Infants and Young Children.**—Howland has observed twenty-five cases of thymus enlargement in infants during the past eight years. There are many symptoms of this condition which may be divided into several classes. In the first there is sudden death with or without trifling shock, as at the beginning of anesthesia or the giving of antitoxine, or the fatal result may be delayed, being preceded by cyanosis and rapid respiration for five minutes or longer. In the second class there is a sudden attack of vomiting or diarrhea, rapid respiration with cyanosis, cough, and dyspnea. If the case begins gradually and runs a prolonged course the diagnosis is difficult, and it may be mistaken for tuberculous meningitis. Enlarged thymus is often associated with diphtheria and cerebrospinal meningitis, and occasionally with purpura with hemorrhage into the skin and elsewhere. Infrequent cases are those in which the thymus acts as a tumor, obstructs respiration, and causes constant dyspnea. In all the cases of this disease the symptoms which are most prominent are dyspnea and convulsions.

3. **Afebrile Pneumonia.**—Goodman observes that the pathology of few diseases is so well known as is that of acute lobar pneumonia, the onset in typical cases being sudden, the fever high, the breathing rapid, and the pulse accelerated. There is an atypical form, however, in which there is no marked rise in temperature, and little or no increase in the rapidity of the respirations. This fact has been noted by well known authorities among them, Osler, Delafeld, and Fraenkel. The explanation is attributed to the various bacteriological exciting factors of the disease.

4. **Enlargement of the Epitrochlear and Other Lymph Nodes in Infants.**—Hess states that his data upon this subject were derived from the examination of the anterior and posterior cervical, axillary, epitrochlear, and inguinal glands, and the nodes of his children of two years of age and under. There were but six cases in which there was no superficial glandular enlargement, though many of the nodes were well nourished and apparently healthy. The posterior cervical glands were enlarged in 13 cases. This was attributed to congenital fault, to lesions of the scalp or pharynx, or to systemic infection. The inguinal glands were enlarged in 10 cases. These two groups of glands drain areas rich in lymphatic tissue. The subaxillary, anterior cervical, and axillary glands were less frequently enlarged. The epitrochlear glands were enlarged only

infrequently, but in syphilitic infants this enlargement may persist as the only evidence of the disease, and the point is emphasized that these glands and the spleen should always be most carefully examined when syphilis is suspected.

THE AMERICAN JOURNAL OF PSYCHOLOGY.

July, 1907.

1. The Psychology of Chess and of Learning to Play It, By ALFRED A. CLEVELAND.
2. Fluctuations of Attention to Cutaneous Stimuli, By L. R. GEISSLER.
3. A Quick Method for Determining the Index of Correlation, By GUY MONTROSE WHIPPLE.
4. Some Experiments on the Associative Power of Smell, By E. M. BOLGER and E. B. TITCHENER.
5. General Practice Effect of Special Exercise, By J. E. COOVER and FRANK ANGELL.
6. Gustatory Audition; A Hitherto Undescribed Variety of Synesthesia, By ANTHONY H. PIERCE.
7. The Period of Mental Reconstruction, By WILLIAM C. RUEDIGER.

1. **The Psychology of Chess.**—Cleveland observes that chess as a strongly competitive form of human play appeals to the fundamental fighting impulse, but it appeals also to the aesthetic and puzzle solving interests; and it affords the pleasure of "being a cause." Visual imagination is an important element in chess playing, especially in blindfold chess, but it is not indispensable. Motor, verbal, or auditory imagery may, and often does, occupy the chief place in the player's consciousness. The mental qualities most utilized in chess playing are: A strong chess memory, power of accurate analysis, quickness of perception, strong constructive imagination, and a power of far reaching combination. These are chess qualities, however, and skill at chess is not a universally valid index of high mental endowment. The logical type differs in the different stages of a game and with the knowledge and skill of the player, approaching always nearer, as his knowledge and skill increases, to that of the syllogism. The reasoning process is, in psychological terms, a sequence of mental states due to shiftings of the focal point of attention, the associations working strictly within the limits imposed by the task or purpose. In his learning the chess player passes through well defined stages, and these mark the necessary steps in his progress. The most important psychological feature in the learning of chess (and it seems equally true of all learning), is the *progressive organization of knowledge*, making possible the direction of the player's attention to the relations of larger and more complex units. The organization involves generalization, increasing symbolism, and the multiplication of associations; it insures prompter recall and increased potential meaning in the general concepts; it releases attention from details; and favors consequent mental automatisms and "short circuit" processes. Thus alone is progress possible. Mental automatisms are usually perfected, one may conjecture, after advance to the next higher stages of learning.

THE AMERICAN JOURNAL OF INSANITY.

June, 1907.

1. A Case of the Insane, By WILLIAM MANN.
2. A Case of the Insane, By ROBERT M. STANLEY.
3. The Trial of the Insane for Crime: A Historical Retrospect, By JAMES HENRIK LANGE.
4. The Relation of Intoxication to the Production of Insanity, By THOMAS W. SULLIVAN.
5. The Cerebrospinal Fluid in Parosis, With a Report on the Case of a Patient, By WILLIAM JAMES CANNON.
6. The Pathology of the Insane, By JAMES HENRIK LANGE.
7. The Cerebrospinal Fluid in Parosis, Continued, By WILLIAM JAMES CANNON.
8. The Pathology of the Insane, Continued, By JAMES HENRIK LANGE.
9. The Cerebrospinal Fluid in Parosis, Continued, By WILLIAM JAMES CANNON.
10. The Pathology of the Insane, Continued, By JAMES HENRIK LANGE.

of view of its constancy, in all probability the earliest. The diagnostic value of a negative puncture is often of greater value than a positive one. The cell counting method with Fuchs and Rosenthal's slide is more accurate and rapid than the centrifuge technique, and has the great advantage in permitting comparative results. The use of Unna's polychrome blue in the *mélangeur* permits a simultaneous distinguishing count. A distinctive count is important in distinguishing the paretic fluid from others, especially where the cytosis is due to a small number of polynuclears. The conditions under which syphilis produces a spinal leucocytosis demand further investigation, especially regarding the number and character of the cells. The increase of cells in the paretic fluid is apparently independent of any long antecedent syphilis. There seems to be a correlation, both qualitative and quantitative, between the spinal and hæmic leucocytoses, which particularly refers to the mononuclears, but includes the polymorphonuclears, especially after convulsions.

6. Experimental Piaarachnoiditis in the Rabbit.—Fitzgerald observes that in an acute, aseptic inflammatory process which has proceeded as far as the tenth day, the most striking feature is the variability in the time of the appearance, and in the number of the various elements present at different times. The study of a single individual element is not sufficient to indicate how far the process had gone. To this end a general survey of all the elements is necessary. The variability in the character of the elements in different phases of the process is very slight. Elements observed in a certain condition at the end of the third day may be seen in identically the same form at the end of eight days. Plasma cells are at all times conspicuous, in the early stages being present in very large numbers; then somewhat less numerous, and again, later in the process being relatively increased in numbers. But throughout the whole process their presence is a characteristic feature. At no stage of the process were any *Mastzellen* observed. This was quite noteworthy, when certain features in the process, namely, the presence of various other hæmatogenous elements, is kept in mind.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Thirty-fourth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. CLEMENS CLEVELAND, of New York, in the Chair.

(Concluded from page 473.)

1. LITHIASIS OF THE KIDNEY.

This subject was discussed in an associated meeting with the American Association of Genitourinary Surgeons.

Some Congenital Variations of the Kidneys and Ureters in Reference to Their Development and Surgical Importance.—Dr. GEORGE S. HUNTINGTON, of New York, illustrated the congenital variations of anatomy, slides.

The Radiographic Diagnosis of Renal Lesions.—Dr. LEWIS GREGORY COLE, of New York, said that the rays were divided into direct rays, indirect rays, and the secondary rays (those passing through anything). The direct ray made a clear picture, the indirect a cloudy picture. With the indirect and secondary rays very soft tissue was seen, even blood vessels and their anastomoses. With a compression lens it required five pictures to show the entire region. We were not justified in saying that kidney stone was present unless we could ex-

clude the ribs, the psoas muscles, and transverse processes of the vertebrae. Some cases of calculi were distinct, and there was no trouble in the diagnosis; other cases required a study of several plates. The question of diagnosis was not limited to small stones, for sometimes the larger stones were the most difficult to make out. Some of the stones proved to be fecal concretions and disappeared after cathartics were given. The ends of calcified cartilages of ribs gave a well defined shadow. Flaws in plates were a source of error in many cases.

Specimens and Illustrations of Renal Lithiasis, Pyonephrotic Stone in the Kidney, and Renal Tuberculosis were shown by Dr. CHARLES H. CHETWOOD, of New York.

The Diagnosis and Treatment of Calculi in the Lower End of the Ureter in Males.—Dr. HUGH H. YOUNG, of Baltimore, said that in the case of a patient having had renal colic for the year previous and at present severe pain in the rectum, radiating to the kidney, upon cystoscopic examination a stone was found in the ureter. This was removed.

Calculous Anuria.—Dr. FRANCIS S. WATSON, of Boston, did not profess to cover the whole ground in this paper, as the time was too short and he had confined himself to one point. An operation had accomplished nothing if the kidney had been found destroyed. In proportion to the extent of destruction of one kidney, that the other should be in a correspondingly better condition seemed to be a logical deduction. We could never be confident which kidney was the most damaged. About thirty per cent. of renal calculi were bilateral. In operating in this condition of calculous anuria both kidneys should be explored. It usually took an expert to determine by the x ray. In most cases more dependence must be placed on the history of the case. In cases with resulting fistula one of the most distressing conditions was the continual wetting of the patient. An apparatus was shown by the author which would collect the urine from the fistula and prevent leakage.

The Value and Method of Mensuration in Vesical, Ureteral, and Renal Work.—Dr. HOWARD KELLY, of Baltimore, said that anything that made us dwell on a case was valuable to us nowadays, as the tendency was to rush through the diagnosis. We must adopt the linear measurement, the volumetric measurement, and the urethral measurement. The distance to the posterior wall of the bladder measured commonly about 5 or 6 cm. The vertical measurement was about 6 or 7 cm. By this means we could separate a contracted bladder from a normal bladder. The bladder dropped open in the knee chest position. We could determine the size of any lesion in the bladder by moving the speculum transversely. The measurement of the length of the urethra could be accomplished by the speculum. By catheterizing the ureter we could determine its length and also whether a stricture was present. The tightness of the stricture was also ascertained by the resistance offered to the catheter in going over the stricture and also in pulling through the stricture. In some cases it required a pull of 200 to 300 grammes to release the catheter. When the catheter was removed, we should study its contour, which would guide us as to the shape of the canal.

Dr. MOSELY, of Baltimore, reported a case of pyuria and albuminuria operated on for ovarian cyst. Seven litres of creamy pus was removed from the kidney.

A Consideration of the Pathology, Diagnosis, and Treatment of Acute Unilateral Septic Infarcts of the Kidney was the title of a paper read by Dr. G. L. HENSON, of New York.

Some Requirements of Up to Date Nephrectomy.—Dr. G. M. EDEBOULT, of New York, said that no agreement had been reached as to the method of determining the

amount of work which was normal for one kidney to do, but we might look for it in the near future. The existence of a second kidney was of vital importance in nephrectomy. There was no method of examination at our command except exploratory laparotomy, which would settle the question of the presence of a second kidney. There might be two ureteral orifices and yet but one kidney. The fatal mistake of removing the patient's only kidney was still among the range of possibilities. It was very easy to recognize some degenerative change of the kidney by gross inspection. Renal decapsulation increased the output of urea in the decapsulated kidney. He advocated the removal of the capsule of the remaining kidney.

Cystic Lymphangioma of the Gastrocolic Omentum.—Dr. FRANCIS B. WAKEFIELD, of San Francisco, said that, so far as he could find, this was the first tumor of its kind reported. It had been growing for two years and was in a child, four years old. It was found attached to the stomach. The tumor was larger than a man's head, multilocular, with numerous small cystoid cavities surrounding. The cyst fluid was straw colored and clear, and on heating with acetic acid coagulated. The fluid contained leucocytes. The cyst showed flat epithelial cells lining the cavities. The term cyst should be reserved for a cavity containing fluid and softening material. The word as used now was not correct. He believed that these tumors were not so rare, but that their true nature had not been made out in the past.

Ectopic Gestation, with Special Reference to the Treatment of Tubal Rupture.—Dr. HUNTER ROBB, of Cleveland, gave a brief review of the course of an ectopic gestation, with the opinions of various authorities as to the treatment to be adopted in emergencies due to tubal rupture. The patient rarely died from the hemorrhage, but more often from shock. As a rule, it was better not to operate until reaction had taken place. There were records of several cases treated in this way and also of experimental hemorrhages produced by cutting the ovarian and uterine arteries in bitches.

A Study of the Uterosacral Ligaments from the Standpoint of Their Utility as Uterine Supports.—Dr. I. S. STONE, of Washington, called attention to the great vascularity of the uterosacral ligament. Given a healthy woman with arcuotodisplaced uterus, it was a question how it occurred. We might be unable in some cases to find the uterosacral ligament. We should use a blunt needle to avoid hematocoele in shortening. The great trouble was the descent of the peritoneum with a descent of the viscera, and until we could find the cause of this descent we should not know how to treat this condition.

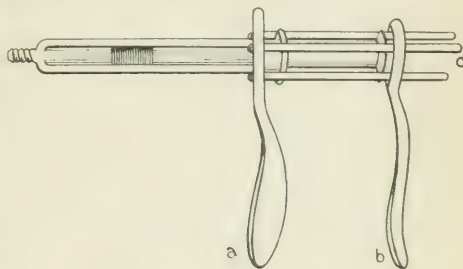
Postoperative Inversion of the Vagina; a Presumably New Operation for Its Cure.—Dr. PHILANDER A. HARRIS, of Paterson, N. J., said that access to the field of operation was made through a suprapubic abdominal section. The round ligaments were sought and dissected free. The vaginal wall was well pushed upward with a staff. A small hole was cut in the vagina upon its right side and another opposite upon its left. The mucous membrane of the fundus of the vagina, between and about these penetrations, was cauterized. The right ligament was drawn down through the aperture of the vagina from left to right. The distal end of each ligament was then drawn far and sewed as high as possible with catgut to the larger portion of its fellow. After sewing the distal portion of each ligament to the proximal portion of the other ligament the through and through sewing was continued at the fundus of the vagina in such manner as to repeatedly penetrate the ligaments which it covered.

New Inventions.

A COCAINE SYRINGE ATTACHMENT INSURING EASY INJECTION.

By FREDRIC GRIFFITH, M. D.,
New York.

Two years ago, at sea, the writer encountered a case of painful double hypertrophied nails upon the great toes. Successful removal followed by aseptic healing was accomplished, cocaine hydrochloride in one tenth per cent. solution being employed to control pain. The density of the fibrocellular tissue of the parts injected during the operation made projection of the anæsthetic very difficult. It was due to the subsequent consideration of this fact that the conception of the device presently to be described occurred as having value in the technics of surgical operations where cocaine injection is used. Frequently, after injecting the tissues of digits the writer's fingers became too numb to begin the incision until after some minutes, cramping continuing for an even longer period. Besides this disability there is an ever present danger in all cases requiring such excessive finger pressure to inject the solution from breaking needles beneath the skin surface.



In the cut the attachment is shown as being applied to one of the ordinary glass syringes, consisting of a stiff handled ring of metal (a) having a grasping part of three inches (7.5 ctm.). The circling band is to be made one quarter of an inch (0.62 ctm.) wide and three eighths of an inch (1 ctm.) through. The central perforation is half an inch (1.25 ctm.) in diameter. A universal opening capable of fitting various sized syringe barrels may be provided by enlarging the orifice and supplying a nest of flanged washers to fit. Three guides (d) made three and three quarters inches (9.5 ctm.) long of one eighth inch (0.3 ctm.) steel wire are to be fitted to the handled band at equal distances upon the circumference. A metal slide (b) three eighths of an inch (1 ctm.) wide has perforations to meet the guides, and is fitted with a handle three inches (7.5 ctm.) long. All the parts are to be full nickel-plated; sterilization by boiling is designed.

This implement is to be used by passing the guide band over the syringe barrel in use and setting the slide. By compressing the handles the syringe piston is driven forward, expelling the liquid contents. It will be seen that this method of handling the syringe changes the operator's grasp of it. Besides

the advantage gained of freer view of the field, pressure power is magnified from that afforded by mere thumb and finger stretching to a full hand grip. This syringe attachment, while appearing upon first sight to needlessly complicate an instrument seeming already as complete as is a knife or scissors, can be recommended. No one more than the writer could desire that an implement for surgeons' use should remain simple as a grindstone. Nevertheless, the feeling of pressure numbness to thumb and fingers that will be experienced by an operator after a preliminary syringing of the leathery tissue which overgrowth or chronic inflammation of a part oftentimes gives will handicap subapplied to one of the ordinary glass syringes, consequent incising and dissecting work as surely as to have one's arm "go to sleep" during a bowel resection.

Book Notices.

Chemical Pathology. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. GIDEON WELLS, Ph. D., M. D., Assistant Professor of Pathology in the University of Chicago and in Rush Medical College, Chicago. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 549.

The preface of Dr. Wells's book will give the best idea of its purpose. Physiological chemistry is the most fertile field for study in medicine to-day. Pathological histology and bacteriology, while by no means exhausted, present problems, the solution of which will require painstaking and constant investigation over long periods of time. The results of work along the lines of physiological chemistry are more striking, particularly when the study is applied to groups of cases. As Dr. Wells says, "relatively seldom, unfortunately, has the pathologist attacked his problems by chemical methods." "Only when bearing upon conditions such as gout and diabetes, which concern alike the physiologist, the clinician, and the pathologist, have the fragments been molded together into a homogeneous whole." The scattered fragments of chemical knowledge have been collected by the author, who uses them as a basis for a consideration of general pathology from the standpoint of the chemical processes accompanying them. The aim of the work is to furnish collateral reading to the student who, for the first time, goes over the subject of general pathology, which his textbooks usually consider from the morphological viewpoint; to furnish the graduate in medicine with the advances that are being made along lines of fundamental importance in clinical medicine; to furnish the investigator in biological chemistry and pathology with information of the ground where the two branches overlap; and to furnish a guide to the sources of knowledge of these subjects. So far as we know, this is the first textbook in English which treats of pathology from the chemical point of view. There is a good translation of Bunge's *Lehrbuch der physiologischen und pathologischen Chemie*, which treats principally of the pathological changes of general and special metabolism.

It would require too much space to enumerate the subjects discussed by Dr. Wells in the book under review, but reference to a few chapters will serve to indicate the very unusual way of treating the subject of general pathology. In the first chapter the chemistry and physics of the cell, the chemistry of the essential cell constituents and of the proteid molecule, and the structure of the cell in relation to its chemistry and

physics are discussed. There are chapters on the chemistry of bacteria and their products, on the chemistry of animal parasites, etc.

In the present state of our knowledge concerning the subject it is to be expected that many of the subjects treated would be merely the grouping of short abstracts from the recent literature. We think that material advantage would have resulted if Dr. Wells had added a final paragraph containing his own views concerning some of these. If, for example, at the end of the section on hæmolysis, there was a summary similar to that at the end of the discussion of cloudy swelling, it would make for clearness.

Wells's *Chemical Pathology* is a book that ought to be studied carefully by every one wishing to be in touch with the live problems concerning disease. But it must be studied; the ideas cannot be imbibed by mere reading. The chemistry of bacterial products, of hæmolysis, or of the retrograde metamorphoses cannot be understood by a casual perusal of the known facts.

Introduction to Materia Medica and Pharmacology.

Including the Elements of Medical Pharmacy, Prescription Writing, Medical Latin, Toxicology, and Methods of Local Treatment. By OLIVER T. OSBORNE, M. A., M. D., Professor of Materia Medica, Therapeutics, and Clinical Medicine in the Yale University; Ex-President of the American Therapeutic Society, etc. Philadelphia: Lea Brothers & Co., 1906. Pp. vi-167.

It is intended that this small book shall introduce the student to the study of pharmacology and therapeutics. A brief chapter on pharmacology is given as an introduction to a laboratory course. A chapter on pharmacy offers headings for lectures to explain the important preparations of the pharmacopœia. There are chapters on the symptoms and treatment of poisoning, on prescription writing, on special treatments, and on simple food preparations. The book may serve as a quiz compend on the subject.

Paraffin in Surgery. A Critical and Clinical Study. By WILLIAM H. LUCKETT, B. S., M. D., Attending Surgeon, Harlem Hospital; Surgeon, Mount Sinai Hospital Dispensary, and FRANK I. HORN, M. D., Assistant Surgeon, Mount Sinai Hospital Dispensary, New York. With Thirty-eight Illustrations. New York: Surgery Publishing Company, 1907. Pp. 118.

This book gives a comprehensive and satisfactory description of the chemistry of paraffin, its early and the ultimate disposition in the living tissue, the technique for its employment, and the unsatisfactory results and accidents that may follow its use. The text is based on the authors' personal employment of the agent in a number of cases, and they conclude that if it is employed properly it is as satisfactory as it is innocuous.

A Practitioner's Handbook of Materia Medica and Therapeutics. Based Upon Established Physiological Actions and the Indications in Small Doses. To Which Are Added Some Pharmaceutical Data and the Most Important Therapeutic Developments of Sectarian Medicine as Explained Along Rational Lines. By THOMAS S. BLAIR, M. D., Member of the American Medical Association, etc. Philadelphia: The Medical Council, 1907. Pp. 253.

This volume, the author states, is a series of studies that presupposes a knowledge of the established materia medica and rational therapeutics, and that purports to emphasize what is really important as regards the employment of drugs in their larger doses, and to direct attention to their employment to meet indications in small doses. A true therapeutic catholicism is shown, and whatever is best in various systems of medicine is advocated for therapeutics.

Letters from a Surgeon of the Civil War. Compiled by MARTHA DERBY PERRY. Illustrated from Photographs. Boston: Little, Brown & Co., 1906. Pp. xii-225.

This volume has been compiled by the author from letters written to her by her husband during the civil war, between the years 1862 and 1864, and gives the general reader an idea of army experience and life.

BOOKS, PAMPHLETS, ETC., RECEIVED.

A Manual of Clinical Diagnosis by Means of Microscopic and Chemical Methods. For Students, Hospital Physicians, and Practitioners. By Charles E. Simon, B. A., M. D., Professor of Clinical Pathology at the Baltimore Medical College, etc. Sixth Edition. Thoroughly Revised. Illustrated with 177 Engravings and 24 Plates in Colors. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. xix-17 to 682.

Transactions of the New Hampshire Medical Society at the One Hundred and Sixteenth Anniversary, held at Concord, May 16 and 17, 1907.

Morris's Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by Henry Morris, M. A. and M. D., Lond.; F. R. C. S., Eng.; President of the Royal College of Surgeons of England, etc., and J. Playfair McMurrich, A. M., Ph. D., Professor of Anatomy, University of Michigan, etc. Ten Hundred and Twenty-five Illustrations, 319. Printed in Colors. Fourth Edition. Revised and Enlarged. In Five Parts. Part III: The Nervous System; Organs of Special Sense. Part IV: The Organs of Digestion; The Respiratory Organs; The Urinary and Reproductive Organs; The Ductless Glands; The Skin and Mammary Glands. Part V: Surgical and Topographical Anatomy. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 1413. (Price, Parts III, and IV, \$1.50 each; Part V, \$1.)

Thirty-third Annual Report of the Secretary of the State Board of Health of the State of Michigan for the Fiscal Year Ending June 30, 1905. By Authority. Lansing, Michigan: Wynkoop, Hallenbeck, Crawford Company, State Printers, 1906.

Elements of Human Physiology. By Ernest H. Starling, M. D., Lond.; F. R. C. P., F. R. S., Jodrell Professor of Physiology, University College, London. Eighth Edition. Chicago: W. T. Keener & Co., 1907. Pp. viii-716.

Surgery: Its Principles and Practice. By Various Authors. Edited by William Williams Keen, M. D., LL. D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia. Volume II. With 572 Text Illustrations and 9 Colored Plates. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 920. (Price, \$7.)

Miscellany

Modern Witchcraft.—Witchcraft, sorcery, and incantation are all the offspring of superstition. They are in existence to-day, though we are prone to regard them as having vanished with the fallacies of the past. The underlying cause and foundation of witchcraft are the same in all ages. In the past, as well as in the present day, it assumes various guises. To-day it masks itself under the various forms of spiritism, and assumes the high sounding name of occult science. After presenting a brief but interesting account of ancient witchcraft and an analysis of its basic religious and psychic constituents, Marie and Violet report in detail four striking cases. In all of them the mental instability, hysteria, ignorance, and superstition of the patients or of their friends and relatives gave origin to the belief that the victims were bewitched and could only be cured, or were cured, by the well known methods recorded in the history of medieval society. The special danger of these modern forms of witchcraft lurks in the degenerative psychopathia which they are prone to awaken from a latent state. They excite the predisposed and lead to disastrous results. (*Journal de psychologie normale et de pathologique*, through *The Journal of Nervous and Mental Disease*, February, 1907.)

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending September 6, 1907:

Smallpox—United States.	
Places.	Date.
California—General	July 1-31
Colorado—Colorado Springs	June 1-30
Illinois—Wanslow	July 1-Aug. 3
Iowa—Ottumwa	Aug. 18-24
Louisiana—New Orleans	Aug. 1-31
Michigan—Saginaw	Aug. 18-24
New Jersey—Newark	Aug. 18-24
South Dakota—Sioux Falls	Aug. 18-24
Wisconsin—Milwaukee	Aug. 4-10

Smallpox—Foreign.	
Places.	Date.
Algeria—Algiers	July 1-31
Austria—Gallitz	July 28-Aug. 3
Austria—Vienna	Aug. 2-10
Brazil—Para	June 28-Aug. 17
Canada—Halifax	Aug. 18-24
Chile—Temuco	July 18-21
China—Chefoo	July 1-31
China—Hongkong	June 23-July 6
France—Marseilles	July 1-31
France—Paris	Aug. 11-17
Great Britain—London	Aug. 4-10
India—Calcutta	July 14-20
Italy—General	Aug. 13-19
Italy—Genoa	July 1-31
Italy—Naples	Aug. 11-17
U. S. A.—Yaroslavl	Aug. 4-11
Java—Batavia	July 7-20
Madeira—Funchal	Aug. 12-18
Mexico—Aguas Calientes	Aug. 18-24
Mexico—Mexico City	July 1-31
Portugal—Lisbon	Aug. 1-10
Russia—Odessa	July 28-Aug. 3
Russia—Warsaw	July 28-Aug. 3
Spain—Madrid	July 1-31
Spain—Valencia	Aug. 4-18
Turkey in Europe—Constanti	Aug. 5-11
Turkey in Asia—Rassorah	July 27

Cholera—Foreign.	
Places.	Date.
India—Calcutta	July 14-20
India—Cochin	July 6-19
India—Madras	July 20-26
India—Rangoon	July 14-20
Russia—Astrachan	Aug. 8-14
Russia—Saratov	Aug. 5-11
Straits Settlements—Singapore	June 30-July 13

Yellow Fever—Foreign.	
Places.	Date.
Brazil—Para	July 28-Aug. 17
Cuba—Camaguey	Aug. 14-20
Cuba—Campo Florida	Aug. 28
Cuba—Habana	Aug. 30
Ecuador—Guayaquil	Aug. 4-10

Plague—United States.	
Places.	Date.
California—San Francisco	Aug. 26-Sept. 12
Total from Aug. 14-Sept. 4	17 cases and 8 deaths.

Plague—Foreign.	
Places.	Date.
Argentina—Cordoba	July 28
China—Amoy	July 20-27
China—Poo Choo	July 20-27
China—Hongkong	June 22-July 6
Egypt—Alexandria	Aug. 2-15
Egypt—Port Said	Aug. 2-15
Egypt—Province of Beheira	Aug. 2-15
India—General	July 14-20
India—Calcutta	July 14-20
Japan—Yokohama	July 9-14
French Indo-China—Saigon	July 12-18
Madagascar—Mamanga	Aug. 26
Peru—Callao	July 25-Aug. 7
Peru—Chicama	Aug. 25-31
Peru—Esmeraldas	Aug. 18-24
Peru—Tarma	Aug. 18-24
Peru—Puno	Aug. 18-24
Peru—Quetzaltenango	Aug. 18-24
Peru—Punilla	Aug. 18-24
Straits Settlements—Singapore	July 6

Public Health and Marine Hospital Service:

Official List of Cases of Smallpox, Yellow Fever, Cholera, and Plague, Reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending September 6, 1907.

Smallpox—United States. California—San Francisco. August 26 to September 12, 1907. Total from August 14 to September 4, 1907, 17 cases and 8 deaths.

MEGAW, H., Pharmacist. Directed to proceed to Vineyard Haven, Mass., for temporary duty, upon completion of which to rejoin station at Boston, Mass.

SCOTT, E. B., Pharmacist. Relieved from duty at Norfolk, Va., and directed to report at the Bureau, Washington, D. C., for temporary duty.

SEIDELL, A., Technical Assistant. Detailed to represent the Service at the Fifty-fifth annual meeting of the American Pharmaceutical Association, in New York city, September 2-7, 1907.

SWEET, E. A., Assistant Surgeon. Directed to proceed to El Paso, Texas, for special temporary duty, upon completion of which to rejoin his station at Fort Stanton, N. M.

TAPPAN, J. W., Acting Assistant Surgeon. Directed to proceed along the Mexican border, from Brownsville, Texas, to Nogales, Ariz., upon special temporary duty, upon completion of which to rejoin his station at El Paso, Texas.

WHITE, J. H., Surgeon. Granted leave of absence for one month, from August 29, 1907.

Casualty.

Acting Assistant Surgeon A. C. BLAIN died at Brunswick, Ga., on August 28, 1907.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending September 7, 1907:

BYRNE, C. B., Colonel and Assistant Surgeon General. Assigned to temporary duty in Washington, D. C., for a period not to exceed ten days, for consultation with the Surgeon General of the United States Army, and upon completion of this duty ordered to proceed to Governor's Island, as heretofore ordered.

COWPER, HAROLD W., First Lieutenant and Assistant Surgeon. Leave of absence extended two months.

FIFE, JAMES D., First Lieutenant and Assistant Surgeon. Will repair to Washington, D. C., and report to the Adjutant General of the United States Army, and will then proceed to Fort De Soto, Fla., and thence to Jackson Barracks, La., for the purpose of instructing medical officers and members of the Hospital Corps at those posts in the methods of making identification records.

HALLORAN, PAUL S., Captain and Assistant Surgeon. Leave of absence extended to include September 23, 1907.

SNODDY, CARY A., First Lieutenant and Assistant Surgeon. Sick leave further extended one month.

VEDDER, EDWARD B., First Lieutenant and Assistant Surgeon. Ordered to proceed from Fort Walla Walla, Wash., to Rockford, Wash., for duty with Squadron, 14th Cavalry, on practice march.

WHITMORE, EUGENE R., Captain and Assistant Surgeon. Left Fort Riley, Kas., on thirty days' leave of absence.

The following named medical officers have been ordered to report in person to the commanding officer of the 18th Infantry, Fort Leavenworth, Kas., to accompany that regiment to the Philippine Islands, and upon arrival at Manila will report in person to the commanding general, Philippines Division, as heretofore ordered:

HALLORAN, PAUL S., Captain and Assistant Surgeon.

KREBS, LeROY LeR., Captain and Assistant Surgeon.

WHITMORE, EUGENE R., Captain and Assistant Surgeon.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending September 7, 1907:

ALDERMAN, C. G., Assistant Surgeon. Detached from the Naval Hospital, Puget Sound, Wash., on September 15th, and ordered to the Naval Medical School, Washington, D. C., October 1st, for instruction.

BUTTS, H., Assistant Surgeon. Detached from the Maryland and ordered to the naval station, Cavite, P. I.

DECKER, C. J., Surgeon. Having been examined by a retiring board and found incapacitated for active service on account of disability incident thereto, is retired from active service, from August 31, 1907, under the provisions of Section 1453, Revised Statutes.

FAREWELL, W. G., Medical Director, retired. Detached from duty at the Navy Recruiting Station, Philadelphia, Pa., and ordered home.

GROW, E. J., Surgeon. Detached from duty at the Naval Hospital, Washington, D. C., and ordered to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

KOLTES, F. X., Assistant Surgeon. Detached from the Naval Hospital, Mare Island, Cal., September 15th, and ordered to the Naval Medical School, Washington, D. C., October 1st, for instruction.

LANGHORNE, C. D., Surgeon. Detached from the Navy Yard, Washington, D. C., and ordered to the Marine Barracks, Washington, D. C.

McCLURG, W. A., Medical Director. Detached from the Marine Barracks, Washington, D. C., and ordered to duty as president of the Naval Examining and Medical Examining Boards, Washington, D. C.

STREETS, T. H., Medical Director. Ordered to additional duty as a member of the Naval Retiring Board, Washington, D. C.

Births, Marriages, and Deaths.

Married.

EKWURZEL—THORPE.—In Lead City, South Dakota, on Saturday August 10th, Dr. George Macy Ekwurzel, United States Army, and Miss Lucile Thorpe.

MASON—KENNEDY.—In Warrenton, Virginia, on Friday, August 30th, Dr. William Beverley Mason, of Washington, D. C., and Miss Agnes Gray Kennedy.

PITMAN—MURPHY.—In Springfield, Massachusetts, on Wednesday, September 4th, Dr. J. Livingston Pitman and Miss Rita Sampson Murphy.

WEYL—POOLE.—In Lake Forest, Illinois, on Wednesday, September 4th, Dr. Walter E. Weyl, of Philadelphia, and Miss Bertha Poole.

Died.

ABERCROMBIE.—In Washington, D. C., on Thursday, September 5th, Dr. William H. Abercrombie, aged sixty-five years.

ALLEMAN.—In Geneva, N. Y., on Saturday, August 31st, Dr. Andrew J. Alleman, aged seventy-eight years.

AWBREY.—In Louisville, Kentucky, on Friday, August 30th, Dr. John R. Awbrey, aged seventy-six years.

BESHOAR.—In Trinidad, Colorado, on Thursday, September 5th, Dr. Michael Beshoar, aged seventy-four years.

BLAIN.—In Brunswick, Georgia, on Wednesday, August 28th, Dr. Arthur C. Blain, United States Public Health and Marine Hospital Service.

CLARK.—In Syracuse, N. Y., on Monday, September 2nd, Dr. Gaylord P. Clark, aged fifty years.

DAVISON.—In Winchester, Virginia, on Sunday, September 1st, Dr. William Davison, aged fifty-nine years.

DRAKE.—In Louisville, Kentucky, on Saturday, August 31st, Dr. John Wesley Drake.

HAWES.—In Denver, Colorado, on Tuesday, August 20th, Dr. John B. Hawes.

HENDRICKS.—In Westlake, Louisiana, on Friday, August 30th, Dr. M. D. Hendricks.

LYMAN.—In Baltimore, Maryland, on Thursday, August 29th, Dr. Albert Benedict Lyman, aged sixty-one years.

MILLER.—In Hagerstown, Maryland, on Sunday, August 25th, Dr. John Elliott Miller, aged seventy years.

MOYER.—In Moscow, N. Y., on Wednesday, August 28th, Dr. Frank Hammond Moyer, aged sixty years.

PARTRIDGE.—In Cornwall-on-Hudson, New York, on Saturday, September 7th, Gertrude Edwards, wife of Dr. Edward L. Partridge.

ROCAP.—In Olney, Philadelphia, on Thursday, August 29th, Dr. William A. Roca, aged thirty-eight years.

SHELLEY.—In Pottsville, Pennsylvania, on Thursday, August 15th, Dr. Jay Warren Shelley.

STREETT.—In Baltimore, Maryland, on Sunday, September 1st, Dr. Charles H. Streett, aged fifty-eight years.

WEBER.—In Detroit, Michigan, on Friday, August 30th, Dr. Nathaniel W. Weber.

WINKLER.—In Jamaica Plain, Massachusetts, on Saturday, August 31st, Dr. Joseph A. Winkler, aged seventy-seven years.

WINNE.—In Albany, N. Y., on Monday, September 2nd, Dr. Lansing B. Winne.

New York Medical Journal

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WHOLE No. 1503.

Original Communications.

A CASE OF FACIAL PARALYSIS;

With Remarks on the Surgical Treatment of this Affection.

By CHARLES GREENE CUMSTON, M. D.,
Boston.

Anastomosis of the peripheral end of the facial nerve with the spinal or hypoglossus are two operative procedures which have been employed for the radical cure of facial paralysis. The facial nerve having been injured, either from an operative or nonoperative traumatism, or from a suppurative process of the middle ear, the interference of choice for its repair, if this were possible, would be a suture of the peripheral end of the nerve with its central end. But to find both ends of the facial nerve in its passage through the petrous bone and to bring the two ends together in the interior of this bone, must be considered as an operation materially impossible. In man, as in the animal, an anastomosis between the facial and spinal nerves have given satisfactory results. Apparently always successful in dogs, when the nerves operated on were not the seat of degeneration, in man, although less brilliant, the results have nevertheless been fair. Facial paralysis may consequently enter the domain of surgery. The perfect freedom from danger of the operation, its easy accomplishment, and the small disturbances that it may produce are all in favor of its undertaking in certain cases.

CASE.—J. M., a traveling salesman, thirty-seven years of age, was operated upon for mastoid trouble in a western city the latter part of February, 1905. Four days following the operation all the phenomena of paralysis of the left facial nerve, this being the side on which the mastoid operation was performed, became manifest. After a few weeks, he having perfectly recovered from the operation, medical treatment was instituted for the paralysis and this, having been persisted in for three months without success, the patient, during a stay in Boston applied to me for advice as to the possibility of remedying the condition.

Upon careful examination the facial paralysis was found to be complete. The incision for the mastoid operation was in perfect condition. Electrical examination showed an evident reaction of degeneration, although it was found that the process had not gone beyond the possibility of an improvement by a surgical interference, and, therefore, anastomosis between the facial and hypoglossus nerves was advised, for reasons to be given here.

The operation was performed on May 12, 1906, the following technique being carried out. The patient's head was placed on a cushion with the face turned away from the side of the operation. An incision

twelve centimetres long, was commenced at the base of the mastoid apophysis and carried down along the anterior border of the sternomastoid muscle. The subcutaneous tissue, quite thick in this region, was then incised and the mastoid apophysis was denuded over its anterior aspect, and, in order to give a freer operative field, the sternomastoid muscle was dissected off at its insertion. The hypoglossus was then sought for just above the great horn of the hyoid bone. Ligature was passed under it and it was then isolated by a careful dissection. I preferred searching for the nerve at the point named rather than to look for it at the upper part of the incision, because, when sought for at the transverse apophysis of the atlas, the spinal, hypoglossus, pneumogastric, the internal carotid, and internal jugular are closely related to each other and, therefore, there is a little more risk at this point. After freely dissecting out the hypoglossus it was split and the facial nerve could then be implanted and the anastomosis readily accomplished. The sternomastoid was then stitched to its insertion, and the wound closed without drainage.

Recovery from the operation was uneventful. The patient was seen two months after the operation, at which time the following notes were made. There was still some difficulty in his speech, but the marked paralysis of the territory innervated by the hypoglossus noted immediately after the operation had disappeared. When the face was in repose the folds of the skin of the forehead on the right side were marked, while on the left they would only be made evident when the patient frowned. The left eyebrow was slightly higher than the right, while the palpebral opening was somewhat larger on the left. The end of the nose appeared slightly deviated towards the healthy side. When the patient was asked to show his teeth, the nasolabial fold became evident, although less so than on the right. The corner of the mouth was more marked on the left than on the right, although the mouth could be made to close very satisfactorily. Electrical examination showed that the reaction was decidedly less on the left than on the right side, excepting for the orbicular muscles of the mouth. We thus had at the end of two months after operation a facial paresis instead of a paralysis, more particularly evident in the upper branches of the facial nerve. The reaction of degeneration was less marked than before the operation. The patient was again seen seven months later for the last time, when the condition of affairs was found to be practically the same as at the last examination, although speech was nearly perfect.

The principal question to decide is when surgical interference should be undertaken in cases of facial paralysis. Animal experiments show that regeneration always takes place if an anastomosis is done immediately after section of the nerves. This also applies to patients who have been operated upon very shortly after the commencement of the

paralysis, because the result in them has been far better than in those operated upon after the affection has been present for some time. We know, however, that certain cases of facial paralysis, which are considered as incurable, may, after a number of months or a year or more, completely disappear, and this fact is the embarrassing point in the question, because in a given case, one may always question whether or not the paralysis may disappear of itself without any interference. From this reason alone, and all writers appear to be in accord on this point, it may be admitted that operation should only be undertaken some months after the appearance of the affection. Such is the opinion of Taylor, Alexander, Munsch, and others, but, when one has the certitude that the causative factor of the paralysis has resulted in a complete destruction of the facial nerve, operation should not be delayed. In paralysis of peripheral origin, no matter what may be its cause, operation is justifiable if electrical treatment gives no results and when the paralysis has become definitely established. Surgical interference may also be resorted to in instances of facial paralysis *a frigore* when no improvement by a long continued electrical treatment can be obtained. I am not prepared to emit any opinion as to surgical treatment when facial paralysis has a central origin. The various nuclei of the motor nerves which arise in the bulb are very near together, and one is ignorant whether or not the lesion, which may be limited to the nucleus of one of these nerves will not increase as time goes on and whether or not the neighboring bulbar nuclei are not already or will not later on become involved. In this case the patient will be submitted to a useless operation, and, consequently, when doubt exists, I believe it preferable to abstain.

A more serious objection to operative interference is the occurrence of a supplementary paralysis in the territory of the spinal or hypoglossus nerve, because, if the operation is unsuccessful, this result would certainly add to the inconveniences already present, but from what I have been able to ascertain, it would seem that end to end anastomosis is not an essential in the technique and that lateral implantation will give quite as good results without giving rise to the possible inconveniences mentioned before.

It is certain that the associated movements occurring in the face and in the territory of the nerve chosen to fulfill the functions of the facial are not particularly æsthetic, but, by education, some patients may cause a dissociation of these movements. In sudden movements caused by raising the shoulder a simultaneous contraction of the face occurs at the same time, while in slow, slight movements, this may be avoided. By holding the arm on the side operated on this subterfuge permits them to move the muscles of their face without any movement in the shoulder. As to the question of education and how the bulbar and cortical centres will work, it may be said that it is unknown.

The question now comes as to the method of suture which should be employed, whether or not an end to end anastomosis with the central end of the nerve, or anastomosis to the peripheral end of the facial should be done or whether lateral implantation of the end of the facial into the trunk of one of the other nerves of the face, such as the trigeminal or the

has been done, will now be discussed. It is quite certain that, when one considers the generally admitted theories regarding the neurone and regeneration, end to end anastomosis of these nerves should be selected. In point of fact the peripheral end of the facial when separated from its trunk being according to admitted theories, definitely dead and no longer able to serve as a conductor to the axis cylinders, which have sprung from the central end to which it has been anastomosed, one would suppose that in these cases, the chance of regeneration is far more active and perhaps even more logical. However, although admitting this theory, one can always explain regeneration by lateral implantation by supposing that the incision of the sheath made in the healthy nerve, in order to bury the end of the facial, will have destroyed an unknown quantity of axis cylinders of this nerve; that these axis cylinders by their offshooting prolongations later on penetrate into the sheath of the facial and that it is the latter which serve for the revival of this nerve. However, according to the experiments of Stewart and Balance, the generally admitted theory of nerve regeneration would seem to be false. The axis cylinder is not a cell emanation of the cells of the neural axis, or of the spinal ganglion, but is composed of a number of trunks closely united, each part of which is elaborated by special cells annexed to the sheath of Schwann and in the interior of which Balance and Stewart found various elements sometime after section of the nerves and which, later on, gave rise to myelin, while others to a portion of the axis cylinder. When the peripheral end of the nerve is not united to the segment remaining in connection with the trophic centre, these phenomena soon cease, and maturity of the elements does not occur. When reunion occurs, the fragments of the axis cylinder enter into fusion with one another, penetrate and traverse the suture in order to establish a connection with the central end. Under these circumstances lateral implantation appears to be perfectly logical, and it is easily understood that it is not necessary to completely sacrifice the nerve, since simple contact is sufficient to reestablish the functions and nutrition of the peripheral segment of the cut nerve, after a more or less lengthy lapse of time.

But, independently of these reasons, it has been shown clinically that the results have been about equally good with lateral implantation as in end to end anastomosis, and, for this reason, I esteem that the former technique is perhaps preferable. Frasier prefers the end to end anastomosis for the following reasons: the operation is easier, education of the cortical centre is surer if it only has to act on a new group of muscles, end to end anastomosis produces a more active regeneration of the nerve, and lastly, paralysis of the muscles of the tongue and other muscles innervated by the hypoglossus is, relatively speaking, of little importance. In reply to these arguments it occurs to me to say that the ease with which the operation may be accomplished is not of any great importance in a given case. The question of education would be a more serious matter, but, as yet, it is little known and I think that Frasier is too affirmative in this matter. As to his third reason clinical results would seem to show that it has no foundation. I also believe that paralysis of the tongue and other muscles innervated by the

hypoglossus is of sufficient importance to be taken into consideration and the same applies to the sternomastoid and trapezius muscles. I agree with Taylor and Clark that it is not necessary to resort to end to end anastomosis and still more so for the reason that, if this operation is not successful, the patient will have a supplementary paralysis added to the one already present.

The next question to consider is the choice of the nerve for anastomosis, the spinal or the hypoglossus? The question of education of the centres here comes up, and, in point of fact, and independently of the operative technique, a thing easily decided because both operations are practically quite as easy, one should consider the anatomical and physiological reason which would influence one in the choice of one or the other of these interferences. A rapid consideration of the cortical and bulbar centres of the nerves under consideration may be properly introduced here. In the cortical motor zone one finds in the lower frontal and ascending parietal convolutions the centre of movement for the tongue and the face in contact with each other. The centres of movement for the shoulder are situated higher up at the lower part of the middle third of these same two convolutions. From this very reason preference should be given to the hypoglossus, because it may be supposed that, if it is selected, education will be easier. In the bulb one finds in the prolongation of the caput of the anterior horns a large nucleus from which take rise from below upwards, the spinal, pneumogastric and glossopharyngeal nerves; after a solution of continuity produced by the passage of the arciform fibres in this same prolongation is found the centre of the facial. On the prolongation of the base of the anterior horns of the cord is to be found a nucleus occupying the same level as the nucleus which is common to the three mentioned nerves and which gives rise to the great hypoglossus. It will thus be seen that in the bulb the nucleus of the facial and the spinal are both in the prolongation of the caput of the anterior horns, but they are both separated by all that portion of the nucleus which gives rise to the pneumogastric and glossopharyngeal nerves. On the other hand, the facial and hypoglossus are not in the same column of gray matter, but in height nothing separates the two nuclei of these nerves, and there are no other nerves arising between them. And still more, both nuclei are connected by the longitudinal posterior band. The accessory nucleus of the hypoglossus, situated in front of and in the same level as the main nucleus, is nearer the nucleus of the facial nerve. Consequently, I am led to assume that, concerning the nature of the cortical and centres of the lower brain and the lower part of the arrangement in the bulb of the nuclei of the facial, hypoglossus and spinal nerves, it is more difficult to make an anastomosis between the bulb and spinal cord than with the spinal cord, even if the anastomosis is only partial. I believe that it would be more difficult to make the spinal cord anastomosis than to make the bulb anastomosis with the hypoglossus, although one may give reason in support of the latter by saying the mouth is placed, instead of being subjected to the same stress, against the resistance of the diaphragm.

It has been noted that the mouth for the hypoglossus is partly innervated by the spinal cord, and

and still more the trunk of the hypoglossus is usually much larger than that of the spinal, at any rate, more so than the branch going to the trapezius, and it is for all these reasons that the hypoglossus is to be preferred.

Out of twenty-two cases recorded in literature anastomosis between the spinal and the facial was done in fifteen and between the hypoglossus and facial in seven. Of these twenty-two cases in six no result was obtained, while in the remaining sixteen an amelioration of the paralysis resulted.

871 BEACON STREET.

METABOLISM DURING INANITION.*

By FRANCIS G. BENEDICT, Ph. D.,
Middletown, Conn.,

Professor of Chemistry, Wesleyan University; Director of
Nutrition Laboratory, Carnegie Institution, Washington.

The utilization by the body of its own substance and the production of energy during conditions of inanition are phases of the study of metabolism in general that are at once interesting and fundamentally important. With adults the constant replenishment of disintegrated body material by food results in a state of maintenance, while, as is well known, during periods of inanition of even a few days' duration, there may be a marked loss in weight.

While the earlier literature is replete with accounts of more or less prolonged fasts due to religious vows, mental derangement, pathological lesions or accident, but comparatively few scientific observations on normal man during inanition have been made. It is possible here to cite only those having unusual scientific interest and accuracy. Sadovyen,¹ using the Pashutin respiration apparatus at St. Petersburg, made an unusually complete study of a fasting man in an experiment lasting four days. The carbon dioxide output was measured and the urinary constituents likewise carefully determined.

Luciani's² classical research on the professional faster Succi comprised observations regarding the physical and psychical condition of the subject, as well as chemical examination of the urine. The method by which the data for the respiratory exchange was obtained is unfortunately not free from criticism.

An extended series of observations regarding the nitrogenous output of fasting man in two days' fasts was reported by Prausnitz.³

One of the most elaborate series of studies on fasting men was that reported by Lehmann, Muller, Munk, Senator, and Zuntz,⁴ on the professional fasters Cetti and Breithaupt. The experiments lasted ten and six days, respectively, and included unusually careful measurements of the urinary constituents. The respiratory exchange was studied by means of the closed-circuit apparatus and the amount of the food and water consumed was determined for each day.

The study of the metabolism of man during inanition in the Stockholm laboratory, reported by

* This paper is a part of the author's researches on the metabolism of man during inanition, which are being published in the *Journal of Biological Chemistry*.

Johannson, Landergren, Sondern, and Tigerstedt,⁵ included unusually complete determinations of the carbon dioxide output in the Tigerstedt respiration apparatus. As in the experiments with Sadovyeu,⁶ the total carbon dioxide output was measured for but twenty-two hours of the day, since the subject did not remain during the entire day inside the chamber. No determinations of oxygen were made.

The observations on a hypnotic subject, reported by Hoover and Sollman,⁷ had to deal wholly with the urinary constituents, although careful records of the pulse and respiration rate were made during the experiment.

The ability to withstand long fasts exhibited by the professional faster Succi has resulted in a number of observations on him other than those reported by Luciani. Of especial accuracy and interest are those reported by Ajello and Solaro,⁸ E. and O. Freund,⁹ and Brugsch.¹⁰

In all of these experiments the investigators have for the most part, of necessity dealt with those problems which could best be studied by a chemical examination of the urine. While in many instances an attempt was made to secure a study of the respiratory exchange, and from that study to compute the energy transformations, but little success attended these measurements save in the case of the Swedish investigators Johannson and Tigerstedt. By means of their respiration apparatus, it was possible to study the carbon dioxide output with considerable accuracy in an experiment with a medical student lasting five days.

Since the larger proportion of the total catabolism has to deal with the disintegration of fats and carbohydrates rather than with the disintegration of protein, it is obviously important to make studies with men during inanition, that will include a measure not only of the urinary constituents, but likewise of the respiratory gases. If these observations can also be supplemented by careful measurements of the heat production, the data are available for striking many balances which serve to check mutually the different determinations.

The apparatus at Middletown in its present form permits of the measurements of the carbon dioxide and water vapor elimination, and oxygen consumption, as well as the heat production, and it was believed that the first extended use of the improved apparatus would best be a study of inanition. Accordingly through the liberality of the Carnegie Institution of Washington, a series of experiments with fasting man was planned in which the four important factors, carbon dioxide and water elimination, oxygen consumption and heat production, should be measured along with a more or less elaborate study of the urine.

The apparatus has been described in detail in *Publication of the Carnegie Institution of Washington*, 42.

Since the apparatus and technique are not familiar to many of you, it may be advisable for us to consider for a few moments some of its salient points. The name "respiration calorimeter" has

been given this apparatus by Professor Atwater to indicate that it measures both respiratory products and heat output.

Considering, first, the respiration features of the apparatus, it may be said that the chamber itself consists of an air tight copper box, through which a ventilating current of air is caused to pass by means of a rotary blower. This ventilating air current leaving the chamber contains carbon dioxide and water vapor, and the oxygen content is somewhat diminished. The air is purified by first passing it through sulphuric acid to absorb the water vapor, and, second, through soda lime to absorb carbon dioxide. The deficiency of oxygen is made up by admitting oxygen from a cylinder of the highly compressed gas. The air current is then caused to return to the chamber and is used again. By making proper provision to note the increase in weight of the sulphuric acid and soda lime vessels, the quantitative amounts of water vapor and carbon

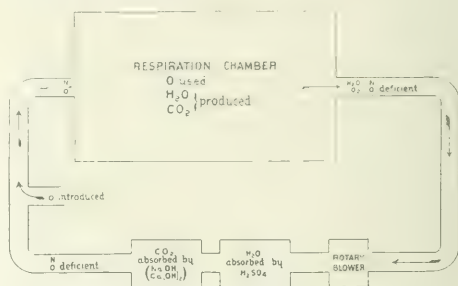


FIG. 1.—Schematic outline of ventilation system in the respiration calorimeter at Wesleyan University, Middletown, Conn.

dioxide given off by the subject may be readily determined; and further, if the loss in weight of the oxygen cylinder is recorded, the amount of oxygen absorbed may be determined. Numerous incidental corrections are necessary for unusual accuracy in these determinations, but the principle is fundamentally that just outlined.

For measuring the heat, the apparatus as a calorimeter must next be considered. The inner chamber of copper is surrounded by three walls, one of zinc, and two of wood. With the intervening air spaces between these walls, the construction is not unlike that of a refrigerator, and hence heat insulation is secured. When a man enters a chamber constructed on this principle, the insulation is so perfect that soon the temperature resulting from the heat production in the body would become unbearable. As houses are heated in winter by passing hot water through pipes, this small house or individual room is cooled by passing cold water through pipes or heat absorbers. Special electrical connections prevent any loss of heat from the walls, and by noting the quantity of water passing through the heat absorbing system, and the temperature through which it is warmed, the measurement of heat is readily made.

Unfortunately at the time these experiments were first started, Folin's scientific scheme¹¹ for urinary analysis was not perfected, and hence we were

⁵ *Journal of Experimental Medicine*, I, p. 403, 1897.

⁶ *Journal of Experimental Medicine*, I, p. 712, 1897.

⁷ *Journal of Experimental Medicine*, II, pp. 57, 71 and 91-93, 1901.

⁸ *Journal of Experimental Medicine*, II, pp. 57, 71 and 91-93, 1901.

⁹ *Journal of Experimental Medicine*, II, pp. 57, 71 and 91-93, 1901.

¹⁰ *Journal of Experimental Medicine*, II, pp. 57, 71 and 91-93, 1901.

¹¹ *Journal of Experimental Medicine*, III, p. 45, 1905.

obliged to forego the determinations of many factors that would be of great value in the interpretation of the results. It was possible, however, to determine in the urine the total nitrogen, carbon, organic hydrogen, ash, solid matter, and in some instances, the creatine and creatinine, chlorine, sulphur, and phosphorus. We were thus enabled to obtain an approximate knowledge of the urinary constituents. For the measurements of the energy transformations the heat of combustion of the urine was determined daily with a calorimetric bomb.

General observations regarding the changes in body weight, body temperature, strength, physical appearances, etc., were noted in many of the fasts, although no attempt was made to secure completeness in observations other than those pertaining to the study of the transformations of matter and energy.

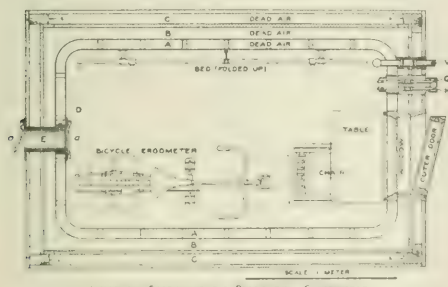
The subjects used in these experiments were all young men, many of them students in the university. The subject of the longer experiments was a

activity, although in one experiment the subject exercised for a period of ten minutes on one day on a bicycle ergometer placed inside the chamber. Usually the muscular activity may be said to be very slight. The results of the experiments have been prepared in detail and are published by the Carnegie Institution, of Washington.¹²

The statistical data are very extended, and it will be possible here to discuss only some of the general results.

Body Weight.—Perhaps no observation regarding subjects during inanition has been more commonly made than that of loss of body weight, and in these experiments the subject was weighed every morning at 7 on a specially devised scale sensitive to within two grammes. The fluctuations in weight were very considerable, not only from day to day of the same experiment, but with different experiments with different subjects, and indeed with different experiments with the same subject. When it is considered that the loss in body weight is a resultant of a number of factors, such as the carbon dioxide output, water vapor output, ratio of drinking water to urine excretion and catabolism of body material, it is seen that wide fluctuations in the actual loss in weight may occur without there being actual corresponding fluctuations in the disintegration of body substance. A subsequent inspection of the quantities of protein, fat, and glycogen, catabolized on the different days of fasting shows that while there may be marked fluctuations in the loss in body weight, these fluctuations must in practically all instances be due to variations in the quantity of water consumed and urine voided. The actual daily losses in weight observed varied from 44 grammes to 1.7 kilogrammes. The average loss in weight for the first day of all the experiments was 1 kilo, on the second day there was also lost on the average 1 kilo, on the third and succeeding days the average losses were 787, 883, 559, 391, and 497 grammes, respectively. On the fifth, sixth, and seventh days of fasting, the losses in weight are in general not far from one pound per day.

Body Temperature.—While the body temperature undergoes normal, rhythmical fluctuations, observations on fasting men show that in general, the fluctuations are much smaller during inanition than during experiments with food. In the longer experiments made in this laboratory, it was much to be regretted that the subject was of such a nervous temperament that it was impossible for him to wear with comfort the electrical rectal thermometer¹³ which has been used so successfully in many experiments before, and which unfortunately was not used in the longer fasting experiments. This thermometer, which involves measurements in the variation of electrical resistance, is usually worn by subjects in the rectum without any discomfort for days at a time. Indeed, in the later series of two day fasting experiments the subject did use this thermometer. The records of body temperature made by the subject of one of the longer experiments, i. e., S. A. H., were made with a clinical thermometer. This shows that in general the body temperature remained prac-



HORIZONTAL SECTION OF THE RESPIRATION CALORIMETER.
 A. RIPPINGS SHOWN THIS ARE OF WOOD
 B. LEAD AIR SPACE BETWEEN CH AND ZN WALLS
 C. PRE-HEATED AIR AND HEAT EXCHANGE WALL
 D. AIR-TEMPERATURE TUBE
 E. AIR-TEMPERATURE TUBE
 F. AIR-TEMPERATURE TUBE
 G. AIR-TEMPERATURE TUBE
 H. AIR-TEMPERATURE TUBE
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 Q. AIR-TEMPERATURE TUBE
 R. AIR-TEMPERATURE TUBE
 S. AIR-TEMPERATURE TUBE
 T. AIR-TEMPERATURE TUBE
 U. AIR-TEMPERATURE TUBE
 V. AIR-TEMPERATURE TUBE
 W. AIR-TEMPERATURE TUBE
 X. AIR-TEMPERATURE TUBE
 Y. AIR-TEMPERATURE TUBE
 Z. AIR-TEMPERATURE TUBE

FIG. 2. Horizontal section of the respiration calorimeter.

professional masseur, who had fasted frequently in private with the view of obtaining data regarding the loss in weight, and rapidly with which the initial body condition was regained. He had suffered no inconvenience from his previous fasts, and consented to come to Middletown and make a number of experiments in the laboratory. Prior to his coming to Middletown, three experiments had been made with students, one of three, one of two, and one of four days' duration. No especial preliminary preparation was made for the experiments save that in a later series of two day experiments, the precaution was taken to empty the colon by means of an enema. The subjects entered the respiration chamber generally in the evening before the experiment proper was to begin. The experimental day began at 7 a. m. The experiment lasted from two to seven days, and, in all, fourteen experiments covering forty three days were made.

Drinking water was allowed as desired. The routine for the day consisted in following a more or less prescribed programme with regard to the hours of rising and of going to bed. The narrow confines of the chamber, 7 feet long, 6 1/2 feet high, and 4 feet wide, precluded any extensive muscular

¹² *Proceedings of the Carnegie Institution of Washington*, Vol. 1907, pp. 1-100.
¹³ *Proceedings of the Carnegie Institution of Washington*, Vol. 1907, pp. 1-100.

tically constant during fasting, with a smaller amplitude of the curve than is commonly the case with men consuming food, even under like conditions of muscular activity.

Pulse Rate.—A factor which promises to be of very considerable value in estimating the intensity or degree of internal muscular activity is the pulse rate. In the earlier experiments, unfortunately, the pulse rate was only determined by the subject who was instructed to count his pulse every half hour and record it. In the later experiments, use was made of a pneumograph,¹⁴ which was so attached to the chest that the movements of the tambour could be read outside of the chamber and the respiration rate counted at any time. Simultaneously, it was possible to determine the pulse rate from the minor vibrations of the pointer, and these two important factors were recorded in all of the later experiments. It was found impossible to determine the respiration rate without the use of the pneumograph, and hence these data are lacking in the seven day experiment. The examination of the pulse rate as counted by the subject of experiment No. 75, i. e., the seven day experiment with S. A. B., shows that

TABLE I

Pulse Rate: Experiments Nos. 75 and 76.

March 4, 1905.....	68	66	59	55	57	52	53	52	51
March 5, 1905.....	82	68	62	64	61	67	61	54	53
March 6, 1905.....	70	63	55	56	58	58	56	53	49
March 7, 1905.....	59	61	52	58	55	54	52	53	49
March 8, 1905.....	74	58	53	53	56	54	54	51	48
March 9, 1905.....	54	54	54	52	48	..	44	45	47
March 10, 1905.....	57	55	54	51	50	52	50	44	48
March 11, 1905.....	67	67	77	75	80	81	64	75	70
March 12, 1905.....	68	68	91	69	69	72	76	77	76
March 13, 1905.....	77	78	87	86	73	81	76	72	70

as the fast progressed there was a distinct tendency for the pulse to fall, but on the ingestion of food even though in small quantities, there was a marked increase in the pulse rate. Observations of the pulse rate were taken about every two hours between 7:30 a. m. and 11 p. m. Experiment No. 76 followed immediately No. 75, continued three days, and the food was not sufficient for maintenance.

Blood Examination.—The blood examinations were possible only during two experiments. Difficulty was experienced in taking samples, since our subject was confined in an air tight chamber.

Examinations were made of the relative amount of hemoglobin, and the erythrocytes and leucocytes were counted. From the smears the differential counts shown were made. The main conclusions are:

1. A progressive average fall in the number of erythrocytes with the recuperation following.
2. A corresponding diminution in the percentage of hemoglobin.
3. A relative progressive fall in the percentage of leucocytes in the prolonged fast, but no remarkable effect of fasting on the relative percentages of the various types of leucocytes.
4. A high percentage of polymorphonuclear leucocytes during the fasts explained by the relative leucocytosis.

Strength Tests.—It is commonly assumed that as fasting progresses, strength diminishes rapidly. The professional faster Succi is firmly convinced that the contrary is true, and many experiments have been made on him which show if not an increase

at least no great loss in strength. Thus it is reported that on the fifteenth day of one of his fasts, he ran to the top of the Eiffel Tower. On the contrary, it is interesting to note that with the dynamometer as used by Luciani, the records showed no increase in strength, but indeed a slight decrease. In the series of experiments made in the Middletown Laboratory, strength tests were made only in the two day fasts. In almost every instance, there was a noticeable falling off in the strength as determined by the Tiemann hand dynamometer, as the fast progressed. With the resumption of food, the strength rapidly returned.

General Appearance and Subjective Impressions.

—Is it difficult to fast for a considerable period of time? The subjects of the experiments show that in general no especial discomfort was noted on the different days during fasting. Indeed, even in the longer fasts, no marked disturbances were noted by the attending physician. On the other hand, the mental attitude of the subjects determined in large measure their ability to withstand the fast. Thus the subject of our longer fasting experiments, during certain experiments, was buoyant and cheerful, and yet in subsequent experiments of much shorter duration, and in the absence of physical discomfort he was unable to continue the experiment, owing to his mental attitude, although nothing could be observed to indicate any disturbance of metabolism which would cause him to forego the experiment. The actual loss of body substance and general appearance is difficult to observe in experiments of but four to seven days duration. While certain differences are noticeable, especially about the abdomen, in general the subjects presented no special degree of emaciation.

Excretions.—Of the excretions, it was practically impossible to isolate with any degree of accuracy feces that could properly be designated fasting feces. This was true even in the seven day experiment. The urine was voided regularly, and analyses were made in considerable detail. The volumes were in general normal, although in many instances where the subjects consumed large quantities of water, the volumes of urine were likewise very great. Thus on one day there was excreted as much as two and one half litres of urine, with an extremely low specific gravity. The reaction was invariably acid, and at no time were there any indications of either sugar or albumin.

Perhaps no one factor in the urine is of as great significance to physiologists as is the total nitrogen output during fasting, and the results of all the experiments are given in Table II, which shows the weight in grammes of total nitrogen as determined by the Kjeldahl method, excreted for each day of the fast. The amounts varied considerably, ranging from 5.8 grammes on the first day of the first experiment with S. A. B. to 15.0 grammes on the third day of the second experiment with A. L. L. Even during the longer experiments, the output of nitrogen rarely was below 10.5 grammes per day. Of especial significance is the fact that the nitrogen excretion on the second day is, on the whole, much greater than that on the first. It would be impossible in the time at my disposal this evening to discuss in detail the significance of these figures for

TABLE II.
Nitrogen in urine during fasting.

	Body weight Kilos	1st day Grammes	2d day Grammes	3d day Grammes	4th day Grammes	5th day Grammes	6th day Grammes	7th day Grammes
B. F. D.	67.8	11.8	14.1	14.8	...	...	...	...
A. L. L.	72.9	12.3	13.0	...	...	...	...	...
S. A. B.	73.8	10.1	14.5	15.0	13.0	...	...	...
S. A. B.	58.2	5.8	11.0	13.1	10.7	...	...	...
S. A. B.	59.1	10.3	12.0	11.5	10.4	10.6	...	...
S. A. B.	79.5	12.2	12.5	13.0	11.6	10.9	10.7	10.1
S. A. B.	61.6	8.8	10.8	10.9	11.5	...	...	...
H. R. D.	57.2	8.1	14.4	...	...	...	...	...
C. R. Y.	69.3	7.8	10.0	...	...	...	...	...
A. H. M.	62.0	9.1	13.1	...	...	...	...	...
A. H. K.	71.5	9.4	14.4	...	...	...	...	...
H. R. D.	55.6	13.3	13.5	...	...	...	...	...
N. M. P.	67.6	17.3	11.4	...	...	...	...	...
D. W.	79.1	10.0	14.5	...	...	...	...	...

nitrogen, and the influence of previous food and other factors which undoubtedly determine the catabolism of the protein. But it is clear that with the subjects of these experiments, at least 10 grammes of nitrogen is catabolized per day in fasts lasting from four to seven days.

Of the organic constituents in the urine unfortunately only one could be studied with any degree of completeness. Thanks to the Folin method of determining creatine and creatinine, it was possible to determine these two compounds in the urine, and in Table III are given the results for the cre-

TABLE III.
Creatine and Creatinine. Experiments Nos. 75 and 77.

	1st day Grammes	2d day Grammes	3d day Grammes	4th day Grammes	5th day Grammes	6th day Grammes	7th day Grammes
Creatinine ... Experiment No. 75.	1.237	1.201	1.407	1.275	1.214	1.318	1.270
Creatine Experiment No. 75.	0.025	0.247	0.551	0.190	0.502	0.585	0.488
Creatinine ... Experiment No. 77.	1.342	1.343	1.383	1.386	...	...	...
Creatine Experiment No. 77.	0.110	0.216	0.415	0.538	...	...	...

atine and creatinine determinations in two of the longer experiments with S. A. B. The total creatinine represents the preformed creatinine plus the preformed creatine in the urine expressed in terms of creatinine, and it is seen that as the fast progresses, there is a constancy in the amount of total creatinine thus excreted. The lower series of figures shows the amounts of preformed creatine excreted in the urine, and in general these increase to about the fourth or fifth day of fasting, when they remain reasonably constant thereafter. It is of great significance that while the quantities of preformed creatine increase as the fast progresses, the total creatinine remains sensibly constant. One suggested explanation of these figures is that the preformed creatine in the urine represents the creatine liberated from the flesh catabolized during fasting. But here again the evidence is as yet too meagre, and much experimenting must be done to explain these results, which are apparently at variance with some of the recent observations of Folin.

The sodium and potassium determinations in the urine were made in many of the experiments, and the approximate percentage equivalent are here given. The normal sodium was found to be constant, and it is seen that the normal potassium and sodium was a constant in amount in all fast progressers. The absolute sodium output increased for the first three days, and then subse-

quently diminishes. With the phosphorus there is an increase the first day till the fourth. And on the last three days of the experiment the excretion is practically constant. As a partial indication of the nature of the material catabolized during the fasting, the ratio of nitrogen to sulphur and nitrogen to P_2O_5 are of interest. In the albumin of muscle, the ratio N : S is not far from 1 to 13. An inspection of the figures given in Table IV shows that the

TABLE IV.
Sulphur and Phosphorus excreted during fasting (seven days).

	1st day Grammes	2d day Grammes	3d day Grammes	4th day Grammes	5th day Grammes	6th day Grammes	7th day Grammes
Total S.	1.559	1.669	1.871	1.802	1.668	1.648	1.553
Neutral S.	0.205	0.189	0.189	0.184	0.149	0.171	0.139
Ratio N : S	19.59	18.62	17.38	16.11	16.26	16.27	16.28
Total P_2O_5	1.431	2.255	2.055	2.406	2.078	2.071	2.081
Ratio N : P_2O_5	8.55	5.52	6.34	4.83	5.23	5.19	4.87

ratio is considerably greater than this, thus indicating the disintegration of protein with a much smaller percentage of sulphur than that existing in muscle proteid. Similarly, with the nitrogen phosphoric acid ratio, it is commonly assumed that in flesh this ratio is not far from 1 to 6.6, while here it is much lower than this, thus indicating that in all probability, the phosphatic material of the bone was drawn upon during the inanition.

Water of Respiration and Perspiration.—The special features of the respiration calorimeter enable accurate measurements of the total water of respiration and perspiration, and these are of further value in measurements of the total heat production, since about sixty calories of heat are required to vaporize 100 grammes of water. The total quantities of water vaporized from the lungs and skin measured in the different experiments are given in Table V. With different subjects there are marked

TABLE V.
Water of Respiration and Perspiration During Fasting.

	1st day Grammes	2d day Grammes	3d day Grammes	4th day Grammes	5th day Grammes	6th day Grammes	7th day Grammes
B. F. D.	684	652	943	...	...	...	...
A. L. L.	745	761	...	...	...	...	...
S. A. B.	745	898	797	878	...	...	...
S. A. B.	675	675	708	718	...	...	...
S. A. B.	684	676	667	669	543	...	...
S. A. B.	670	642	658	666	579	542	543
S. A. B.	670	648	648	627	...	...	...
H. R. D.	667	700	...	...	...	...	...
C. R. Y.	927	1,061	...	...	...	...	...
A. H. M.	669	671	...	...	...	...	...
A. H. K.	817	940	...	...	...	...	...
H. R. D.	674	677	...	...	...	...	...
N. M. P.	817	817	...	...	...	...	...
D. W.	684	80	...	...	...	...	...

differences in the amounts of water thus excreted, while with the same subject the differences are much less. Even with the subject S. A. B. aside from the large water output on the first day of the first experiment, 745 grammes, which was in part due to the active muscular exercise on the bicycle ergometer, there still was a difference between 684 grammes on the first day of the second experiment and 618 grammes on the last day of the last experiment. In general, the water output decreases as the fast progresses. The marked variations in the amounts of water vapor excreted during different experiments are in large part to be accounted for by differences in the total heat production and subsequent contraction of the fat layers and by

of value. In general, then, a fasting man gives off not far from 600 to 800 grammes of water per day.

Carbon Dioxide Elimination.—Of great importance in studying metabolism is the carbon dioxide output and the values as obtained in these experiments are given on the chart now on the screen. During the time the subjects were all at rest, i. e., engaging in no extraneous muscular exercise, it is seen, from the figures in Table VI, that there is, on

TABLE VI.
Carbon Dioxide Output During Fasting.

	1st day Grammes	2d day Grammes	3d day Grammes	4th day Grammes	5th day Grammes	6th day Grammes	7th day Grammes
B. F. D.	670.6	658.9	650.2	.....	.....	.....	.....
A. L. L.	691.1	670.3	.....	.....	.....	.....	.....
A. L. L.	631.8	666.4	640.7	612.6	.....	.....	.....
S. A. B.	669.0	570.2	554.0	508.1	.....	.....	.....
S. A. B.	608.0	569.0	541.7	515.2	482.0	.....	.....
S. A. B.	569.9	550.6	545.1	534.2	496.1	477.4	475.0
S. A. B.	599.5	576.9	556.6	544.8	.....	.....	.....
H. E. S.	632.0	635.2	.....	.....	.....	.....	.....
C. R. Y.	627.2	619.3	.....	.....	.....	.....	.....
A. H. M.	534.7	529.3	.....	.....	.....	.....	.....
H. C. K.	740.9	767.3	.....	.....	.....	.....	.....
H. R. D.	806.7	579.2	.....	.....	.....	.....	.....
N. M. P.	696.6	719.1	.....	.....	.....	.....	.....
D. W.	722.1	705.5	.....	.....	.....	.....	.....

the whole, reasonable uniformity in the carbon dioxide output. Differences between different subjects are indeed noted, but eliminating again the first day with the subject S. A. B., where exercise was taken, the uniformity for the first two days of fasting in all experiments is rather striking. As the fast progresses, there is a rather persistent decrease in the output of carbon dioxide. In the two day fasting experiments wide variations were observed between different subjects, although on the two days of each experiment, the agreement is reasonably uniform.

Oxygen Intake.—The carbon dioxide output is an approximate measure of the total catabolism, but since there may be a considerable oxidation of material rich in organic hydrogen, such as fat, especially in the case of the catabolism during inanition, the measurements of the oxygen absorbed are of much greater value as indices of the total catabolism than is the carbon dioxide elimination. The values for the oxygen intake during the different experiments are given in Table VII. Much wider differ-

TABLE VII.
Oxygen Intake During Fasting.

	1st day Grammes	2d day Grammes	3d day Grammes	4th day Grammes	5th day Grammes	6th day Grammes	7th day Grammes
B. F. D.	629.4	629.2	646.1	.....	.....	.....	.....
A. L. L.	640.0	677.6	.....	.....	.....	.....	.....
A. L. L.	584.2	518.8	619.4	601.3	.....	.....	.....
S. A. B.	589.2	551.1	538.0	492.4	.....	.....	.....
S. A. B.	544.2	547.9	533.0	50	485.5	.....	.....
S. A. B.	533.6	534.3	57	519.5	491.0	466.1	466.4
S. A. B.	556.0	571.6	530.7	531.6	.....	.....	.....
H. E. S.	575.0	605.3	.....	.....	.....	.....	.....
C. R. Y.	576.2	628.6	.....	.....	.....	.....	.....
A. H. M.	516.8	527.1	.....	.....	.....	.....	.....
H. C. K.	662.3	733.8	.....	.....	.....	.....	.....
H. R. D.	585.2	551.1	.....	.....	.....	.....	.....
N. M. P.	627.5	675.6	.....	.....	.....	.....	.....
D. W.	645.4	681.6	.....	.....	.....	.....	.....

ences are observed between the oxygen intake on the different days than was noted in the case of carbon dioxide. This is readily understood when the differences in the kinds and amounts of the material catabolized are taken into consideration. In general, however, the measurement of the oxy-

gen intake is a good measure of the total catabolism.

In these experiments it was fortunately possible to secure data regarding the catabolism specifically of protein, fat, and carbohydrates. The total urinary nitrogen gave a direct measure of the protein catabolized, on the commonly accepted assumption that the urinary nitrogen results only from the catabolism of protein.

Materials catabolized.—From the amounts of carbon dioxide and water vapor given off as well as the oxygen consumed, and from a knowledge of the urinary constituents, it is possible to strike a balance of income and outgo and compute by the method of simultaneous equations, the quantities of protein, fat, and glycogen catabolized. The method by which these computations are made has been discussed in detail elsewhere and is too complicated for review here.¹³

The relative amounts of protein catabolized are therefore essentially those of the nitrogen output from the urine, and no further discussion is necessary on this point. It is of interest, however, to note that this method of apportionment of the nitrogen and carbon output and oxygen intake between the various ingredients of the body distinguishes between the amounts of fat and glycogen catabolized.

In Table VIII is recorded the number of

TABLE VIII.
Fat Catabolized During Fasting.

	1st day Grammes	2d day Grammes	3d day Grammes	4th day Grammes	5th day Grammes	6th day Grammes	7th day Grammes
B. F. D.	150.7	156.6	183.4	.....	.....	.....	.....
A. L. L.	145.5	160.6	.....	.....	.....	.....	.....
A. L. L.	134.9	174.3	161.7	169.2	.....	.....	.....
S. A. B.	116.5	152.3	142.9	133.0	.....	.....	.....
S. A. B.	106.6	151.7	152.6	139.2	148.1	.....	.....
S. A. B.	129.4	175.5	153.0	144.7	144.7	129.8	132.5
S. A. B.	135.0	171.9	157.7	149.9	.....	.....	.....
H. E. S.	132.6	158.2	.....	.....	.....	.....	.....
C. R. Y.	141.6	190.1	.....	.....	.....	.....	.....
A. H. M.	146.9	161.2	.....	.....	.....	.....	.....
H. C. K.	149.1	203.6	.....	.....	.....	.....	.....
H. R. D.	156.2	143.9	.....	.....	.....	.....	.....
N. M. P.	127.4	168.0	.....	.....	.....	.....	.....
D. W.	131.8	182.6	.....	.....	.....	.....	.....

grammes of fat catabolized during the different fasting experiments. The highest amount is 203.6 grammes, while the lowest is 106.6. In general not far from 150 grammes of fat per day are catabolized by a man at rest during the earlier days of inanition.

Of unusual interest in this particular discussion is the quantity of glycogen catabolized during fasting. The direct determination of the oxygen intake is the key to the glycogen determination. It has commonly been assumed in all earlier experiments with fasting man that the store of body glycogen undergoes no change during the first few days of fasting, and in all of the experiments which have been made on this subject in which oxygen was not determined directly, it was assumed in the computations that the store of body glycogen was unaltered. An inspection of the results obtained in these experiments shows that on the contrary, the greatest drafts upon body glycogen occur on the first day of the fasting when as much as 181.6 grammes of glycogen may be catabolized. After the first day

TABLE IX.
Glycogen Catabolized During Fasting.

	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
	Grammes.	Grammes.	Grammes.	Grammes.	Grammes.	Grammes.	Grammes.
R. F. D.	29.4	31.2	...	...	...	...	...
A. L. L.	31.6	31.6	...	...	...	...	...
A. L. L.	103.8	32.7	15.3	...	...	...	...
S. A. B.	181.6	29.7	23.0	25.3	...	...	...
S. A. B.	18.1	7.4	21.6	...	...	...	...
S. A. B.	23.1	5.4	25.5	26.8	27.7	18.7	...
S. A. B.	62.4	14.9	...	...	...	...	...
H. L. S.	117.6	40.0	...	...	...	...	...
C. E. Y.	103.6	17.1	...	...	...	...	...
A. H. M.	28.7	25.5	...	...	...	...	...
H. C. K.	105.6	11.7	...	...	...	...	...
H. R. P.	32.7	41.6	...	...	...	...	...
N. M. P.	14.6	9.6	...	...	...	...	...
D. W.	117.8	39.6	...	...	...	...	...

* Glycogen gained.

there is a marked decrease in the carbohydrate catabolism, and on the third and subsequent days there is an average of not far from twenty grammes of glycogen lost per day. Of especial interest is the fact that on two of the days the figures indicated a storage of glycogen.

The explanation of the apparent gain of glycogen is somewhat obscure since the number of experiments in which this phenomenon was observed are so few, but it is not at all inconsistent with the current views of the possibilities of the formation of glycogen from fat and protein. The most striking feature of the data regarding glycogen was the very considerable amount catabolized on the first and second days of fasting. It has commonly been supposed that the human body contains not far from 400 grammes of glycogen, but from the figures which appear here, it would seem that this estimate of 400 grammes is probably low rather than high, for in certain experiments, namely, the first with S. A. B., there were over 250 grammes of glycogen catabolized during a four-day fast. The method seems satisfactory and it is hoped that further experiments to study this question of loss of glycogen and the formation of glycogen from protein or fat during inanition may be carried out in which more positive evidence may be secured.

Heat Production.—The measurement of the heat eliminated from the body of a fasting man is of interest as indicating the possible minimum heat production necessary for life. It will be observed that the data given in Table X indicate the heat production rather than the heat elimination, for since it is

TABLE X.
Heat Production During Fasting.

	1st day.	2d day.	3d day.	4th day.	5th day.	6th day.	7th day.
	Calories.	Calories.	Calories.	Calories.	Calories.	Calories.	Calories.
R. F. D.	2,060	2,107	2,102	...	...	...	...
A. L. L.	2,167	...	...	1,958	...	...	...
A. L. L.	1,951	2,163	2,035	1,958	...	...	...
S. A. B.	1,970	1,904	1,746	1,690	...	...	...
S. A. B.	1,806	1,901	1,769	1,692	1,668	1,554	1,565
S. A. B.	1,708	1,797	1,775	1,660	1,554	1,565	...
S. A. B.	1,890	1,890	1,897	...	...	...	...
H. L. S.	1,951	2,017	...	...	...	...	...
C. E. Y.	1,951	1,781	...	...	...	...	...
A. H. M.	1,222	2,177	...	...	...	...	...
H. C. K.	1,111	1,907	...	...	...	...	...
H. R. P.	2,109	...	...	...	...	...	...
N. M. P.	2,150	...	...	...	...	...	...
D. W.	2,150	...	...	...	...	...	...

desirable to convert the actual heat production with the estimated energy of material consumed in the body, the absolute amount of heat produced rather than the heat elimination should be used as

a basis of comparison. If the body loses weight and the body temperature falls there is obviously a loss of heat from the body material which has been cooled from the temperature of the body to the temperature of the calorimeter chamber which was not produced as a result of catabolism. Similarly, if the body temperature falls there is a loss of heat from the body as a whole which was not actually produced. By making use of the accurate records of changes in body temperature and body weight, the actual heat production can be computed. The amount of heat produced during experiments in fasting is seen to be not far from 2,000 calories on the first two days of the fast though there are marked fluctuations from this average, the lowest observed being 1,729 calories and the highest 2,479 calories. On the whole, there is a slight increase in the amount produced on the second day of fasting, but in the experiments which continued beyond two days, there is a tendency for the heat production to decrease as the fast progresses. The lowest measured amount was 1,548 calories on the fifth day of the second experiment with S. A. B. Since the heat production remained relatively constant on the sixth and seventh days of the long experiment, it may be assumed that this represents the minimum heat production of this subject during fasting, but it must not be forgotten that if the subject were to remain in bed, well covered, and with enforced muscular rest, and with the diminished pulse rate which accompanies such conditions, the heat production would probably be even less. No observations were made upon this point, although the heat production during the night is of interest. As a matter of fact, during the period from 1 a. m. to 7 a. m. each night the heat was measured accurately and we have therefore an opportunity for studying the heat production during unusual muscular rest. During this period the subject of the seven-day experiment gave off heat on the seven succeeding nights corresponding to 401, 381, 385, 380, 357, 334, and 337 calories respectively. These results for the six sleeping hours agree in general with the total for the day, and hence we may consider that the minimum heat production of a man at rest without food is not far from 1,500 to 1,600 calories. Asleep, the heat production falls to 56 calories per hour, or at the rate of 1,350 calories per day.

The large heat production on the first day of the first experiment with S. A. B. may again be explained by the period of activity in which he rode the bicycle ergometer. It is clear, then, that with this subject the heat production during the first two days of inanition is not far from 1,800 calories.

According to Rubner, the heat elimination bears a direct ratio to the area of skin surface and for purposes of comparison the results of experiments have been computed on the basis of heat production per square metre of body surface. On the whole these agree reasonably well with Rubner's average of about 1,000 calories per square metre. The highest observed was in the second day of the experiment with H. C. K., namely, 1,183 calories, and the lowest on the sixth day of the long fast of S. A. B., where the heat production per square metre of body surface was 836 calories.

A critical examination of all the data, however

TABLE XI.

Heat Produced per Square Metre of Body Surface During Fasting.

	1st day Calories.	2d day Calories.	3d day Calories.	4th day Calories.	5th day Calories.	6th day Calories.	7th day Calories.
B. F. D.	1,023	1,046	1,050	.....	.....	.....	.....
A. L. L.	1,017	1,052	.....	.....	.....	.....	.....
A. L. L.	903	1,009	956	924	.....	.....	.....
S. A. B.	1,072	1,013	964	895	.....	.....	.....
A. A. B.	1,005	975	955	929	866	.....	.....
S. A. B.	941	946	969	965	856	880	.....
S. A. B.	980	993	987	982	.....	.....	.....
H. E. S.	1,075	1,113	.....	.....	.....	.....	.....
C. R. Y.	948	1,037	.....	.....	.....	.....	.....
A. H. M.	961	939	.....	.....	.....	.....	.....
H. C. K.	1,050	1,183	.....	.....	.....	.....	.....
H. R. D.	1,070	1,075	.....	.....	.....	.....	.....
N. M. P.	1,029	1,149	.....	.....	.....	.....	.....
D. W.	954	1,011	.....	.....	.....	.....	.....

shows that the fluctuations on different days may be traced to variations in the internal work as indicated by variations in the pulse rate. It would be necessary therefore to add to Rubner's conditions not only that the man be at rest, but that his pulse rate should be that of the average man during inanition.

Balance of Energy.—The direct measurement of the heat production affords a method of checking the computation of the total amount of protein, fat and glycogen catabolized, by comparing the heat production with the estimated energy of the amounts of these materials catabolized. Due allowance is made for the energy lost in the urine and from the well known factors of the heat of combustion of body protein, fat and glycogen, the actual energy of the material oxidized in the body can be computed. This estimated energy has been compared to the actual heat production and the results are given in Table XII. In the first column is

TABLE XII.

Balance of Energy During Fasting.

	First day. Calories.	Second day. Calories.	Third day. Calories.	Fourth day. Calories.	Fifth day. Calories.	Sixth day. Calories.	Seventh day. Calories.
B. F. D.	2,192	2,080	2,115	2,102	.....	.....	.....
A. L. L.	2,187	2,167	2,170	2,217	.....	.....	.....
A. L. L.	1,972	1,951	2,166	2,163	2,069	2,035	2,008
S. A. B.	2,013	1,970	1,860	1,844	1,800	1,746	1,653
S. A. B.	1,817	1,806	1,831	1,791	1,782	1,739	1,678
S. A. B.	1,796	1,765	1,790	1,768	1,775	1,797	1,721
S. A. B.	1,885	1,874	1,910	1,880	1,775	1,810	1,770
H. E. S.	1,961	1,951	2,046	2,047	.....	.....	.....
C. R. Y.	1,973	1,954	2,125	2,099	.....	.....	.....
A. H. M.	1,751	1,729	1,763	1,781	.....	.....	.....
H. C. K.	2,261	2,222	2,494	2,477	.....	.....	.....
H. R. D.	1,960	1,914	1,855	1,907	.....	.....	.....
N. M. P.	2,117	2,109	2,273	2,305	.....	.....	.....
D. W.	2,197	2,150	2,281	2,254	.....	.....	.....

recorded the energy of material oxidized in the body and in the second the heat production as actually measured. The data for the second day are given in the third and fourth columns and for the succeeding days in a similar manner. A comparison of these figures shows that as a whole, the results agree remarkably well. In ordinary metabolism experiments where the period inside the respiration chamber is preceded by a period with food under conditions similar to those in the chamber, the agreement is indeed remarkably close. Under such conditions it is highly probable that the drafts on body glycogen are so small as to render the determination of oxygen in many instances unnecessary since it may be assumed that only body protein and fat are stored or catabolized according as to whether the diet is slightly insufficient or excessive. In two experiments made in Middletown a few years ago the attempt was made to compute the fasting catabolism without the determination of oxygen. When the results were compared with total heat produc-

tion there was an error of over 5 per cent. in both experiments, so it is seen that here the method of apportioning the catabolism between the protein, fat, and carbohydrates leads to results that when compared with the actual heat determinations are most satisfactory. The total percentage error in the series of experiments here presented is not far from one half of one per cent. The maximum discrepancy was 3.5 per cent. on the third day of the last experiment with S. A. B.

A close inspection of certain of the ratios between the oxygen consumption, carbon dioxide elimination, and heat production points conclusively to errors chiefly in the oxygen determinations as the cause of the discrepancies whenever they appear. In but one instance was there evidently an error in the heat measurement.

This energy balance, therefore, shows that the method of the apportionment of the catabolism between the proteid, fat and glycogen is in all probability as close as physiological experimenting will permit.

Comparison of Factors of Catabolism.—The large number of factors studied in this research makes it impossible to give a summary of results, but in order to compare the catabolism of the different materials and to show the general average catabolism from day to day, we may advantageously consider specifically the seven day experiment as a type. For the purposes of comparison the results are here presented in the form of a series of curves. Aside from the three curves for the amounts of fat, protein and glycogen catabolized all the other curves on this chart have to deal with the urinary

constituents. It is seen that the catabolism of fat increased materially on the second and third days and then diminished as the fast continued. On the other hand, there was a marked falling off in the catabolism of glycogen, and the total quantity catabolized on the last five days averaged not far from 15 grammes per day. Examining the curve for the catabolism of protein, we find that the quantities increased for the first three days and then steadily diminished as the fast progressed. Since the computation of the catabolism of protein is based upon the total nitrogen output, the curve for nitrogen in the urine follows exactly that for the protein catabolism. Of the other ingredients of the urine the total solids, organic matter, carbon, and ash show a marked rise at the beginning and a slight diminution toward the end of the fast. Of special significance is the fact that the nitrogen of the urine decreased after the first three days, while the carbon remained relatively high, thus indicating the excretion in the urine of some carbonaceous

material poor in nitrogen. The tests for albumin and sugar were negative, and it is extremely unfortunate that tests for the aminoacids and beta oxybutyric acid and its analogues were not made. From the energy of the urine and the carbon it is highly probable that there was an acidosis as the

increase in the energy of the urine and the carbon of the urine which are in all probability to be explained by the acidosis.

Of still further value is the comparison of the curves showing the heat production, carbon dioxide elimination, oxygen absorption and the water output. Aside from the sharply descending curve, which indicates the loss of preformed water, all the curves on this chart have approximately the same general conformation, showing that in general all the processes of catabolism decreased and increased uniformly. Thus the carbon dioxide elimination and oxygen consumption are nearly parallel, although for the first three days there was an absolute decrease in the carbon dioxide and increase in oxygen. This may be accounted for by the fact that there was a large amount of glycogen catabolized on the first two days, which would result in an increased output of carbon dioxide with a diminished intake of oxygen. The curve for heat production follows remarkably that of the oxygen con-

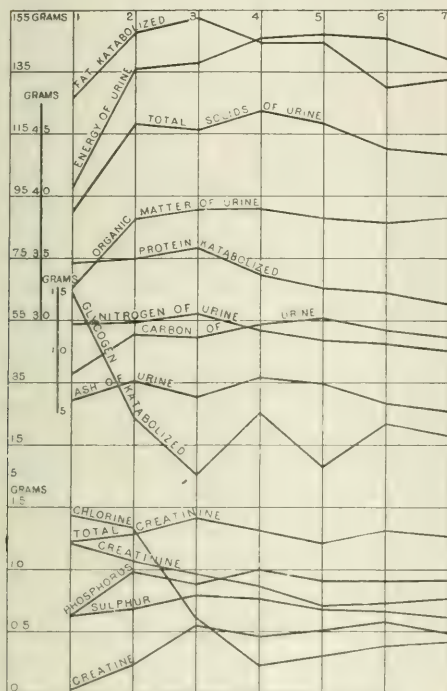


FIGURE 1. Catabolism during a seven day fast.

fast progressed. This is fully in accord with the observations of Brugsch¹⁰ on Succi.

The chlorine curve shows a marked falling off after the first two days, there being about 0.4 or 0.5 of a gramme of chlorine excreted per day during the remainder of the fast. The phosphorus shows an increase up to the fourth day, while on the succeeding days the excretion remained practically constant. The increase in the sulphur excretion continued for the first three days, and then there was a regular diminution as the fast progressed. It remains to consider, then, the creatine and creatinine. The total creatinine as has been seen remained practically constant, while the preformed creatinine decreased and the preformed creatine increased. As I have already pointed out, the increase in the amount of preformed creatine is a subject that calls for much further experiment.

The chief features of the catabolism as a whole as indicated on this chart shows that there is an increase on the second day, and a general falling off on practically all of the factors on the subsequent days of the fast. A marked exception to this is the

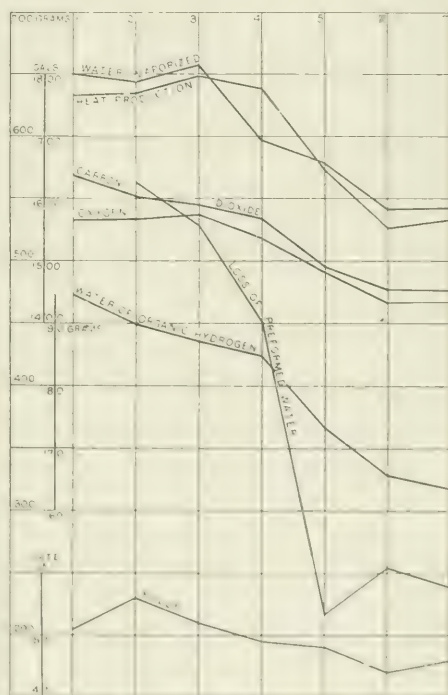


FIGURE 2. Heat production, oxygen consumption, and water vaporization.

symptom, and as has been pointed out previously, the oxygen consumption is a much more accurate measure of the total heat production than is the carbon dioxide elimination. The three curves representing the vaporization of water are of especial interest. The total water vaporized follows in a general way the curve for total heat production. The water vaporized in the body consists of two parts,

not only of the preformed water, but that resulting from the oxidation of organic hydrogen, and the experimental methods permit us to separate these two factors. The curves representing the water of organic hydrogen follow almost exactly the carbon dioxide curve, while the loss of preformed water decreases rapidly until the fifth day, and on the fifth, sixth, and seventh days remains relatively constant.

While a careful record of the extraneous muscular movements of the subject was kept in all these experiments and an attempt was made to determine the differences in the extraneous muscular activity from these movements, no satisfactory comparison of the activities on these different days with the total heat production was obtained. The pulse rate, although determined by the subject himself and only intermittently, furnishes, however, a remarkable comparison between the amount of internal muscular activity and the total heat production. It is thus seen that the general curve for the pulse as indicated on this chart, follows with considerable regularity the heat production, save that on the third day the pulse rate falls and the heat production actually increases slightly. On the subsequent days, the curve is in general parallel to that for the heat production. So striking is this comparison that it is believed that had the record for the pulse rate been complete, such as is obtained by the pneumograph, the curves would have been nearly identical.

The curves shown on these two charts indicate, then, that muscular activity as measured by the pulse rate, carbon dioxide elimination, oxygen consumption, vaporization of water, and heat production, are all strikingly uniform with regard to their periodicity. Similarly the urinary constituents indicate in general an approximate uniformity, and consequently the results may be taken to show that the catabolism is regular in all phases as the fast progresses. The marked exception to this point is the probable effect of acidosis.

It only remains for a short discussion of one of the most interesting factors in the research, namely, the recovery after a period of inanition. This was studied chiefly with a view to the replenishment of the nitrogen in the body after fasting. The nitrogenous intake of subject S. A. B. was under our control for a period of nearly two months, and during this period all the food that he ate was accurately sampled and weighed. The diet was absolutely unrestricted other than that all food must be sampled and weighed so as to secure an accurate measure of the nitrogen intake.

The recovery after fasting was most rapid. During the seven day fasting experiment, there was a total loss of 81 grammes of nitrogen. On the first three days with food (which was insufficient in amount) the body lost 10 grammes more. The total deficit of 91 grammes was regained in twelve days when abundant food was ingested, and the body continued to store nitrogen until at the beginning of the second fasting experiment there was actually an increased storage of 43 grammes. During the second fasting experiment the loss to the body was 42 grammes, which was rapidly regained during the subsequent food period. Two weeks after this

experiment, the subject was obliged to leave Middletown, but at this date the absolute store of nitrogen in the body was 54 grammes greater than at the beginning, although in the interim the subject had undergone two fasts of seven and four days, respectively.

Although calorimeter experiments to determine the gain or loss of glycogen or body fat were impossible during these periods between the fasting experiments, yet an accurate record of body weight and general physical condition of the subjects showed a marked increase in body weight following the fasts. In fact, so marked and regular were these increases that it has seemed clear that fasting for short periods stimulates to a marked degree the power of the body to deposit fat. Of the seven students who were the subjects of the shorter two day experiments, all gained materially in weight at the conclusion of their fast. To eliminate the regular rhythm in the body weight of college students, we have compared these gains in weight with those experienced by other groups of students, and it is definitely shown that the subjects gained considerably more in weight after fasting than did the average college student. This fact, while admittedly as yet only a superficial observation, is worthy of further verification and experimentation. It is of extreme practical significance in the problems of the physician who wishes to fatten a patient. A two day fast with minimum muscular exercise, the subsequent food to be administered in small amounts for the first twenty-four hours followed by a liberal diet should, according to these observations, be a rational method for the deposition of fat.

The tendency to store body fat exhibited by the subjects of short fasts may indicate a protective action on the part of the body to provide for a subsequent draft upon body material.

THE ADVANTAGES AND LIMITATIONS OF THE X RAY IN THE TREATMENT OF SURGICAL TUBERCULOSIS.*

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In the preparation of this subject from the standpoint of the x ray specialist for presentation before a body of surgeons, engaged in the discussion of the treatment of those manifestations of tuberculosis in which surgical measures are recognized as the best and most efficient means of healing or removing certain local lesions of this disease, the attempt has been made to adhere closely to the inference of the title, namely: The Advantages and Limitations of the X Ray. Both Röntgen ray therapeutics and diagnosis, in general, are more closely allied to surgery than to general medicine and the other specialties, and this holds good in the application of the rays to the treatment and diagnosis of the pathological processes induced by localized tuberculous infection. The relation is particularly close in their application for therapeutical purposes in this disease. In the first place, it is because of the similarity between the action of this agent and of

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some of the surgical methods in the production of certain tissue reactions and changes unfavorable to the life and growth of the *Bacillus tuberculosis*. Secondly, we find the x ray to be most efficient in the treatment of those manifestations which are classed more or less distinctly as surgical diseases. The treatment of tuberculosis as a constitutional disease, viewed either as an infection or as an hereditary predisposition, is medical and hygienic, in all instances. Surgery, the x ray, the actinic light rays, high frequency currents, and the like, are measures directed against the local manifestations of the disease.

To realize and believe the statements made by those x ray specialists whose authority is generally recognized does not require that one be carried into the realms of imagination. There are many over enthusiasts among us no doubt, but as a body we endeavor to keep within the bounds of conservatism. In the treatment of tuberculosis, as in many other conditions, more credit has been claimed for the Röntgen ray, perhaps, than is really deserved. The conclusions drawn by writers on the subject would be more uniform, and statistics more accurate, were the following three points in relation to the treatment of this disease given careful consideration:

1. *The Therapeutical Action of the X Ray in Tuberculosis.*—Granting that it has some curative powers when applied to tuberculous lesions, which it undoubtedly does possess, it is important to understand the exact nature of this action before drawing any conclusions as to the extent to which it is responsible for the results for which it is given credit. The x ray is probably not capable of any direct bactericidal effect upon the tubercle bacillus, whether growing in culture media or in living tissues. In the great majority of experiments in which these organisms, growing in culture media, were exposed to the rays for variable periods, their growth was either not affected or was inhibited only. This applies to the *Bacillus tuberculosis*, for under similar circumstances other bacteria may be killed, but apparently only a few varieties. The prolonged exposures employed in many of these experiments could not be used in the attempt to destroy the tubercle bacillus in the tissues of the human body. In the treatment of the deeper seated lesions, especially, such exposures would likely destroy the overlying healthy structures, with disastrous results. If prolonged x ray exposures will not destroy the bacillus in culture media, the much shorter ones which are permissible in therapeutical applications can certainly have little or no direct bactericidal effect upon the same organisms when growing in the tissues of the human body. Even though some varieties of bacteria, some of the pyogenic organisms for example, may be destroyed when growing in culture media, x ray exposures have no direct perceptible effect upon them when they are present in living animal tissues.

It has been proved beyond question that, clinically in man and experimentally in animals, the tubercle bacillus may be inhibited in its growth, and even destroyed, by exposing the tissues in which it is present to the x ray. But this is no proof that the action is due directly to the effect of the rays.

In conclusion, there is no proof that the x ray has any effect, directly, upon the *Bacillus tuberculosis*,

either inhibitory to its growth, or bactericidal, and it probably has none. But the possibility of any such action is entirely unnecessary in the explanation of the phenomena concerned in the favorable results that have been derived from the therapeutical use of Röntgen rays in the treatment of tuberculous lesions. The microscopical changes observed in the tissues infected by lupus vulgaris, during the various stages of treatment, are characteristic of the changes induced in every tuberculous lesion which responds favorably to the action of the x rays.

The earliest effects to be noted are a hyperæmia, and the manifestations of a stimulation of the tissue cells, both of which are to be desired in any form of local treatment of tuberculous lesions, except when absolute rest is required. When this effect upon the tissues has been obtained the action should be carried no further, except in the treatment of the superficial manifestations, such as lupus, for by further exposure an x ray dermatitis is likely to result, and although this may be an unavoidable accident, liable to occur in the experience of any one, it certainly is not beneficial to the patient. In the treatment of the deeper seated lesions, especially tuberculous adenitis, the majority of x ray specialists regulate their dosage in such a way as to induce a mild erythema, or still better a pronounced tanning of the skin. This reaction in the skin is used as an indication of the production of the desired effect upon the diseased tissues beneath. The effect of such a reaction is the promotion of an activity in the tissues sufficient to inhibit the growth of the tubercle bacillus, and later to destroy it, and also to cause destruction and absorption of the products and results of bacterial action, and finally to replace the destroyed area by new tissue.

In the treatment of lupus, the x ray reaction goes a step further, perhaps. Numerous authorities have studied the changes in lupoid tissues induced by x ray applications by microscopical examinations made during various stages of the treatment. The results of these observations have been fairly uniform. There is first a hyperæmia, attended by a degeneration of the giant cells and epithelioid cells of the tubercles. This stage is soon followed by an inflammatory reaction, with leucocytic infiltration at the periphery. The cellular degeneration becomes decidedly evident at the onset of the inflammatory stage. Some observers reverse the order of these two stages, placing the inflammatory reaction before the cellular degeneration. It is believed that the leucocytes hasten the degenerative process, which is started, in part or wholly, through the influence of the x ray upon the cells of lowered vitality. As a result of these reactionary changes, the typical structure of the tubercle disappears, and the debris is absorbed through the usual channels, or the leucocytes may take some part in its removal. Subsequently, the tubercle is replaced by fibrous connective tissue. In the deeper lesions the cellular destruction due to direct action of the rays probably does not take place, as a rule, for the exposure required would be harmful to the intervening healthy tissues, hence the more uniformly favorable results in the treatment of lupus.

2. *The Significance of the Term "Cure."*—As generally applied to the prognosis of tuberculous lesions, this term is rather complex and elastic. It

does not always imply a complete restoration of the diseased tissues to their normal structure and function. It might be permissible to apply it to such a favorable termination as would be generally regarded as the best result obtainable, under any form of treatment, with due consideration to the existing circumstances. This, however, allows of a wide range in the interpretation of the term, and more or less abuse in its application.

3. *Spontaneous Cures, and the Effect of Other Curative Measures.*—It is a well recognized fact that in tuberculosis there is a tendency toward occasional spontaneous cures, and that many cases, in which the disease may or may not have been recognized, get well without having received any medical treatment directed against this particular condition. It is erroneous, perhaps, to speak of these cures as "spontaneous," for, in reality, the disappearance of the lesions is the result of the prevalence of certain conditions, unfavorable to the tubercle bacillus, and brought about by such factors as the manner of living, diet, and hygienic surroundings of the patient. In other words, they are the same conditions which we attempt to bring about by the generally accepted methods of constitutional treatment. Therefore, in many of the manifestations of tuberculosis, when a cure follows x ray treatment, these points must be given due consideration. Likewise, when other forms of treatment are employed in conjunction with the x ray, the possible beneficial effect of the former must be conscientiously considered before giving full credit to the rays, especially in those manifestations of the disease in which the Röntgen treatment is not, as a rule, uniformly effectual. As an example, if a patient suffering from pulmonary tuberculosis gets well under x ray treatment in Colorado, the Röntgenologist is presumptuous if he gives himself the entire credit for the result without carefully considering the points just mentioned. Under exactly the same treatment the result might be quite different in Philadelphia, Washington, or New York.

As a therapeutical agent the x ray has been employed in practically all the manifestations of tuberculosis, and with more or less success in all but the acute miliary form. With the exception of lupus, a tabulation of the results, with the idea of determining even its approximate value in the treatment of each form, is practically impossible. Statistics derived from the literature on the subject fall far short of accuracy. Such statistics may be used for what they are worth, but a knowledge of the possibilities of x ray treatment, and a basis for a comparison of its results with those which are possible, must be derived almost entirely from the personal experience and observations of each x ray specialist. Therefore in the statements to follow, though even the most incredulous assertion may be given credit, the results which may be uniformly promised or expected in each manifestation of tuberculosis are based largely upon what I have been able to accomplish, or have observed in the work of others.

The success of x ray treatment of tuberculosis, or any other disease, depends upon the experience, common sense, and good judgment of the Röntgenologist, and the close observation of certain cardinal principles, which may be enumerated as follows:

1. A reaction of the tissues of the body to the x

ray is manifest in those tissues only in which the rays are absorbed. By the use of the proper tube, together with correct manipulation of the apparatus, the degree of penetration of the greater number of the rays generated may be determined and controlled to a great extent.

2. The first effect of radiation upon normal tissues is stimulation, followed by irritation, inflammation, and finally by cellular destruction.

3. The applications should be so administered as to secure that reaction which is necessary or most efficient in bringing about the desired results in the treatment of any disease.

4. In normal tissues the destructive effect is first manifest in those cells which are most highly specialized, as the epithelium of the glands and hair follicles of the skin, and the spermatogenic cells of the testicle.

5. In diseased structures it is first manifest, usually, in those cells which are distinctly pathological and of a lower vitality than the normal tissue cells. In treating certain lesions, such as those of tuberculosis, more than one reaction is often desirable. Superficially, we may go so far as to produce an inflammatory reaction in the healthy structures, but in the case of the deep lesions we must usually stop at stimulation. The exposures required for these reactions should when possible be destructive to diseased cells of lowered vitality. The generation of x rays is far from being under *absolute* control, and certainly none but the experienced operator can, with any degree of accuracy, determine the adjustment of dosage required to destroy diseased cells by direct action of the rays, or indirectly through an inflammatory reaction, and later promote, through stimulation, the formation of new tissue.

In diseases in which pathogenic bacteria are the etiological factors x ray treatment meets with a serious complication. In tuberculous lesions the slow, chronic, and practically noninflammatory reaction induced by the tubercle bacillus is not a contraindication to the use of the rays. In lesions due to pyogenic infection there is already an intense inflammatory reaction, and any additional reaction from x ray applications can certainly not benefit the condition or the patient. This fact should be borne in mind, particularly when the Röntgen treatment of pulmonary tuberculosis is being considered.

These remarks may not seem appropriate to the occasion, but they are made for a definite purpose. X ray specialists realize the fact that in the minds of many physicians and surgeons there is a belief that the results of x ray treatment of tuberculosis and other conditions have been very much overestimated. I will not deny that there is some ground for this belief, but a plausible explanation might lead to a better understanding between our body of specialists and the profession at large. In the first place, there is no question but that the results have been overestimated actually, either in reports in literature or otherwise. This is a frequent manifestation of human weakness, not at all confined to the x ray specialty. Of far greater importance is the fact that nonbelievers are associated, in one way or another, with men who are x ray specialists or experts by title only, and not by what they accomplish. Such men lack either experience or suitable apparatus, or, as is usually the case, both. Both are

essential for good results. The equipment of some of these men, and, still worse, that of many hospitals, is an insult to Röntgen himself. It is an outrage for the management of a hospital to expect its x ray man to do all the radiographic and therapeutical work with two or three, or even only one tube. X ray treatment under such conditions is no less ridiculous than the treatment of every case of syphilis by exactly the same doses of mercury and potassium iodid.

With the knowledge derived from authentic reports, and from the personal observations made by every member of the medical profession, for they certainly should have been made by this time, there can be no doubt that the x ray has some favorable or curative influence upon tuberculous lesions. In the treatment of some, we may regard this agent as almost a specific remedy; in other manifestations, its influence is much less uniformly favorable; while in some of the lesions cures are exceptional, or have never been obtained. We might, therefore, divide the manifestations of tuberculosis which may in any way be benefited by x ray treatment into three classes, but I prefer to classify and discuss them under two headings. This classification is based upon the difference in the reaction which is induced by the rays, and also in the factors concerned in favorable results. In the first class we may include lupus, chronic tuberculous ulcers, and perhaps sinuses, and in the second tuberculous adenitis, laryngitis, pulmonary tuberculosis, tuberculous peritonitis, tuberculosis of bones and joints, tuberculous orchitis, tenosynovitis, cystitis, and nephritis. The reaction induced by the rays when applied with beneficial results has already been discussed. The details of the technique of x ray treatment will be omitted, as they are unnecessary.

Lupus Vulgaris.

This disease, which less than ten years ago was rebellious against all forms of treatment then in use, and often incurable and sometimes even fatal, is now regarded without fear, for its cure is not only possible, but in almost all instances certain. For bringing about this rapid reversal of the prognosis we are indebted, primarily, to two men, Finsen, for his investigations in the therapeutical properties of light, and Röntgen, for his discovery of the x ray. It is of historical interest to note that lupus was the first disease in which the x ray was used as a therapeutical agent. The question now open to discussion is the relative merits of these two methods of treatment. They are of nearly equal value. There is perhaps some difference in the reaction which each produces in the lesions of lupus.

We know that sunlight has a decided bactericidal effect upon the *Bacillus tuberculosis*, and that the actinic or ultraviolet waves are the active agents concerned. Exposure of the skin to sunlight may be followed by hyperemia and an inflammatory reaction, as is observed in sunburn, and there is also some cellular disturbance, as shown by the increased pigmentation of the cells. It is possible that light may be capable of some destructive effect upon cells of lowered vitality, but certainly not to the extent of the x ray. These reactions are produced by the actinic rays. The so-called Finsen light is generated by a powerful electric arc lamp, and is very rich in actinic waves. The most important part of the

mechanism is a series of quartz lenses and water chambers, by means of which the light is deprived of a large portion of the heat waves before it reaches the skin. Finsen's name should not be used in connection with any other type of apparatus. He states that the entire set of light waves, or the whole light spectrum, is used, because any method employed for filtering out all or part of the nonactinic rays removes such a large percentage of the actinic waves as to render the resulting light practically valueless. Numerous forms of apparatus for developing violet and ultraviolet light are now in use, and no doubt many of them are efficient to a certain extent, but all of them fall far short of the Finsen type of lamp in their therapeutical value.

In comparing the reactions of lupus to the two agents under discussion, we may assume that light has far greater bactericidal properties than the x ray, but that the latter makes up for this deficiency through the greater inflammatory reaction it induces, to the same end, and also through the possibility of a direct destructive effect upon diseased cells.

The relative merits cannot be decided upon by clinical results alone, for in this respect the results are about equal. Light waves do not penetrate deeply into the tissues, therefore the x ray is more efficient in destroying the deeper seated nodules. Only a very small area at a time can be treated by the Finsen method, perhaps one or two square inches, while during the same period of time, or even less, the x ray may be applied with equal efficiency to a square foot of surface if necessary. Therefore the economy of time by x ray treatment is often a most important factor, though this may not be the case in Europe. During the summer months the Finsen lamp has the disadvantage of radiating a decidedly uncomfortable amount of heat. As to the cost of the apparatus itself, the Finsen lamp is very much the cheaper, but its use is limited to the treatment of practically one disease, while the x ray outfit has a very wide range of usefulness. As to the cost of manipulation, the Finsen lamp requires at least ten times as much current as its rival. Finsen applications are practically devoid of harmful results, while the x ray is inherently dangerous and must be employed with judgment and care. After careful consideration of all these points, it would seem that the weight of evidence is decidedly favorable to the x ray in the treatment of lupus, and in this country it is gradually but surely replacing the Finsen method. The following conclusions as to the treatment of this disease refer to x ray treatment only.

1. It has supplanted surgical measures, which are now of value only as adjuncts to the x ray.
2. In the treatment of this disease it may be looked upon as a specific therapeutical agent.
3. The cosmetic results of x ray treatment are, on the whole, superior to those of surgery. This is largely due to the greater possibilities in the preservation of healthy tissue, and to the stimulation of new tissue formation, resulting in a scar which is usually white, soft, and pliable. Moreover, the old scars of healed ulcers and tubercles may often be greatly improved in appearance.

4. Recurrence is less likely, and the x ray treatment of this disease is easily controlled. In fact,

slight recurrence is by no means a discredit to the operator always, for it is often better to stop treatment when all manifestations of the disease have disappeared clinically, though perhaps not microscopically, or, in other words, to stop a little too soon, for the sake of better cosmetic results, and take chances of a slight recurrence, which is sure to respond quickly to subsequent treatment. A more rational method is to follow up a symptomatic cure, within a month or two, by a series of several applications, as a prophylactic measure against recurrence.

5. When ulceration is present the course of x ray treatment may be considerably shortened by partial excision, curettement, or cauterization.

6. It is not always necessary to produce an ulceration of the tubercles, as they may be destroyed without. Nevertheless, a marked skin reaction is usually required, and a second degree dermatitis may rarely be necessary, in order to obtain an inflammatory reaction of sufficient intensity to influence the deeper nodules.

7. The undesirable results which may follow x ray treatment are the so called x ray burn, permanent telangiectases, atrophy, and more or less permanent pigmentation. Care will, in a great measure, though not entirely, eliminate these sequelæ. Therefore they should always be borne in mind.

Ulcers.

The action of the x ray upon chronic tuberculous ulcerations is identical with that observed in lupus. By judicious applications the healing process may be stimulated and the lesions cured. The applications must be made with care, however, as it is very easy to overstimulate and thereby do harm. X ray applications are of considerable value, therefore, as an adjunct to surgical measures and well worth a trial. Failure to promote healing is an indication to stop the exposures and not to increase the dose. The accepted rules for constitutional treatment, hygiene, etc., must be carefully observed in the treatment of these lesions, and in all of the manifestations of the disease to be discussed hereafter.

Sinuses.

Tuberculous sinuses, especially those in connection with caseating glands, frequently respond well to x ray application, provided the cause is also removed by the same or by other treatment.

Adenitis.

In this manifestation of tuberculosis the value of x ray treatment is probably next to that in lupus. It is not so universally applicable as in lupus, though many more cases of this kind have been so treated in this country than of lupus, because of the comparative rarity of the latter disease. According to the relative value of surgical measures and the x ray in its treatment, we may recognize three stages of adenitis in which the x ray is applicable:

1. When the glands are of relatively small size, and have scarcely reached an operable stage. In such cases careful applications, in conjunction with general treatment, will usually effect a cure without operation. Such operations are difficult and tedious, especially in the neck, and always leave a scar. There is certainly a gradually increasing tendency toward x ray treatment in these cases. It is not always possible, nor is it necessary, to cause a complete disappearance of the larger glands in order to

remove all evidences of tuberculosis. During the treatment more or less skin reaction is unavoidable, and, in fact, most of us try to produce at least a tanning of the skin. A decidedly active dermatitis should be avoided, and the skin should receive careful attention throughout the entire treatment. All therapeutical applications of an irritating nature should be strictly prohibited, as they are predisposing factors in the production of the so called "burn."

If, after a reasonable time, this treatment seems ineffectual, surgical measures should certainly be adopted if still indicated. But the x ray man should be given a reasonable time. The attempt to hurry him is a bad principle, for if he is in the least way susceptible to such outside influences he ceases to display his best judgment. In most cases of this type x ray treatment is effectual, but it takes time.

2. Cases in which the glands are of large size, and in an operable stage. Here surgery is certainly to be given preference. Such patients can usually be improved, and may be cured by the x ray, but the treatment is long, and the enlargements do not entirely disappear, as a rule. Applications are of value in removing any of the smaller glands not excised, or as a postoperative measure to prevent recurrence, or in treating slight recurrences.

3. Cases in which caseation has occurred, with or without sinuses. These cases are primarily surgical, but the x ray may be employed to great advantage in hastening the healing of ulcers and sinuses, etc., and in producing better cosmetic results.

Laryngitis.

Literature does not credit the x ray with as much success in the treatment of tuberculous laryngitis as I think is in accordance with its possibilities. In my own small experience, which includes a dozen cases, I have never failed, in a single instances, to observe at least *some* favorable results. There are several explanations for the apparent failure to obtain uniformly good results. In the first place, more care is required in the treatment of this manifestation than perhaps in any of the others. I have noticed in practically every case that at some one or more times during the treatment the applications will produce an excessive reaction, inflammatory in character, and attended with discomfort to the patient. This is not an indication that the patient is worse, as an examination will reveal, but that the applications should be omitted for a few days. The exposures should invariably be short and infrequent, and intervals of rest are advisable, whether especially indicated or not. The length of exposures in this condition is, on the whole, comparatively short. A second factor in the failures arises from the rarity of primary laryngeal tuberculosis. As it is usually secondary to pulmonary involvement, it either cannot be entirely cured, or will not remain cured, as long as the source of infection is constantly at hand.

Laryngeal tuberculosis complicating phthisis of an advanced and hopelessly incurable stage will most assuredly not get well under x ray or any other treatment, but the discomfort attending the laryngeal condition may be greatly relieved by *carefully* directed applications. Unless great care is used in these cases the patient's suffering is almost certain to be increased.

In the more favorable cases tuberculous nodules,

ulcerations, and general infiltrations can be made to disappear in a few weeks. The prognosis as to the complete restoration of the voice depends upon the circumstances attending each individual case, and nothing remarkable need be claimed for the x ray.

Pulmonary Tuberculosis.

A large number of patients of pulmonary tuberculosis have been reported as cured by x ray treatment, but these reports must be looked upon with considerable scepticism. Personally, I do believe that in some cases x ray applications are capable of much benefit, in conjunction with the usual therapeutical and hygienic measures, but used alone they will very rarely, if ever, promote a cure. So far I have not attempted to treat a case of uncomplicated pulmonary tuberculosis, and very likely never will, while continuing to live and work in a climate favorable to this disease. Nevertheless, I am confident that this agent has some value in certain cases. In one case, with unquestionable involvement of both apices, during the treatment of a complicating tuberculous laryngitis, the apices were exposed during each exposure to the neck. The result was a complete cure of both the laryngeal and the lung conditions, as far as carefully elicited physical signs and disappearance of all symptoms could prove. This patient has remained perfectly well for three years. Although no other therapeutical measures were used, there is no absolute proof that the x ray cured the lesions in the apices. In a patient with a similar case now under treatment the laryngeal manifestations have disappeared, and the lesion in the one apex involved has nearly cleared up. On the basis of this small personal experience I think it advisable in all cases of tuberculous laryngitis and cervical adenitis under x ray treatment to expose the apices judiciously, whenever a small or incipient lesion is suspected or demonstrable in these areas.

In advanced cases complicated by mixed infection it is questionable whether any benefit whatever is to be derived from applications of Röntgen rays, and, in fact, there is a possibility of them doing harm, for reasons already mentioned.

Conservatively speaking, the x ray treatment of pulmonary tuberculosis has not yet passed beyond an experimental stage. Therefore it is unnecessary to advise a patient to stay at home and take this treatment, rather than to betake himself to a more healthful climate.

Peritonitis.

Tuberculous peritonitis has been favorably influenced by x ray treatment. This statement is based upon both the reports in literature and personal experience in four cases treated. Of these four patients, one patient with a case of the plastic variety, treated by Dr. J. B. Shober and myself, was cured, and remained so for one year at least. Two patients, cases of the ascitic variety, were improved, but stopped coming while still under treatment. The treatment in these three patients was postoperative. The remaining patient, a case of the plastic variety and not operated upon, made very favorable progress for a while, and then developed an acute nephritis. It is possible that this complication had some connection with the treatment, but there is absolutely no precedent for such a belief.

From personal experience I should certainly

undergo this treatment myself if a victim of this disease, in connection with whatever other forms of treatment which would be indicated. There is sufficient evidence for stating that the x ray is capable, in many cases, of at least prolonging life, of relieving distressing symptoms, and in some instances of promoting a symptomatic cure, with or without a relapse. Surgery can promise no more in cases of plastic tuberculous peritonitis, but a combination of the two methods may be conducive to better results, using the x ray as a postoperative measure when operation is indicated, or alone if operative measures are not advisable.

Bones.

As yet there is not sufficient evidence for viewing the x ray treatment of bone tuberculosis in any other light than as an experimental adjunct to the various recognized methods of medicine and surgery. These methods should always be employed anyway, and it is questionable whether they have not been entirely responsible for the results in the few patients who have been reported as cured by the x ray. A few patients are recorded as cured or as greatly improved, especially where the cancellous ends of the long bones and the vertebrae have been involved. Personally I have never seen any appreciable benefit derived from the x ray treatment of tuberculous bone lesions, but I can see no dangers, beyond that of a dermatitis, likely to result in giving it a thorough trial.

Joints.

The same remarks may be said to apply to the x ray treatment of tuberculous joint lesions, although the reports are slightly more favorable in bone tuberculosis. This might be expected, because of the difference in anatomical structure.

Tenosynovitis.

Judging from the tabulated reports, the percentage of cures by x ray treatment is higher for this manifestation than for any other. Personally I have had no experience in treating this condition.

Cystitis.

The only patient of this kind under my care got entirely well, and I am confident that a large part of the credit for the result belongs to the x ray.

Orchitis.

Judging from the reports, there is some likelihood of benefit being derived from the x ray treatment of tuberculous orchitis. My own personal experience comprises but one patient, who was slightly benefited. In those patients refusing radical operation, when such are indicated, or any operation at all, and especially when sinuses are present, this treatment is worthy of a trial. Unquestionably it will produce sterility, but this is not a contraindication to its use in these patients. It will not cause impotence.

Conclusion.

In conclusion, it is sufficient to sum up these remarks in the statement that clinical results, the evidences of pathological and microscopical examinations, and the experimental investigations made in connection with the x ray in the treatment of tuberculosis, all show proof that it is an agent capable of sufficiently favorable influence over the manifestations of this disease to warrant its recognition as

rational and efficient means of treating many of the local lesions. The x ray must, however, with the possible but not advisable exception of lupus, always be used either as an adjunct to other forms of treatment or in connection with them.

4238 PINE STREET.

THE NATURAL COURSE OF DISEASE.*

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Until a recent period our knowledge of therapeutical processes, whether due to drugs or other agencies, was almost wholly empirical. Even yet it is only of a few agencies, of drugs especially, that we possess anything approaching accurate knowledge as to their mode of action, while of the vast majority our knowledge is quite as empirical as that of our forefathers and in some cases perhaps much less accurate. This empirical knowledge is based on the observations of a great number of observers. It follows as an inevitable result that the great majority of the observations must be inaccurate. There are many reasons for these inaccuracies. For example, the patients on whom the observations are made, both for physical and psychical reasons, differ widely in their response to similar influences. In the next place the judgment of the observers differs probably more widely than the susceptibilities of patients. Furthermore, the drugs and agents used often vary much in their potency. To form a just appreciation of the general value of any means we may adopt in the treatment of disease, requires a very critical insight, on account, not only of the innate difficulties to be overcome, but also of the strong tendency in us to credit to the treatment whatever is favorable in the patient's progress.

The tendency is universal to regard the phenomena following a cause as resulting from such cause. The wish is too often father to the thought. To nothing does this apply more fully than to the drug treatment of disease. The masses are still imbued to a great degree with the ancient belief in the existence of a mythical power in drugs, and, relatively, the profession often shows quite as blind a faith. That this is true is made quite evident by the contents of the multitude of one dollar medical journals that flood this continent. Their pages are filled with innumerable specifics for all kinds of diseases, the only proof assigned for the supposed action of the drugs being the improvement which followed, and which is therefore regarded as due to their use. This kind of reasoning appeals strongly to all, and too often it is only after repeated disappointments that our superstitious faith is shaken, and the drugs discarded as useless. It is on this faith and half knowledge that the vendors of the innumerable drugs, new and old, and preparations, misnamed prepared foods, have grown fat and prosperous. Their audacity has increased with their prosperity, so that now their agents take possession of our consulting rooms to announce to us discoveries which they think we should receive in blind faith.

We can all recall many instances from our personal experiences in which illnesses have presented

the greatest vagaries in their courses uninfluenced by our most careful therapeutical measures. These vagaries are frequent in all diseases, from the mildest to the most severe. We too often forget what the term disease signifies—the condition resulting from the action of some morbid influence on the body and the reaction of the body against the injurious agent. Both the attacking agent and the body are unstable, and therefore the resulting phenomena vary, not only in different persons, but in the same person from day to day. The slight infection which causes a mild nasopharyngeal catarrh in one child may excite high fever, delirium, and convulsions in another; not only so, but a second attack in the second child may be as mild as that in the first.

No better illustration could be cited than pernicious anæmia to show how frequent are the variations in the ordinary course of disease and how easily they can be attributed to the administration of drugs. Had Biermer been familiar with the usual course of the disease he could scarcely have prefixed "progressive" to the name. When arsenious acid was introduced as a remedy for this disease it was regarded as a specific that seldom failed, at least to mitigate, if it did not cure. We all know how greatly experience has blasted the sanguine hopes that were entertained. In more than one half of the cases coming under my own observation arsenic has proved quite useless; not only so, but in many of them its administration has been followed by various untoward symptoms, as loss of appetite, epigastric discomfort, and painful superficial erosions in the mouth. These injurious effects were not coincidences in at least most of the cases, as they always followed the administration of the drug and ceased on its withdrawal.

The variable course of the disease when left to itself is well illustrated in the case of a man of forty under my care four years ago. He had been steadily growing worse during his stay in the hospital until he could scarcely be roused to take even water. Blood stained saliva flowed from his mouth, wetting and staining his pillow cover. I had occasion to be absent for four days, and on my return I found that he had not only regained full consciousness, but also sufficient strength to return home, a distance of one hundred miles. He improved so much as to be able to work at his trade of stone mason all the following summer. He relapsed during the winter and died in the following spring. Had this man come under observation when in the extremely low state and could have been given arsenic freely the almost inevitable inference would have been that his improvement resulted from the effects of the medicine. But he was able to take neither arsenic nor any other drug.

I may cite another case, that of a physician, a fellow student of my own, showing that an unfavorable change may be equally marked. He had been ailing for three years, sometimes better and sometimes worse. He could not bear 10 minims of Fowler's solution daily for a week without having aphthous patches in the mouth and distress in the epigastrium. In November of the third year of his illness his blood contained over 5,000,000 red corpuscles of nearly normal character per cmm., and

* Read at the meeting of the American Therapeutic Society, at Washington, May 9, 1907.

he felt himself quite recovered. He resumed his practice, but in a week found himself quite unequal to it. He declined rapidly and died six weeks later.

I have another physician under observation at present whose history is even more remarkable as showing an unprecedented interval of apparent recovery. I treated him in 1889 (*Medical News*, October 10, 1890), for a very severe manifestation of pernicious anemia from which he recovered so as to be in excellent health, and has been in active practice until March last, a period of eighteen years. He felt himself ailing slightly for the last two years, during which he gradually lost ground. His first attack was a typical one. He took arsenic very freely, and to it possibly, but not necessarily, he owed his recovery. He has again made excellent progress, but not until he was confined to bed.

What better illustration of the necessity of being fully cognizant of the variable course of a disease can be cited than typhoid fever? What a multitude of drugs and methods of treatment have been tried and vaunted for a time as curative, only in the end to be cast aside as worthless! In the earliest years of my practice I came to the conclusion that a combination of iodine and carbofic acid formed a specific, as all the goodly number of patients I treated did well, but I soon received a rude awakening. A season followed in which the type of the disease was severe, and eight patients were carried out of a hospital ward of twenty beds in one month and laid away in narrower beds, which require no renewing. The undying efforts and eternal vigilance of the profession in the endeavor to discover a panacea for this fell disease, which flourishes because of the general ignorance and apathy of the public, is most laudable, yet were the true nature of the disease and the great variation in its course from year to year fully realized, to what a multitude of foolish methods and useless drugs would we be spared giving consideration!

In no disease is a correct knowledge of the natural course of events of greater importance than in those of the heart. It is said of the late Austin Flint that early in his career he was called to a distant town to see a young girl suffering from grave heart disease in whom the symptoms were very marked. He gave a very unfavorable prognosis, and advised that the child be fed lightly, kept very quiet and not allowed any physical exertion or mental excitement. After his departure the parents, in discussing the matter, argued that if the child could not in any event live long there could be little to gain by restricting her liberties, and that therefore it would be better to let her have as full and happy a life as possible, even if shorter than a somewhat longer one of a more sombre restricted character. They wisely therefore allowed her complete freedom. About twenty years later Flint was asked to see another child in the same town, whose mother proved to be the little girl now grown to womanhood whom he had condemned to a short existence so many years before. She was now the happy mother of several children.

Flint learned what is now well known, that children, if they recover from the acute infection of the heart, may and often do live many years, even to old

age, in comfort and without impairment of their usefulness. On the contrary, if the cardiac affection begins in later life the lesion is progressive and life is only exceptionally prolonged beyond a few years. In the child the disease of the heart is inflammatory and therefore selflimited; once arrested the heart is cured except for the effects of the inflammation. All depends on how much the resulting scar interferes with the function of the heart and how far that interference can be overcome by the compensatory hypertrophy of the cardiac muscle and the necessary dilatation of the cavity or cavities concerned. In later life, on the other hand, the disease is degenerative and is not selflimited, but progressive, and when marked the end is not a great way off.

The large class of neuropathic cases have brought much discredit to us on account of our want of definite knowledge of their course and of the readiness with which they yield to the greatest variety of influences, often of the slightest degree. It is from this class that the adventurous quack gathers his followers, whether he belongs to the Christian scientists, electricians, or the vendors of the multitudes of patent remedies which flood the market. We have been slow to learn that the psychical side of human nature has great influence on the physical. It is probable that all chronic deviations from the normal are greatly influenced in their course by the mental condition. We know that the renal secretion may be as greatly affected by emotional disturbance as can that of the lacrymal gland. Although not so easily proved, there is scarcely a doubt that the functions of other glands may be as much disturbed by the mental state. Within the last few weeks in the case of a young woman showing symptoms of threatening vicarious menstruation a luncheon that was vomited two hours after being taken was found barely acid, and contained no hydrochloric acid, while toast and tea given after the vomiting and syphoned in an hour contained an excess of free hydrochloric acid.

Of all the diseases with which mankind is afflicted there is none whose natural course we have more sadly failed to grasp than tuberculosis. The great prevalence of the disease and its enormous mortality have made the public very impatient with the defects of our knowledge of its cause, its course, and especially of its cure. The disease has been so closely canvassed that all our shortcomings have been subjected to the white heat of keenest criticism. The pathologists and physicians of more acute vision have been for generations teaching the curability of the disease, but the mass of the profession would not understand. It was not until outdoor treatment demonstrated the curability of tuberculosis, and its application was followed by the cure of actual demonstrable cases, that the profession as a whole was roused out of its pessimistic attitude. It is not to our credit that the public had so much to do with the change of opinion in the profession. We followed rather than led in this reformation of opinion. When the masses get a new idea they are hampered by no preconceived notions, so that they adopt new doctrines precipitately, while we, who know somewhat of the lines, real and imaginary, in the path, hesitate.

It is often said that medicine is not an exact sci-

ence and that we cannot hope to make it such. I am inclined to demur to that statement, although, of course, much will depend on the meaning we attach to the term "exact science." If the interpretation is strict, what science is entitled to the designation? They are all liable to err and all depend to some extent on other sciences for their foundation. Much in medicine is quite as exact as any of the sciences. We have an accurate knowledge of the cause and process in many diseases, as, for example, malaria, yellow fever, diphtheria, dysentery, and many other infections, while of many others our knowledge is about complete. In some the exact infecting organism which causes the disease is not yet discovered, or, knowing the organism, the missing link in our knowledge is in the exact means by which it gains access to the infected part. Measles, scarlet fever, variola, and syphilis belong to the first class, and pneumonia, tuberculosis, pleurisy, and cerebrospinal meningitis to the second. We have good ground for confidence that our knowledge of these and many others will soon be complete.

Of the practice of medicine, however, exception cannot be taken to the charge that it is not exact; the human organism is too unstable to justify us to hope for more than approximate results. This necessitates the bringing of empirical knowledge to the aid of rational therapeutics, and our empirical knowledge depends very largely on an accurate knowledge of the natural or uninfluenced course of disease. It is, therefore, as essential now as in the days of our forefathers, before the introduction of laboratory methods, that a careful record of the patient's condition be made, noting the variations in the course of the illness, to enable us to intelligently direct the treatment and accurately estimate its effect. With the advent of the laboratory the tendency has been to rely on it to the neglect of the proper study of the patient, too often forgetting that it is the patient, not his disease, that is to be cared for.

What a rich fund of information would be at our disposal if careful records were made of all patients who are under sufficiently close observation to permit of such records being made! Every hospital would then be a storehouse of facts on which all might draw. We would be able to present an accurate picture of all the diseases that occur in this country. Besides affording facilities for the treatment of patients every well equipped hospital should also provide facilities for the clinical education of students and for the training of nurses. This is a reasonable view, as otherwise the vast number of people who cannot enter a hospital for treatment would have no provision made for either their professional or nursing care. It is our duty to make the most of the facilities our hospitals afford, and in order to obtain the greatest benefit it is necessary that accurate records be made of the conditions presented by all patients during the whole course of the illness, as well as of the results of efficient laboratory investigations. If this is to be done the visiting staff must have the assistance of a well trained laboratory assistant, as no physician in active practice can give the time necessary to do such laboratory work.

Such hospital work would have a wonderfully stimulating effect on the neighboring profession and vastly increase the efficiency of their private practice. Difficult cases could be studied both from the clin-

ical and laboratory aspects. The training in observation necessary to make such records would, I venture to say, do more to advance the science of medicine than even laboratory work, much as it is doing to advance medical science. Neither field of work is independent, but each must be supplemented by the other. The laboratory findings alone are an insufficient basis on which to form a full conception of any disease; the results of the diseased process must be interpreted in the light of the environments in which they develop, that is, the human organism. This is especially true of the use of therapeutic measures.

It will take several years to secure such an improvement in the clinical records of the hospitals all over this country, as it will be necessary to make a complete change in the methods of medical education. The men at present doing the hospital work will scarcely change their methods, so that we will have to depend on a process of evolution in which there will be a gradual breaking away from "quiz" methods, and the substitution of personal observation of patients, guided by good judgment. This is the most crying present need of medical education on this continent; the medical student gets too much instruction and too little work. He is filled up with information, but not educated. His training leads him to rely on the opinions of his instructors before graduation, and afterwards on the innumerable books the publishers persuade him to buy.

If this society could initiate the adoption of an improved and uniform plan of hospital records it would do more to raise the status of medicine in this country than can be done by academic discussions, however important. Such records would necessitate close study and accurate observation by all connected with hospitals, the students as well as members of the staffs. The result would not only be more accurate knowledge of the course of disease without which we cannot estimate the effect of treatment, but a better trained general profession.

Good clinical insight is of inestimable value to every physician; it can be attained only by close study and thoroughness of work. Even the smallest details must receive careful consideration. While our mental attitude should not be that of cold cynical doubt, yet we must not be hasty in accepting conclusions. We must "prove all things, holding fast that which is good." To this end the critical observation of the processes manifested in the human organism are as essential as of those in the laboratory. The work in neither field can be independent of the other, and in both there should be equal care as to accuracy of observation. Of this fact clinical observers require to be frequently reminded.

151 BLOOR STREET, WEST.

REPORT OF A CASE OF SEPTIC MENINGO-ENCEPHALITIS OR CEREBRITIS.

BY BARTON H. POTTS, M. D.,
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The condition of encephalitis, or cerebritis, is nearly always difficult to diagnose, and if there is present a possible source of infection the diagnosis between this condition and brain abscess may be impossible; this is particularly so as an encephalitis of infective origin will probably end in suppu-

as indicated. Hypodermoclysis was given and repeated. But, notwithstanding the treatment, the condition grew worse. On March 13th the temperature was 101° F. and the pulse 114, and on March 15th the temperature reached 104° F., with the pulse 140. The eyes were again examined. The swelling of the left disc had not changed, but that of the right was now 5 D, an increase of 2 D. The possibility of intracranial pus was carefully considered, but the patient did not have the appearance of a pus case and the diagnosis of encephalitis was still adhered to. As his condition, however, was so low and as he was so certainly losing ground, it was decided to make an exploratory puncture of the brain, so that no means of relief might be left untried. Because of the increased swelling of the disc of the right eye trephining of the skull was done on the right side about 2 centimetres above the external meatus. The dura showed some injection and was slightly tense. Incision permitted the escape of a considerable quantity of clear fluid; there was some intracranial pressure, though apparently this was not excessive. Careful puncture of the brain itself in six different directions revealed no pus, but showed the brain to be intensely congested. A dural elevator was passed down over the tegmen and showed that there were adhesions over a considerable area in this region and that there was no pus.

This type of case might easily be mistaken for a brain abscess. The fever, sweat, and chill; the picture of the eye grounds; the high polynuclear percentage; the headache; the suppurative aural history, all would point strongly to the probability of the presence of a pus cavity within the brain. On the other hand the high polynuclear percentage could be accounted for by the continued presence of the pus in the right tympanum and mastoid for over two months and in the left for ten days. In a recent article the writer said that, given the symptoms of a brain abscess in a doubtful case and the presence of a polynuclear percentage of 80 or over would be the deciding factor in the diagnosis, and this opinion still holds good for the majority of cases, the present one being one of the exceptions which prove the rule. The patient's temperature, except on admission after his long railroad journey, was not suggestive nor was the pulse, though the latter was somewhat variable. The character of the delirium was not at all like that generally found in a pus case, but was of an inflammatory type. He did not have the pallor so generally seen in the advanced septic stage, but the face was flushed and the conjunctiva congested. The redness of the eye grounds might be accounted for by the pressure due to congestion as well as to that of an abscess cavity. Then there was his alcoholic history, and the delirium was considered to be chiefly in the nature of a postoperative delirium tremens. Back of it all there was not the clinical picture of a pus case. He had the appearance of an acute inflammatory condition and not that of a later pus stage. By that I mean that he was in the early septic stage that might later break down into pus.

The autopsy showed the following condition: Some injection of both dura and pia. Some plastic exudate at the base. Considerable hæmorrhage about the site of operation and along the lines of the punctures. The entire brain was markedly œdematous. The ventricles were normal, and pus was not present.

An unusual feature in the case, and one throwing considerable doubt on the diagnosis, was the dura-

tion of the condition without pus formation even with the presence of suppuration in the ears and mastoids. But the finding at the autopsy bore out the diagnosis of meningoencephalitis, septic in origin and doubtless superinduced by his alcoholic excesses.

109 SOUTH TWENTIETH STREET.

NEPHROPTOSIS.

BY JULIUS ULLMAN, M. D.,
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The changes of position of the kidney are divided into, 1, congenital, and, 2, acquired. According to Senator a congenitally displaced kidney affects both kidneys, often the left. It is a floating kidney, is freely movable within the abdominal cavity, is completely surrounded by peritonæum, and possesses a mesonephron. It occurs more often in men than in women, is seldom diagnosed during life, and gives no symptoms.

The acquired movable kidney is that form of kidney which is of greater interest to us. This kidney is retroperitoneal and is mobile within its adipose capsule, or in a sac formed between the peritonæum in front and the muscular wall of the abdomen behind.

Normally the kidney, like all abdominal viscera, has some slight range of mobility during respiration, descending some on inspiration, and rising on expiration. This is physiological. Pathologically it has a much wider range of motion.

Range of Movement.—First degree. A movable kidney of the first degree, descends partly below the ribs on deep inspiration, but its upper pole remains hidden. The majority of cases are of this type.

Second degree. A movable kidney of this variety descends entirely below the ribs, and the finger may be pushed above it.

Third degree. The kidney wanders over an extensive area of the abdomen, anchored by its pedicle; it may swing as low as the iliac fossa, or across the median line of the body, and the displaced kidney may form adhesions or become fixed in a false or abnormal position.

Occurrence.—Kiester believes 2.5 per cent. of the population, irrespective of sex or age, has movable kidneys. Wolkow and Delitzin found among 221 women sixty-six cases of movable kidney. Edebohl says 20 per cent. of all women have nephroptosis. In forty-eight cases of dilatation of stomach recently examined by Gilbride, in eighteen patients, or 37.5 per cent. of those examined, ptosis of one or more kidneys was present. Einhorn states that enteroptosis is accompanied in most cases by a movable kidney. Glénard found in 3,788 patients 481 cases of nephroptosis, 12.7 per cent.; of these 2.7 per cent. was found in men and 22 per cent. in women. Stillér finds a majority of lean, nervous dyspeptics with wandering kidney and succussion, and also observes that in those cases the tenth rib is movable and the eleventh and twelfth not fixed to the border of the ribs, but free. Einhorn, from January 1 to December 31, 1900, saw 282 cases of movable kidney, of which 77.3 per cent. were right, 2.1 left, and 20.6 per cent. both; many of these were associated with splanchnoptosis.

Movable kidney occurs oftener in women than in men, Ebstein gives the proportion 100 to 15, Goelet 7 to 1, Dietl 100 to 1, Hahn 1 to 5.5.

According to Landau, in a series of 100 cases six occurred in the first decade, two in the second, fifteen in the third, forty-three in the fourth, twenty-one in the fifth, nine in the sixth, and four in the seventh. It occurs more frequently in those who have borne children, more in the lower classes than among the well to do, and oftener on the right than on the left side.

The causes of the displacement may be due to a curvature of the spine or in an enlargement of the kidney from a new growth.

Traumatism, such as concussions of the pelvis, from falls, and collisions of railroads, are to be mentioned, but too much weight should not be given these causes, for the reason that were they the causes movable kidneys would be found more frequently in men more exposed to traumatic influences than women.

The positive abdominal pressure assists to hold the kidney in its normal position. If the intraabdominal pressure is decreased and the abdominal wall becomes lax, a movable kidney may follow. Under this head as causative factors are frequent pregnancies and stretching of the abdominal walls by new growths or ascites.

Landau states that malpositions of the uterus and annexa, such as retroversions and retroflexions, have much to do with producing nephroptosis and enteroptosis. The close relationship of these organs to the ureter and bladder show how displacements can produce a downward traction on either ureter, dragging the kidney. This also would explain why many cases of movable kidney occur in women among the poorer classes. It is on account of a lack of care following pregnancy; getting up too early before the uterus has reverted to its normal size, and the uterus enlarged by its own gravity sinking into a false position. The wearing of corsets produces a pressure on the right lobe of the liver. This pressure is transmitted to the right kidney lying below it, whereas the left kidney is protected by the stomach.

Oppolzer states that any condition, such as cachexia, tuberculosis, and inanition, which produces a loss in the kidney capsule may produce wandering kidney, but this is not true in a majority of cases, for were it so, it would be observed in phthisical men also.

Movable kidney is often but a part picture of a Glenard's disease or sphlanchoptosis. Glenard states that no enteroptosis exists without movable kidney. In sphlanchoptosis the stomach, intestines, and often the spleen and liver descend. This latter observation has often been demonstrated by means of bismuth emulsions and the skiagraph by Worden and others.

Lastly, it is my opinion that there is a ptotic constitution or hereditary predisposition. These are the cases in whom Stiller finds the movable tenth rib. These patients are atonic, have weak muscles and a long thorax. They are the slender, narrow waisted women, and if found in such can be accounted for only on an anatomical basis.

There are many cases of movable kidney which give no symptoms. Again the symptoms may be

so varied as to make it impossible to describe a distinct type for this condition. They may be classified into several groups as follows:

I. *Genitourinary Group.*—In a majority of cases there is pain which is of a dull, aching character located in the loins, abdomen, or back. This pain may sometimes be mistaken, if sharp and colicky, for a gallstone colic, renal colic, or appendicitis. The function of the kidney is not disturbed, unless there is torsion of the pedicle; or the kidney or ureter becomes wedged by the vertebrae; in either case albumin, blood, and even pus may be found in the urine, but this class of cases fortunately is rare.

There may be polyuria, or the patients may pass a small quantity of urine, but have to urinate frequently, especially during the night. One must distinguish this class of cases from diabetes insipidus.

Where the kidney is so freely movable as to produce a torsion on its pedicle, thereby inducing pressure or traction on the nerves entering the hilum, there may be an acute renal colic simulating a renal calculus; and because of this torsion of the pedicle including the ureter or by too great a mobility producing a kinking of the ureter, there may follow a sudden anuria of that side and a hydronephrosis. So soon as the kinking is gone the urine is passed again in larger quantities, a periodical hydronephrosis.

There is some relationship between movable kidney and the cyclic albuminuria in young children, as shown by Sutherland. He found a movable kidney in 37.5 per cent. of cases of cyclic albuminuria in young persons. Dietl described a condition called *Einklemmung der Nieren* (wedging of the kidney). In this state the kidney becomes wedged between the connective tissue and peritonæum, or, according to Givelski, the ureter becomes wedged by the vertebrae. The attack comes on suddenly, just as a nephralgia or a gastralgia, with chills, fever, nausea, vomiting, and collapse. It is called Dietl's crisis.

II. *Gastrointestinal Group.*—Here, again, there may be no symptoms, but when we consider the proportion of nephroptosis cases which exist with gastropptosis (Einhorn's statistics) or dilatation (Gilbride's statistics), it is no wonder that symptoms are often associated directly attributable to the stomach and intestines. In this connection it is well to emphasize that these patients are often neurotic, hysterical, or neurasthenic.

The symptoms may be divided into subjective and objective: The subjective are varying and not dependent on the amount of food ingested or the digestive act. There may be pressure in the epigastrium after a hearty meal, or in severe cases after partaking of a plate of soup or a glass of milk; further, a sense of fulness and ballooning in the region of the stomach, quick satiety, loss of weight, pyrosis, regurgitation of food directly after ingestion, pain, nausea, and vomiting. The pain may come on as a gastralgia, be remittent and varies from a few minutes to hours, or there may be hyperesthesia. Because of this pain or hyperesthesia, many of these cases have, not only after eating, but also in the fasting condition, a symptom described by Einhorn as *stereophagia*. This is a fear of food and unless promptly combated may lead to mania and emaciation.

The objective symptoms are the loss of weight and anæmia. The empty stomach, examined by means of the stomach tube, is free from food, it contains either nothing at all or a few cubic centimetres of gastric juice with mucus and epithelium of the mouth. The test breakfast, after an hour, is well digested, the total acidity 40 to 65. Occasionally, according to Zweig, one finds a transient superacidity or a subacidity, heterochylia.

An illustrative case follows:

CASE I.—Miss G. B., thirty-two years of age, general houseworker. The family history was negative. Menstruation was regular. Patient always enjoyed good health until three years previous to consulting me on June 27, 1904.

Her appetite was poor, bowels moved regularly, she complained of "a deathly sick feeling after meals and often between meals," had lost fifteen pounds within a few weeks; had absolutely no desire to eat, a fear to eat because of the distress following. Previous to consulting me, she foolishly visited a clairvoyant.

There was a right palpable kidney of the second degree. Gastric analysis after a test breakfast showed a total acidity of 34. The patient was fitted with an abdominal supporter with a kidney pad. She was given hydrochloric acid, strychnine, and a malt extract, and gastric lavage. She was discharged as free from all symptoms on August 27, 1904, having gained twelve pounds. (The patient has since been perfectly well and the kidney is in proper position.)

The pain may also be mistaken for an hysterical gastralgia, or a gallstone colic, remembering that in a majority of gallstone cases there is no jaundice; but the kidney may be so displaced as to press upon the descending portion of the duodenum, so that in some rare cases, in addition to the pains, there may also be jaundice. Bramwell reports a case in which movable kidney produced pyloric stenosis and constriction of the duodenum by peritoneal bands.

CASE II.—Mrs. B., twenty-eight years of age, married, nullipara, recently came to the city from Philadelphia. The patient was first seen at her home, as I had been hurriedly called to relieve her from severe gastralgia and vomiting. She complained of loss of appetite, distress after eating, eructations, loss of weight and nervousness. She vomited, and the vomitus consisted of bile and mucus. She stated that she had been treated by a New York specialist for liver trouble and by another physician of Philadelphia for gastric disease. (This explains the diversity in symptoms and the difficulty often of their interpretation.)

On the first examination, the muscles of the patient were so tender as to make an abdominal examination impossible. Later, the stomach was found normal in position; the contents on examination, after a test meal, showed an absence of free hydrochloric acid. Liver was normal; a movable kidney of the second degree was found. She was treated by the adjustment of a properly fitting abdominal bandage with a kidney pad, and dilute hydrochloric acid was administered after meals. The patient increased from 104 to 116 pounds in five months, and during a period of three years has had no recurrences.

In many of these cases there exists constipation, which may be followed by diarrhoea and peristaltic unrest, and because of the coexistence of gastroptosis and enteroptosis there may be a condition of enteritis membranacea.

Nervous Symptoms.—These patients often complain of reflex symptoms, and it is therefore well to

remember not to frighten such nervous individuals further by calling attention and laying too much stress on this condition should it be found.

The following are some of the nervous symptoms: Headache, backache, migraine, vertigo, irritability, and mental anxiety, which unless relieved becomes more and more aggravated and lead to insomnia, neurasthenia, hypochondriasis, and even melancholia. There are all sorts of disagreeable pressing feelings, sinking feeling, and pains which may simulate gastric and other crises.

The vasomotor nervous system is affected; such patients often suffer from palpitation, epigastric pulsations, vasomotor constriction with sudden pallor, and vasomotor paresis, with sudden flushes and feelings of heat. On examination stigmata of hysteria such as anæsthetic or hyperæsthetic areas may be found.

Senator states that pains and weakness in both lower extremities may be found which are due to inflammatory irritations of the lumbar plexus, and may simulate locomotor ataxia. The blood, if associated with a splanchnoptosis, may show evidences of a chloroanæmia (Meinert).

An illustrative case, in which several of these nervous symptoms predominated, is the following:

CASE III.—Mrs. F. P., twenty-nine years of age, American, married, one child, aged four years. Before her marriage she had been "run down," was irritable and nervous, and often felt so depressed that she wanted to cry. "She often felt so bad that she would shake all over, her hands would tremble and they would feel as cold as ice; when very nervous red spots would appear on cheeks."

After her marriage she still continued to have these nervous feelings, often had insomnia and complained bitterly of a pain in the right abdominal region and in the back; she was constipated.

During the period of gestation all her symptoms subsided, and there was a general feeling of well being. After the baby was born she nursed it until the seventh month, at which time the baby had to be weaned because of a mastitis. She relaxed into her former condition and became quite miserable.

Status præsens. A pale and frail woman, weight 96 pounds. Chest long and narrow, examination of heart and lungs negative, stomach ptotic, right kidney displaced in the second degree, uterus slightly retroverted.

A proper abdominal bandage was applied, she was told to take large quantities of milk, milk and cream mixture, and eggs, and after two months all the disagreeable symptoms of which she complained disappeared; she gained 20 pounds, and is at present still improving in weight.

Method of Palpating for Movable Kidney.—Place the patient in a reclining position with the chest slightly elevated and the thigh drawn well up on the body. Place the left hand in the loins, while with the right hand feel the kidney, the patient breathing deeply. Many of these patients are slim and one can easily feel the kidney, manipulating with the right hand gently, when one will feel it slip away as a kernel slips from its shell. Great patience is often necessary to determine the kidney, and often if displaced it is not felt at first. I have patiently examined fifteen or twenty minutes before assuring myself of its presence. Sometimes a change of posture, such as changing from the right to the left recumbent position, or a knee chest posi-

tion, and returning to the original posture, will assist in finding a nephroptosis.

Martin, of Greifswald, examined with the patient standing; the patient on tiptoe taking a deep inspiration and suddenly coming down squarely on both feet so as to jar the patient. With the hands placed as described the kidney would be felt falling on the examining hand.

When the kidney is felt or grasped, the patient often experiences a sickening sensation quite painful. I wish to caution against palpating with too much force. C. Menge found in palpating twenty-one cases with descent of the kidney albumin present in fifteen. The urine was normal before palpation, and twenty-four hours after palpation the urine again became normal.

Prognosis.—The prognosis of this affection is good, for it is curable either mechanically, or where this fails by operative methods. Where a hydronephrosis is allowed to follow, it may be converted into a pyonephrosis, which may end fatally.

Diagnosis.—The diagnosis of this condition is too often not made because it is not sought. Many of these cases, especially those with gastroenteric symptoms, are treated for gastric or enteric trouble where the latter is only reflex, just as is the case with chololithiasis and cholecystitis. In palpating for the kidney there are certain tumors which must be borne in mind: (1) Hydrops of the gallbladder in chololithiasis; (2) the so called corset liver; (3) carcinoma of the liver and stomach; (4) hydatid of the liver; (5) lymphosarcoma of the viscera; (6) malignant growth of the kidney; (7) ovarian cysts and tumors of the omentum; (8) perityphlitic adhesions and appendicitis; (9) wandering liver and spleen; (10) fecal matter; (11) intussusception.

In men the diagnosis must be made more carefully, because of the greater rarity of nephroptosis in men. On account of its rarity when left sided, it is not to be confounded with a splenoptosis or a splenomegaly.

Treatment.—In those cases where the kidney is not fixed, where no hydronephrosis or abscess formation exists, the kidney may be replaced and held in position by a properly fitting binder with a kidney pad. Anders, in his *Practice of Medicine*, 1903, correctly says: "For several years and until recently, the operation for anchoring the kidney has been advised as appropriate in nearly all cases. This is now perhaps widely deprecated; and a reversion to the careful, patient, and constant use of suitable abdominal pads and binders in certain cases is meeting with much success." Aaron, from an observation of 442 cases of movable kidney, firmly believes that 90 per cent. can be relieved without an operation.

The belt may be made of knitted silk or cloth and secured by perineal straps. According to Stengel the pad to be effective in restoring a kidney should be so shaped as to make pressure upward, backward, and toward the right, so as to push the kidney to its former position. The pad should be soft but firm, its greatest length three inches, and the greatest width 2½ inches, the upper border thin and concave, the lower border thick and convex.

There are a number of abdominal supporters on

the market, for instance, those designed by Rosenheim, Teufel, and Bardenheuer, but there is a disposition on the part of instrument makers to make these supports too clumsy and the pads entirely too large. We must guard against this error and have each patient properly fitted, for a poorly fitting bandage is a great deal worse than none at all. The bandage must fit, be light, and hold the displaced kidney without discomfort to the patient.

When the bandage is at first applied, the patient may feel uncomfortable for a few days, and he must be advised of this beforehand, so as not to be discouraged, but soon after the adjustment of a properly fitting bandage the patient will find relief of the many symptoms which have distressed him, and a gain in weight and strength will soon be noted.

Rose, Schmitz, and others have recommended the application of adhesive straps for enteroptosis and with excellent results.

In those cases where bandages are impractical operation of nephropexy can be done, but it is not necessary to regard a movable kidney of the first and second degree as belonging to the surgeon. When operation is performed, the kidney is not returned to its normal position. Recurrences, according to Martin B. Tinker, a surgeon, after nephropexy are many, and there is always the danger of infection and shock to be considered. In some cases, especially in neurotics, a new train of symptoms referable to the cicatricial tissue following operation, occur which are infinitely worse than the original symptoms for which operation was demanded.

Where the nephroptosis is associated with Stiller's asthenia universalis congenita or Glénard's disease, in addition to a suitable bandage, constitutional treatment is required. In most of these cases there is a loss of adipose tissue, and it is necessary to give a diet which is rich in fats. Where the loss of weight has been considerable and where the nervous symptoms are predominant, it is advisable to give the patient rest, especially for the first few weeks of treatment.

Zweig gives a diet scheme for such cases as follows:

8 o'clock: ½ litre milk with tea, 50 grammes white bread, 20 grammes butter, and 1 tablespoonful of honey.

10 o'clock: ¼ litre fresh Kefir, 50 grammes Graham bread, 20 grammes butter.

12:30: No soup, 150 grammes fish or meat, 250 grammes vegetables, 50 grammes applepuree; one omelette soufflée from two eggs, 10 grammes sugar, 10 grammes butter, fruit (grapes, oranges, dates, figs).

4 o'clock: 1 litre milk

6 o'clock: 1½ litre milk chocolate (Mehring's Kraft Chocolate), 50 grammes Graham bread, 20 grammes butter, 1 tablespoonful of honey.

8 p. m.: 2 eggs, 100 grammes meat (veal or fish), 50 grammes preserved fruit, 100 grammes Graham bread, 100 grammes vegetables, 20 grammes butter, 20 grammes soft cheese (Camembert, Imperial, Gervais, Topfen), ¼ litre milk.

Bedtime: 9:30 p. m. ¼ litre fresh Kefir.

When the nervous system is affected a change of climate to the seashore or in the mountains will

often be sufficient to combat the anæmia and the anorexia, but the bitter tonics are useful.

Massage and hydrotherapy must not be forgotten as excellent adjuvants in the treatment of these cases.

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JUVENILE PARESIS, WITH A REPORT OF ONE CASE.

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Dementia paralytica is relatively rare in the young. Alzheimer in his 360 cases of paresis in six years found thirteen juveniles. According to Frank Ashby Elkins's communications, 138 men, twenty-eight women, and eight juvenile patients were admitted to Edinburgh Asylum from 1889 to 1893. Of Mickle's 2,456 cases only three were at fifteen and 264 at twenty years of age. Dr. L. C. Pettit found in his 1,300 cases only four patients between twenty and twenty-five years of age at the time of death.

Baillarger before 1850 found out of 400 female paretics only one case below twenty years of age. Clouston, however, was the first to report a complete and authentic record case of juvenile paresis.

Alzheimer, in 1896, collected thirty-eight cases from the literature, in addition to his own three cases. In 1902 eighty juvenile paretics were reported in literature (Ziehen).

The following case came under my observation in 1905. When I first saw the patient she was in a state of complete deterioration, and, unfortunately, I was deprived of the opportunity to study the case during the acute progress of the disease.

CASE.—M. T., admitted to the hospital on January 18, 1902.

Family History.—Maternal grandmother died at the age of fifty-six from apoplexy (she suffered from nephritis). Maternal grandfather died from results of an accident. Paternal grandparents died from natural causes. Father was forty-seven years of age; at twenty-two he contracted syphilis (patient was then four months old), for which he was treated with antilutic remedies. At thirty-eight he had an attack of sciatica. He indulged in alcoholic excesses, frequently became intoxicated. He was naturally rude, and his temperament was sanguine. His pupils were unequal, but reacted to light and accommodation. Tongue and hands showed marked tremors. Speech was not defective. He presented no evidences of mental aberration. Mother, forty-seven years old, was infected with syphilis by her husband (patient was then four months of age). She was treated for it for two years, but took her medicine irregularly. She gave birth to three children; one was the patient in question, and two died from scarlet fever and measles, respectively. Both of them had rashes on their bodies. She had had two marriages. Mother was perfectly well till 1901, when she began to suffer with headache, especially at night, and complained of pain in the legs. Since the summer of 1905 nocturnal headaches had become more aggravated. In addition to this she became afflicted with insomnia, indigestion, and pain in the eyes. Mentally she was easily irritated, forgetful, unreasonable, and of late accused the writer of torturing her child. Physically she showed unequal pupils which responded to light and accommodation, and diminished knee jerks, but no tremors could be demonstrated. Test phrases were correctly pronounced.

Personal History.—Patient was born in the city of New York, twenty-three years ago. During gestation mother was perfectly well, but father was often intoxicated at the time of cohabitation. Labor was easy and not instrumental. At the age of four months she contracted syphilis. She had an eruption all over the body which lasted five months. A doctor was consulted, but he gave no medicine, because, as he stated, the iodides and mercury given to her mother would be excreted with the milk and thereby conveyed to the child. At seventeen months she began to walk, but was weak on her feet. She commenced to speak at the age of two. She had an attack of measles when she was three years old. She entered school at five years of age, and was considered an average scholar. She was always peevish, cranky, headstrong, had a bad temper, quarreled with her brother, and often assaulted him without adequate cause. She would cry for the least thing; was considered by her parents "a crank." At eight she began to suffer with headaches (frontal and orbital regions), left eye became weak, patient could not see very well, and quite often she would close her left eye. She was treated by a doctor. On account of headaches and weak eyes she was forced to abandon school at the age of twelve.

After leaving school patient remained home, assisted mother in the household, and occupied leisure time with crocheting. She was drowsy, and would frequently fall asleep.

Catamenia appeared at the age of fifteen, was normal for one year, but later it was irregular, and patient was then treated with tonics. She grew pale and anæmic.

At sixteen she obtained a position in a factory as a weaver, but gave it up because of the terrific headaches which persisted till her admission to this hospital.

The first evidences of mental alienation became manifest at the age of seventeen, when it was noticed that she was not able to understand what was said to her, and would pay no attention to questions. She would remain at home and be afraid to go out on the street. She bestowed no attention upon her personal appearance. She would misplace articles. When she was sent to the grocery store or bakery, she would lose her way. She grew gradually more drowsy, and her mentality became sluggish. For about six months before admission to this hospital her speech became defective; she was not able to pronounce or articulate words correctly, "would talk as if she had a mouthful of potatoes," and would repeat the same words over and over again. Her gait became staggering, and "she would drag her feet as if she were an old woman." Later she began to talk about seeing various objects on the wall and would sing and talk about babies. On January 14, 1902, she was sent to Bellevue Hospital.

In the psychopathic ward of Bellevue patient wandered around aimlessly, spoke in an incoherent manner, had no idea of place orientation, and her memory was much impaired. The following is a sample of her spontaneous production: "My eyes are shut and I can't see— All the young girls, too— All nice young girls— I don't know— I don't know why they did it. I am in the—the—in the—I have not got my talk— I am going over to Mrs. Stables— Four eyes are burnt so are yours—I can't tell it—it makes me sick."

Upon admission here on January 18, 1902, physical examination revealed the following: Marked asymmetry of face and head; hard palate, high and narrow; ears small and poorly shaped; expression dull; pupils reacted sluggishly to light and accommodation; patellar and other reflexes were much diminished; skin anæmic, dry, and cold; slight acne; heart and lungs without grave pathological lesions.

Mentally patient was simple and imbecilic, was not able to give an intelligent account of herself, and appeared confused. She said: "I am burning away— chest and legs are burned—all of your eyes are burned—you put me in hot fire," etc. A few days after admission she presented evidences of hallucinations and gave expression to delusions of persecution, which soon disappeared. In February, 1902, it was noticed that patient had a peculiar impediment in her speech. In April, 1902, she suffered from chronic ocular conjunctivitis, for which she received the usual treatment. In June, 1902, she was described as dull, imbecilic, filthy in her habits, and defecating in her clothing. In the latter part of June she was put to bed. In August she was noted as denuded and supererous. Patient's condition remained without important changes during 1903, 1904, and 1905. She continued to be indolent, uncommunicative, had no appreciation of her own condition, and led practically a vegetative existence.

In December of 1905 patient came under my personal observation. A complete examination was made by the writer.

Physical Status. General appearance. Head large and oval, forehead high and frontal prominences bulging; right side of face elongated, left side oval and broad; chin receding; teeth notched; palate irregularly shaped; expression dull and stupid.

Eyes. Eyeballs were movable; pupils unequal (left larger than the right one), did not react to strong light, but responded to accommodation; the interior of the

eyes was examined by Dr. Ward A. Holden, who found no pathological anomalies of optic nerves. No hemianopsia could be ascertained.

Smell and taste were not determined.

Motor functions: Grips were not tested, because patient did not cooperate. There was complete ataxia of gait and station. Tremors of both hands were present, but tremor of tongue was not demonstrated.

Reflexes: Elbow reflexes active, knee jerks exaggerated, no ankle clonus. Babinski reflex was found in the right foot.

Cutaneous sensibility: There was no reaction to pin pricks all over the body. Stereognostic and thermal senses were not tested.

Organic reflexes were not under voluntary control.

Heart: Cardiac action was rapid; heart sounds were weak, but murmur was not elicited.

Lungs: Respiration was normal, resonance poor. The character of breath sounds was not ascertained because of lack of cooperation. No adventitious sounds could be detected.

Urine showed no abnormal constituents.

Cerebrospinal fluid was examined twice; at each time serum albumin was present, and cytological examination revealed a marked lymphocytosis (from 20 to 40 cells in a field).

Mental Status.—Patient assumed a flexed position, made movements with her head and hand, frequently would put her tongue out, tossed herself in bed, appeared elated, and emitted peculiar unintelligible sounds which were accentuated during the writer's and her parents' presence. She did not understand what was said to her, and had no appreciation of her own condition. From her general attitude it was utterly impossible to establish hallucinatory states. She was not able to take food voluntarily, and spoon feeding was necessary.

Her condition underwent no important changes till September 8, 1906, when she was subject to a general epileptiform convulsion of *le grand mal* type. This lasted ten minutes, and one hour later she had another similar attack. In that afternoon temperature was elevated to 103.6° F. For a few days patient did not show the usual alertness, elation, and restlessness.

November 30, 1906. Patient had a series of convulsions (about ten), each lasting ten minutes; the whole duration was two hours. After the convulsive seizures she was dull, stupid, and her extremities were flaccid. Temperature, 101° F.

In December the left eyelid was noticed drooping.

January 10, 1907. She had another series of convulsions (about ten); they were also epileptiform in character (general), simulating the previous ones. Several months before death patient developed decubitis on buttocks and each hip; also ulcers on left foot and forearm. Numerous vesicles appeared in crops all over body.

From April 16th to 18th it was noticed that right upper extremity and face showed muscular rhythmical twitching; the eyeballs were turned towards the right side, and saliva was drooling from mouth.

April 25th. It was observed that patient's legs were flexed upon the thighs and they could not be extended. The patient also presented some signs of pulmonary tuberculosis, but these could not be very well established.

May 1, 1907. Patient died at 5:15 a.m.

It is very lamentable that an autopsy was refused in this case.

The features of the described clinical disease picture were well defined, and the diagnosis of juvenile paresis was fully justifiable.

Ætiology.

Age.—Krapelin states that the majority of cases occur at fourteen, synchronously with the development of puberty. Krafft-Ebing remarks: "It is readily conceivable that juvenile paresis, which sets in almost without exception at the beginning of puberty, is due to the fact that the damage to the ganglion cells and nerve fibres, caused by hereditary lues, renders them incapable of adapting themselves to the changed conditions of nutrition at the important biological period, and atrophy results." According to Alzheimer's cases, the ages range as follows:

Age.	Number of cases.	Age.	Number of cases.
9-10.....	2	17-18.....	5
11-12.....	4	19-20.....	4
13-14.....	8	21-22.....	2
15-16.....	11	Unknown.....	4

In Watson's patients of juvenile paresis twelve years was the youngest, nineteen the eldest, and the average age was from fourteen to fifteen years. Bramwell's patient was fifteen years and eight months old. Marchand's patient was eighteen. My patient showed active symptoms of paresis at seventeen.

Sex.—According to Ziehen and Krapelin both sexes are equally affected. Oppenheim asserts that girls are more often afflicted with paresis. Among Alzheimer's forty-one patients, twenty were male and twenty-one female. Regis and Wigglesworth are of the opinion that female juvenile paretics exceed the male. Of Watson's twelve patients, five were boys and seven were girls.

Heredity.—Heredity plays an important rôle in the aetiology of juvenile paresis. Alzheimer's forty-one patients gave the following statistics:

Eleven patients, heredity was unknown; in four no vesanic or neurotic taint could be determined; in five fathers were paretics; in one mother was possibly paretic; in other patients a paternal uncle and maternal uncle died from general paresis; in other patients mother was insane (not general paresis); in six instances father was alcoholic, and in two mother indulged in alcoholic beverages; in three father suffered from syphilitic nervous diseases; in the rest of the patients the collaterals were afflicted with psychical and nervous diseases. Watson's patients also showed marked heredity; in one of his cases father and mother died from general paresis. My patient's father is markedly alcoholic, and mother shows symptoms of incipient paresis.

Syphilis.—Statistics regarding lues in juvenile paresis vary with different investigators, as will be seen by the following table:

Author.	Percentage.
Alzheimer.....	70
Hirsch.....	85 (17 out of 20 patients.)
Kr. & L. C.....	80 (9 out of 11 patients.)
Watson.....	100 (12 out of 12 patients.)
Ziehen.....	50

Marchand's and Bramwell's patients gave no history of syphilis. My patient contracted syphilis when she was four months old from her mother; the latter was infected by her husband. The time relation between luetic infection and the development of paresis in the juvenile is comparatively much shorter than in the adult.

Trauma.—Trauma as a cause in the production of paresis is admitted by some, yet denied by others. Alzheimer demonstrated trauma as an aetiological

factor in nine of his patients. But he considers trauma as an exciting cause only. In some of his patients history of hereditary lues was obtained. Bramwell's patient had an accident immediately preceding the first symptoms of the disease. But in addition to this patient's father was alcoholic and drank heavily about the time at which conception took place.

Clinical Manifestations.

There are no special features which typify the disease picture of juvenile paresis from a physical standpoint; however, few atypical signs are of frequent occurrence. For instance, optic atrophy is quite common; paralytic attacks may occur and accompany the disease process; in fact, these may be the first symptoms; convulsive seizures usually appear in the later stages of the disease.

The *mental picture* is that of progressive dementia. Delusions may be present in the incipency of the disease; ideas of grandeur are rare; delusions of persecution may occur. Hallucinations are infrequent. Severe states of depression are seldom manifest (Ziehen). Hypochondriacal ideas are of rare occurrence.

Remissions in juvenile paresis are extremely infrequent.

The course of the disease is slow and insidious; according to Alzheimer the average duration is four and a half years, and Krapelin estimates it from three to four years.

My hearty thanks are due to Dr. William Mabon, medical superintendent of the Manhattan State Hospital, for the permission which he has given to publish this case, and I am also indebted to him for the valuable criticism rendered to the paper.

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A CONTRIBUTION TO OUR KNOWLEDGE OF THE EFFECTS OF URINARY PRESER- VATIVES ON URINARY ANALYSIS.

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New York.

(From the Laboratory of Biological Chemistry of Columbia University, at the College of Physicians and Surgeons, New York.)

Urine readily undergoes bacterial decomposition. The necessity of protecting urine from the changes induced by microorganisms, should analysis of it be intended, is too well understood to require discussion. Even in cases where urine may be subjected to chemical examination immediately after elimination, special preservation of a reserve supply is desirable to provide against any accident in the ana-

lytic operations. There has always been uncertainty as to the best method of preserving urine for analysis. No preservative perfectly meets all the requirements of every analytic procedure. Some urinary preservatives frequently introduce disturbing discrepancies in the analytic outcome. Our information on the specific effects of a given preservative should, therefore, be complete in detail, if analytical progress in all cases is to be made satisfactorily and with the highest accuracy.

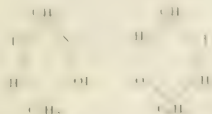
Thymol, in alcoholic solution in some cases, more frequently, however, in powdered form, is widely used to keep urine from undergoing chemical change. For ordinary preservation of urine, thymol is very serviceable. I have lately noted a disturbing influence of thymol in testing for acetone in distillates from urines preserved with thymol. An extended examination of related biochemical literature failed to reveal any reference to the matter under observation. Accordingly, I am persuaded to draw special attention to it briefly here.

On application of the iodoform test for acetone to distillates from urines preserved with thymol, a pink to red coloration was noticed occasionally. The distillates in which this reaction was observed happened in all instances to be obtained from specimens of urine from pathological cases. Thymol as the possible cause of the coloration seemed to be eliminated, for, although thymol had been used in powdered form as the preservative, the mixture had been filtered and only the filtrate distilled. Besides, normal urines thus preserved had not theretofore given, after filtering, distillates affording the reaction.

On the assumption that the compound causing the coloration was a substance secreted during disease, attempts were made to separate it. This was accomplished. A study of the qualities of the isolated substance revealed the fact that it was thymol. This compound had obviously been dissolved in the preserved specimen to such a degree that even after filtration the distillate obtained from the filtrate contained the compound in sufficient proportion to give the color reaction. The contained acetone and associated products probably increased the solubility of the thymol.

Although no reference to this matter could be found in biochemical literature, it seemed probable that the production of an iodothymol compound was responsible for the coloration alluded to. A study of the published data pertaining to organic iodo-compounds made it evident that the red coloration was due to the iodothymol compound prepared and described by Messinger and Vortmann.¹

The nature of the compound is indicated by the following formula ascribed to it by Messinger and Vortmann:



The red coloration that is produced in the manner indicated is accompanied by an opalescence which makes it difficult, and if the amount of acetone pres-

ent is minute, perhaps impossible, to observe an iodoform turbidity. If the thymol is present in a comparatively large amount, the iodo compounds may be produced so abundantly that a heavy red precipitate is produced, which makes microscopical identification of the iodoform crystals difficult. While therefore not completely destroying the usefulness of the iodoform test for acetone, thymol certainly increases the difficulty attendant on the application of the test, especially to distillates from urine treated with that preservative.

Therapeutical Notes.

Hepatic Colic Relieved by Glycerin.—Plantier (*Tribune médicale*, June 15, 1907) approves of the method of Ferrand, who treats hepatic colic with glycerin. This treatment has the following advantages: 1. Taken by the mouth it is directly absorbed by the lymphatic vessels going from the stomach to the liver, in this way it finds its way to the subhepatic veins. 2. It is a powerful chologogue. 3. In large doses (20.0 to 30.0 grammes) it relieves attacks of hepatic colic. 4. In small daily doses (5.0 to 15.0 grammes), taken in alkaline water, it prevents a return of the attacks. It may be taken for months or years without injury, if pure and neutral; preferably in half a glassful of Vichy water.

Rapid Cure of Coccygodynia.—De Vesian reports (*Revue pratique de gynécologie, d'obstétrique, et de pathologie*, July 15, 1907) a case of neuralgia of the coccyx, which had resisted other forms of treatment; but yielded to injections of alcohol (60°). A finger was inserted into the rectum and the needle was introduced about one inch behind the anus, and the alcohol (2 c.c., or mgxxv) was deposited immediately in front of the coccyx in all directions. On the posterior surface the needle was also introduced, but perpendicularly to the bony surface, and about the same quantity was deposited in a similar way. The injection was somewhat painful, but was not followed by any inflammatory reaction. The patient never had any return of the pain subsequent to the operation.

Action of Gymnemic Acid Upon the Gustatory Sense.—Belletrud and Mercier (*Le Progrès médical*, August 24, 1907) call attention to the observation that the gymnemic acid, the active principle of *Gymnema sylvestris* (the Indian *Jera-Singi*, *Kanadi*, etc.) when applied to the tongue brings about a loss of taste and produces complete inability to recognize sweet or bitter substances. They suggest that this quality may be utilized in the case of patients, who have a disgust for certain articles of food. By application of a solution of the substance to the tongue, they succeeded in causing momentary disappearance of illusions of taste, and the patients ate with appetite articles of food which they had formerly habitually rejected and disliked.

Death from Urethral Injection of Mercury Cyanate.—Thérakis (*Revue médicale*, July 27, 1907) reports the case of a man, thirty-nine years of age, whose physician, on treating him for gonorrhoea, gave him an injection of mercury cyanate (10 cc. containing 0.0001 cc. Hg(CN)_2). The pa-

¹Messinger and Vortmann, *Berichte der deutschen chemischen Gesellschaft*, xvi, p. 2016, 1889.

tient at once became ill, following this injection. Some hours later he had a painful swelling of the penis, with vesical tenesmus, which became so severe as to require the aid of a surgeon. Aspiration of the bladder was performed and 500 c.c. of urine withdrawn. General symptoms of much gravity supervened. At the end of twenty-four hours there was complete anuria, with intestinal hæmorrhage; in thirty-six hours intense painful stomatitis appeared with swelling of the gums and the tongue. The state of the patient steadily grew worse, and he died a few days later of uræmia. This case is reported to call attention to the special susceptibility, which some persons possess to the toxic effects of mercury, as the amount absorbed could only have been infinitesimal.

Effects of a Blister in an Alcoholic. Cantharidal Nephritis and Tardy Toxic Alcoholic Delirium.—Antheaume and Mignot report (*Le Bulletin médical*, August 7, 1907) an unusual result from a cantharidal plaster applied to an old alcoholic subject, but who had been a total abstainer for two years, and who had never had mental disturbance, and was not under the influence of liquor at the time. The vesicatory provoked an attack of delirium of a confusomaniac type. Owing to the cantharidal nephritis, which rapidly developed, the renal elimination became insufficient, and a tendency to delirium (which up to this time had been latent, in spite of the poor condition of his liver), manifested itself and the cerebral symptoms suddenly broke forth. Subsequently, the delirium gradually diminished, and ceased altogether when the urinary elimination approached the normal. It reappeared, when this became again insufficient, owing to change of diet. In chronic alcoholics, it is advised by the authors that the integrity of the important destructive organs and eliminators of toxins, should be very carefully watched. It is also prudent to abstain from giving them any form of medication, such as a blister, which would be capable of preventing, even for a short period, their functional activity. In these subjects the brain, the resistance of which has been reduced by alcohol, preserves for a long time its aptitude to become delirious, under the influence of all the causes susceptible of increasing the degree of toxicity of the blood supplied to its interior.

Treatment of Chronic Bright's Disease.—Robin (*Bulletin général de thérapeutique*, July 15, 1907) pleads for individualization in the treatment of chronic Bright's disease of the kidneys, as no general rule is applicable to all cases. He, therefore, advises that preliminary tests be made before determining positively the regimen for the patient in hand. He recommends that the patient be first placed upon an absolute milk diet, so that he takes daily, three quarts, in divided quantities, between 7 o'clock a. m. and 10 p. m. Watching the effect upon the urine of this milk diet, it should be discontinued when the albumin after diminishing becomes stationary, or increases, and also in case it should produce gastrointestinal disorders. It can be replaced with a milk-vegetable diet, and if the albumin again increases or remains stationary, some animal food may be added. By this means, the regimen, which best suits the individual is determined. The following rules are formulated: 1. The milk diet, the milk-vegetable and

the milk-vegetable-animal diet, will give less albumin than the diet without milk. 2. The albumin increases, when wine, or wine and water, are substituted for the milk. 3. A regimen, consisting partly of eggs, gives less albumin than that containing meat. 4. A regimen composed of eggs and milk often gives less albumin than an absolute milk diet. 5. Among the meats, veal and beef give less albumin than chicken and mutton. 6. Fish may be recommended under certain conditions. It is probable that the divergence of opinion among authors, upon this subject, has arisen from differences in the freshness and quality of the particular fish which has been eaten, rather than the general suitability of this food. 7. Among the vegetables, potatoes, rice, carrots, give the least albumin. 8. The addition of bread to the regimen rarely gives rise to any inconvenience. As regards the medical treatment warm baths, used with prudence, give excellent results. The tincture of cantharides, given in the dose of one drop in four tablespoonfuls of water, every six hours, exercises a decidedly stimulating action upon the kidney. The renal lesions are best treated progressively. Thus, for the first fortnight, he gives:

R Strontium lactate,40.0 grammes;
Distilled water,600.0 grammes.
M.

Three tablespoonfuls daily are given (one before each meal), for two days; then four tablespoonfuls, then five, always for two days, and on the seventh day, six tablespoonfuls are given. The next two weeks, the medication is changed to tannic acid, in doses of 0.50 gramme, before breakfast and dinner. If a tendency to constipation is observed, the following pills are substituted:

R Tannic acid,0.10 gramme;
Purified aloes,0.01 to 0.03 gramme;
Mercurous chloride,0.01 gramme;
Extract of cinchona,0.10 gramme.
M. S. Take three pills a day, one before each meal.

For the next two weeks, he gives:

R Potassium acetate,4.0 to 5.0 grammes;
Fennel water,120.0 grammes;
Syrup of sarsaparilla,30.0 grammes.
M. S. Take in tablespoonful doses during the twenty-four hours.

The next two weeks he gives the tincture of cantharides, as before. After this, opotherapy (by extract of kidney as suggested by Renault, of Lyons) may be resorted to for a week or so. If there is decided anæmia, the iron perchloride may be given before each meal. When œdema resists treatment, Robin does not favor dechlorization, which in certain cases may favor uræmia; but gives theobromine (0.5 gramme) in the morning, and repeated at hourly intervals, until three doses are taken. Itching of the legs may be relieved by applying sodium silicate (10.0 grammes in a litre, or gr. lxxv to a pint, of distilled water). After this dries on the skin, a powder may be applied, consisting of:

R Starch,60.0 grammes;
Zinc oxide,16.0 grammes;
Camphor,2.0 grammes.

Before sending a patient with Bright's disease to any medicinal springs for treatment, it is advisable to use the water at his home for a while in order to observe its effects.

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NEW YORK, SATURDAY, SEPTEMBER 21, 1907.

MILK AS A VEHICLE OF INFECTION.

For some years past there has been no lack of literature pertaining to this subject, but the greater part of it has consisted of individual communications. Something has been done systematically, but probably nothing to compare with what we may expect from an investigation on which the United States Public Health and Marine Hospital Service has now entered. In a circular letter dated August 28th, addressed to State and local health officers and to other sanitarians, Surgeon General Wyman remarks that this study has been undertaken by his bureau by direction of the President and the Secretary of the Treasury; and that the design is to make a compilation of all authentic cases in which disease has been spread by milk. There are to be included only instances in which milk has been the undoubted means of carrying an infectious disease to one or more persons. Although, says the circular, in the light of our present knowledge, the greatest interest attaches to cases of typhoid fever, diphtheria, and scarlet fever, yet reports of other diseases carried by milk are desired also.

The circular, though addressed as we have stated, seems to invite medical men in general to communicate the purport of their observation, for it says: "Although many epidemics caused by milk have been reported in the printed reports of boards of health and in the medical journals, a greater number known to medical men have not been so reported." A blank form for reports accompanies the circular,

a separate blank for each disease. The data asked for include the date (approximately, we presume), the place, the number of cases, the number of deaths, the number of cases among milk consumers, the circumstances of individual outbreaks, the locality in which the initial case or cases causing an outbreak occurred, the manner in which the milk was infected, and the reasons for believing that the disease was conveyed by milk.

The bureau is to be commended for adding this investigation to the many others which it has undertaken in the interest of the public health, and we do not doubt that the returns will be as full as is consistent with the brevity of the period within which the service expects to receive them—between the date of the circular and the 15th of next month. We hope that this time will be extended, for there are many physicians who will not have brought their summer vacations to a close much before the middle of October, and they are likely to find on returning to their work such an accumulation of letters and circulars as to preclude their giving prompt attention to this important inquiry. Such returns as are received will of course be carefully analyzed by the bureau, and we may look confidently for a systematic presentation of all that they imply. The Public Health and Marine Hospital Service has always given us well digested summaries of its investigations, and we may be sure that there will be no exception in this instance.

THE GERMAN ACADEMIES OF MEDICINE.

The German city of Düsseldorf, well known as a centre of painting, music, and trade, opened on July 27th an academy of medicine. This is the second city of the Prussian Rheinprovinz to possess now its own medical school. Not long ago, in 1904, Cologne opened a medical department of its own. Both academies are well equipped, having a full staff of professors and assistants, and the city hospitals of Cologne, at the disposal of the academy, furnish over 1,600 beds, while Düsseldorf's city hospitals have about 750 beds.

Nearly every province of Prussia has its own university (West Prussia and Posen excepted). These universities are the centres of the medical sciences. But often in the case of small towns the neighboring cities have outgrown the university town, founded over four hundred years ago, and possess at present larger hospitals and better medical facilities. Such is the case in the Rheinprovinz, the university of which is in Bonn.

The old university of Cologne, well known by reason of the fight between Reuchlin and the *Dunkelmänner*, founded in 1384, closed in 1798, was reopened in Bonn in 1818. The Cologne of today has 419,849 inhabitants. Düsseldorf 213,711, while

Bonn has only 71,317. It is therefore only natural that such cities as Cologne and Düsseldorf are able to furnish more clinical material than the university town.

Another important factor, not to be overlooked, but certainly not openly acknowledged, is the discontent of many university teachers with the policies adopted by the Prussian government in regulating the affairs of the university, especially in the appointment of professors. It very often happens that a faculty proposes to call a certain teacher to fill a vacant chair, but the government, having the deciding voice, appoints another man, and the faculty has to submit. Whom does not this fact remind of Hyrtl's saying, "The way to a professor's chair leads through the rear entrance of the house of the government official"? Such is not the case with the governments of smaller German states, such as Baden and Bavaria; their universities of Heidelberg, Freiburg, Munich, Würzburg, and Erlangen are treated in this respect with much more consideration, and the chairs of these universities are often more desired than those of the larger Prussian universities.

While at present the two medical academies of Cologne and Düsseldorf will be mostly visited by graduates for a postgraduate course, it is hoped that in the near future medical students may spend part of their curriculum at these academies. We find it stated in the September number of the *Post-Graduate* that the establishment of these German institutions was in large measure brought about by a realization of the achievements of the American post-graduate schools.

A FRENCH CENSOR.

In every other country but the United States the people lead blameless lives; they are only waiting for their wings to bud. This has long been so well established, to their own satisfaction, that we wonder, first, that they have any penal laws and, second, that they run the risk of debauching themselves by giving publicity to American wickedness. But apparently they will never cease to parade our shortcomings, real and imaginary. Among the French medical writers it is usually the *feuilletoniste* who delights to display a picture of what he supposes to be the state of things in this benighted country. Quite recently, however, one J. Noir contributes to the *bulletin* of the *Progrès médical*, equivalent to our editorial department, an article characterized about equally by misinformation and malice. It is entitled *The Legitimacy of the Right to Kill Demanded by Physicians* (*La légitimité du droit de tuer certains malades médecins*).

After having enumerated certain enormities alleged to have been proposed by American physicians, the author says: "We are proud to observe, not only that such doctrines have never been advocated in France, but that they have always caused unanimous stupefaction among French physicians." It is not easy to understand how they could cause stupefaction without having been propounded, but possibly our French brethren get their information with regard to American medical matters from the newspapers.

M. Noir speaks first of the propositions made now and then to American legislative bodies to ordain the execution or sterilization of epileptics, insane persons, idiots, syphilitics, and the victims of tuberculous disease or cancer. Barring execution, we must admit that there have been American fools who have made such propositions, but so have other fools in other countries. The writer next turns his attention to what, in profound ignorance, he terms euthanasia, meaning the painless killing by physicians of hopeless sufferers from torturing diseases and injuries. In this connection he reviews the mendacious newspaper statement that "one Dr. Knopf" (*un docteur Knopf*) lately advocated this practice loudly (*hautement*) in the cases of dying consumptives. Surely this atrocious lie dies hard. The statement has been vigorously denied, with abundant proof of its falsity, in all the medical journals of the United States that have mentioned it at all, and it is within our knowledge that the refutation was many weeks ago furnished to two of the leading French medical journals, the *Semaine médicale*, and the *Presse médicale*. Dr. Knopf caused this to be done on account of his being well known in France. In fact "*un docteur Knopf*" is a phthisiologist of world wide reputation and the author of a prize essay on consumption which has been published in the languages of almost all civilized countries. It is mortifying to find a respectable medical journal admitting to its columns such an article as J. Noir's.

THE TEMPERATURE OF THE SUBWAY.

Somewhat extensive inquiries of persons who habitually travel up and down town by the New York subway reveal the fact that most of them think that the system of lateral ventilation installed some months ago has resulted in a decided reduction of the temperature in the trains during the summer which is now drawing to a close. We think they are mistaken, though we cannot appeal to actual thermometric records, and it is doubtful if pertinent records of that character are available.

It is easy to see how a person might delude him-

Obituary.

FRANCIS HARTMAN MARKOE, M. D.,

OF NEW YORK.

Dr. Markoe died at his home, in East Forty-ninth Street, on Friday, September 13th, in the fifty-second year of his age. The fatal disease, aortic aneurysm, had not been of long duration; but a few months ago he was apparently in vigorous health and doing an enormous amount of work. It has been thought that of late he had overtaxed his physical strength in devotion to professional engagements, and thus perhaps hastened the end. For about two months before his death it had been evident that he had not long to live, and for much of that time he suffered severely.

Dr. Markoe was a son of the late Dr. Thomas M. Markoe, for many years a well known practitioner and teacher of surgery. He was a graduate of the College of Physicians and Surgeons, of the class of 1879. He served a term on the surgical house staff of the New York Hospital. It was not long before he became one of the attending surgeons of that institution and of St. Luke's Hospital. He also taught surgery in the College of Physicians and Surgeons. He was an excellent diagnostician and a very successful operator, but he never strove to vaunt his achievements.

Not within our memory has death deprived the New York profession of a more highly esteemed or more valuable member. Everybody who knew him loved him, the laity as well as his professional brethren. Indeed, it is hard to part with such a man.

MAJOR JAMES CARROLL,

OF THE ARMY MEDICAL CORPS.

Surgeon Carroll died in Washington on Monday, September 16th. At the time of his death he was curator of the Army Medical Museum and professor of bacteriology and clinical microscopy in the Army Medical School. He was born in England in 1854. He was a graduate of the Medical Department of the University of Maryland, of the class of 1891. Two universities recently conferred upon him the degree of LL. D. A sketch of his remarkable career was given in our issue for February 9th, on page 77.

News Items.

The Pennsylvania State Board of Veterinary Medical Examiners has granted licenses to practice veterinary medicine to 7 candidates.

The Fourth Annual Meeting of the Seventeenth Censal District of Pennsylvania (Pennsylvania State Medical Society) was held at Selin's Grove, on Thursday, September 12th.

Inspection of Meat in Pennsylvania.—In order to put the new law concerning the inspection of meat into effect, new inspectors have been appointed. The practical course of the law is in the hands of Dr. Leonard Pearson, State Veterinarian.

Panther Creek Valley Hospital.—The trustees of the Panther Creek Valley Hospital have authorized the preparation of plans for the hospital buildings, to be ready before October 10th. The hospital will be located midway between Cambridge and Fairford.

The Cumberland County, Maine, Medical Society.—The programme for the annual meeting of this society, held at Portland, on Thursday, September 12th, included a paper by Dr. A. T. Bristow, of Brooklyn, N. Y., entitled, A New Medical Practice Act Recently Enacted in New York.

Changes of Address.—Dr. Kenneth W. Millican, from 3837 West Pine Boulevard, St. Louis, to 1143 Sheridan Road, Chicago.

Dr. T. Halsted Myers, to 59 West Fifth Street, New York, opposite his former residence.

Dr. Julius Phillips, to 506 Stone Avenue, Brooklyn, N. Y.

The Newport (R. I.) Natural History Society.—At a meeting of the Newport (R. I.) Natural History Society, held on Monday evening, September 9th, Dr. John M. Swan, of the Philadelphia Polyclinic and College of Graduates in Medicine, delivered an address on the Biology of the Malarial Parasite.

Charitable Bequests.—By the will of Margaret A. Langdell, widow of Professor Langdell, of the Harvard Law School, the following bequests are made: To the Cambridge, Mass., Hospital, \$10,000, for two free beds, to be known as the Langdell free beds. To the Holy Ghost Hospital for Incurables, Cambridge, \$10,000.

The Medical Society of the County of Wayne, N. Y.—At a quarterly meeting of this society, held at Clyde, on September 10th, the election of officers resulted as follows: President, Dr. G. D. York, Newark; vice-president, Dr. George S. Allen, Clyde; secretary, Dr. W. J. Bott, Palmyra; treasurer, Dr. M. A. Veeder, Lyons.

The New York County Medicopharmaceutical League will hold a meeting at the Hotel Astor, on Monday evening, September 23rd. The programme for the meeting includes the following titles: Chronic Sigmoiditis, by Dr. Heinrich Stern; Some Interesting Medical and Vital Statistics, by Dr. Samuel F. Brothers, Brooklyn.

The Franklin District, Massachusetts, Medical Society.—At a meeting of this society, held at Greenfield, on Tuesday, September 10, 1907, Dr. C. G. Trow read a paper entitled The Relation of the Physician to the Community. The officers of the society are: President, Dr. J. W. Cram, Colerain; vice-president, Dr. C. L. Upton, Shelburne Falls; secretary-treasurer, Dr. Clara M. Greenough, Greenfield.

The Medical Society of Washington County, Md.—The following programme was arranged for a meeting of this society, held at Hagerstown, on Tuesday, September 17th: Constitutional Causes Underlying Eye Disorders, by Dr. Hiram Woods, Baltimore; Report of a Case of Uremia, by Dr. I. M. Wertz, Williamsport, Md.; Exhibition of a clinical case, by Dr. Daniel A. Watkins, Hagerstown; The Neuroses, by Dr. V. M. Reichard, Fair Play, Md.

St. Vincent's Hospital to be Enlarged.—Plans have been filed for enlarging St. Vincent's Hospital, New York, by adding two full stories to the central pavilion facing West Twelfth Street and Seventh Avenue, making of this portion a six story and basement wing. This pavilion is 215 feet long and 48 feet wide. The addition is to be fitted with a roof garden, a solarium, and an operating pavilion. The improvements are to cost \$75,000.

The American Electrotherapeutic Association held its seventeenth annual meeting at Boston, on Tuesday, Wednesday, and Thursday, September 17, 18, and 19, 1907, under the presidency of Dr. Morris W. Brinkmann, of New York. The other officers of the association are: First vice-president, Dr. Jefferson D. Gibson, Denver, Colo.; second vice-president, Dr. M. K. Kassabian, Philadelphia, Pa.; treasurer, Dr. Richard Joseph Nunn, Savannah, Ga.; secretary, Dr. Albert Charles Geyser, New York.

Yorkville Hospital (formerly known as the Metropolitan Hospital and Dispensary).—At the annual meeting of the medical board of this institution the following officers and additional members of the board were elected: Dr. H. B. Sheffield, president; Dr. O. P. Honneger, vice-president; Dr. M. Talmey, secretary; Dr. Abram Brothers, visiting gynecologist; Dr. M. W. Ware and Dr. A. E. Isaacs, visiting surgeons; and Dr. Charles B. Meding, visiting eye, ear, nose, and throat.

The National Medical Association.—At the ninth annual meeting of this association, held at Baltimore, on August 29 and 30, 1907, the election of officers resulted as follows: President, Dr. W. H. Wright, Baltimore; vice-president, Dr. Charles Roberts, New York; secretary, Dr. J. A. Ken-

ney, Tuskegee, Ala.; treasurer, Dr. A. Wilberforce Williams, Chicago; assistant secretary, Dr. I. A. Lawrence, Elizabeth, N. J.; corresponding dental secretary, L. H. Fenderson, Washington, D. C.; corresponding pharmaceutical secretary, Dr. Philip D. Lee, Milledgeville, Ga.

The Health of Pittsburgh.—During the week ending August 24, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Typhoid fever, 83 cases, 10 deaths; scarlet fever, 8 cases, 0 deaths; diphtheria, 11 cases, 1 death; measles, 8 cases, 1 death; whooping cough, 8 cases, 1 death; pulmonary tuberculosis, 22 cases, 4 deaths. The total deaths for the week numbered 129, in a population, according to the census of 1900, of 321,616, corresponding to an annual death rate of 21.47 in 1,000 population.

Scientific Society Meetings in Philadelphia for the Week Ending September 28, 1907.—*Monday, September 24th.* Mineralogical and Geological Section, Academy of Natural Sciences. *Tuesday, September 25th.* Philadelphia Neurological Society. *Wednesday, September 26th.* Philadelphia County Medical Society. *Thursday, September 26th.* Pathological Society; Entomological Section, Academy of Natural Sciences. *Friday, September 27th.* South Branch, Philadelphia County Medical Society; Northern Medical Association.

The Mortality of Connecticut.—According to the State Board of Health's *Monthly Bulletin*, for August, 1907, there were 1,756 deaths during the month of August. This was 248 more than in July, and 106 more than in August of last year, and 320 more than the average number of deaths during August for the five years preceding. The death rate was 20.8 for the large towns, for the small towns 20.1, and for the whole State 20.7. The deaths reported from infectious diseases were 197, being 11.2 per cent. of the total mortality.

Yellow Fever in Cuba.—According to a dispatch received by the War Department on September 14th, four new cases of yellow fever had been discovered at Cienfuegos, on September 12th, and three cases on the 13th. All were in Spaniards, except one in an American soldier, a private of the Fifteenth Cavalry. This case was believed to have been contracted in town, and did not indicate an infection of the camp. The discovery of these cases was attributed to the increased efficiency of the medical patrol. There was also one new case at Alacranes, and one at Nueva Paz, both Spaniards.

The Mortality of Baltimore.—The report of the health department for the week ending September 7th, showed a total of 220 deaths, as compared with 183 in 1905, and 220 in 1904. The annual death rate in a thousand of population was: Whole, 19.51; white, 17.30; and colored, 31.20. The principal causes of death were: Typhoid fever, 6; scarlet fever, 1; consumption, 21; cancer, 12; organic heart diseases, 18; bronchitis, 3; Bright's disease, 10; diarrhoea, under two years of age, 41; old age, 4; congenital debility, 22. The nativity of those who died was: United States,

Civil Service Examinations for the State and County Service.—The New York State Civil Service Commission will hold examinations for Civil Service positions, September 24, 25, 26, and 27, at the New York State Health Department, 125 West 4th Street, New York City. The examination for sanitary engineer State Health Department, \$1,500; sanitary engineer State Health Department, \$1,500; sanitary engineer State Health Department, \$1,500; sanitary engineer State Health Department, \$1,500. Full information with application forms for positions of these grades may be obtained from Mr. Charles S. Fowler, chief examiner of the commission, at Albany.

The Sanitary Milk Problem.—Sanitary Council Women of the Public Health and Hygiene Council have issued a circular letter inviting health officers and sanitarians to cooperate with them in a campaign to secure the adoption of laws which will insure the purity of milk. This will involve the establishment of a system of inspection means of carrying an infectious disease to one or more persons. Bacteriological examination of milk, and the application of the Sanitary Council's Milk Code, as issued by the National Milk Producers' Association, will be required. Reports to be obtained from health officers and sanitarians, and to be forwarded to the Council, not later than October 1, 1907.

A Texas Tuberculosis Colony.—According to *Charities*, the Jews of Texas are considering a project proposed by Mr. A. Guggenheim, of San Antonio, for the purchase of a tract of land in that State, to be used as a tent city for tuberculosis patients. The plan also includes the establishment of a poultry and truck farm, upon which the patients may be employed while living with their families under canvas. It is expected that the farm can be made self-supporting. The main obstacle in the way is the State quarantine against tuberculosis, which Mr. Guggenheim is attempting to have raised for the benefit of his proposed colony.

The Medicochirurgical College Club for Undergraduates is to be located at 1699 Arch Street, Philadelphia. The club will have a café, in which *à la carte* and *table d'hôte* meals will be served, a reception and meeting room, bowling alleys, library, billiard room, and other rooms necessary to the comfort of the undergraduate body. There is no doubt but that such a club will greatly enhance the value of the four years' work, which the students of the college undertake to accomplish, by providing a place at which legitimate amusements may be enjoyed under proper environment.

The Mortality of Chicago.—According to the report of the department of health for the week ending September 7, 1907, there were during the week 574 deaths from all causes, as compared with 515 for the corresponding week in 1906. The annual death rate in one thousand of population was 14.20. The principal causes of death were: Apoplexy, 12; Bright's disease, 22; bronchitis, 5; consumption, 36; cancer, 36; convulsions, 10; diphtheria, 4; heart diseases, 38; intestinal diseases (acute), 137; measles, 4; nervous diseases, 26; pneumonia, 30; scarlet fever, 9; suicide, 7; typhoid fever, 13; violence (other than suicide), 25; whooping cough, 4; all other causes, 150.

A Proposed Algerian University.—Foreign journals state, says *Science* (September 13, 1907), that the Governor General of Algeria has brought a proposal for the founding of an Algerian university before the financial delegates, who have adopted it. It will be remembered the late M. Meis-san and Professor Bouchard, having inspected the secondary schools in Algiers, reported favorably on the founding of a university. They proposed the establishment of an institute of natural science, experimental botany, zoology, and hygiene, and pointed out the political and social effects of the foundation of a university which would form a powerful link between the various races which form the

The Bubonic Plague in San Francisco.—According to press dispatches of September 14th, the total number of cases of plague since May 27, 1907, was twenty-four, with thirteen deaths. The situation is now under the charge of Dr. Rupert Blue, of the Public Health and Marine Hospital Service, who is said to have stated that there was no cause for alarm and no danger of nor necessity for a quarantine against San Francisco. The board of health has been re-organized with Dr. William Ophuls as president. The board will proceed at once to establish new city and county hospitals and to take drastic measures to suppress the plague. Experts do not fear any spread of the plague.

The Medical Society of the County of Westchester, N. Y., held its regular bimonthly meeting at the New York Hotel, New York, on September 12, 1907. Dr. H. Beattie Brown, of Yonkers, presided. Five new members were elected. The paper of the evening was read by Dr. S. E. Getty, of Yonkers, on the subject of Ectopic Gestation, and was discussed by Dr. Peck, Dr. Eddy, and others. Dr. Charles E. Nammack, president of the First District Branch of the State Medical Society, briefly outlined the advantages of the present plan of organization of the medical profession of the State, and invited the co-operation of the Westchester Society. The business annual meeting, to be held in New York, on the afternoon

A Medical Meeting Afloat.—On September 11th the American Medical Association held its annual meeting on the ship *Albatross*, which was chartered for the purpose. The meeting was held in the forenoon, and was attended by a large number of delegates. The sessions were held in the forenoon, and were presided over by the president, Dr. Charles O'Donovan. The topics of the sessions were: The Philosophy of Disease, Dr. William H. Pearce; The Efforts to Prosecute

Unregistered Practitioners in Baltimore, Dr. Herbert Harlan; Acute Pyelitis Due to Acute Appendicitis, Dr. Guy H. Hunner. On Friday evening, September 13, the second scientific session was held on board the steamer, on the return to Baltimore, and the remainder of the programme was presented, as follows: The Operative Treatment of Cancer of the Stomach, with Report of Cases, Dr. Joseph H. Branham; Psychotherapy in the Treatment of Functional Diseases, Dr. Arthur P. Herring; Should Prisoners Deficient Either Mentally or Physically be Tried in Courts of Justice? Dr. Theodore Cook, Jr.

Personals.—Dr. Hunter B. Spencer, formerly interne at the Virginia Hospital, was elected city bacteriologist, *pro tem*, at a meeting of the Richmond Board of Health, on September 9th. The appointment will hold during the pleasure of the board.

Dr. Herbert G. Rockwell, of Amherst, Mass., has been appointed a member of the board of health to fill the vacancy caused by the death of Dr. Charles F. Branch.

Dr. Edward F. Deane has been appointed professor of anatomy; Dr. John Andrew, Jr., demonstrator of anatomy; and Dr. Ross C. Whitman, professor of physiology, in the medical department of the University of Colorado.

Reuben M. Strong has been appointed instructor in zoölogy; Victor E. Shelford, associate in zoölogy; and Frank H. Pike, associate in physiology, in the University of Chicago.

We learn that Dr. Samuel M. Brickner, of New York, being somewhat out of health, has gone to spend the winter at Saranac Lake. It is expected that Dr. Brickner will be able to return to New York in the spring.

The Health of Philadelphia.—During the week ending August 31, 1907, the following cases of transmissible diseases were reported to the bureau of health: Malarial fever, 3 cases, 0 deaths; typhoid fever, 75 cases, 7 deaths; scarlet fever, 23 cases, 0 deaths; chickenpox, 1 case, 0 deaths; diphtheria, 58 cases, 4 deaths; cerebrospinal meningitis, 6 cases, 0 deaths; measles, 10 cases, 0 deaths; whooping cough, 17 cases, 9 deaths; pulmonary tuberculosis, 78 cases, 53 deaths; pneumonia, 19 cases, 25 deaths; erysipelas, 1 case, 0 deaths; cancer, 20 cases, 23 deaths; tetanus, 1 case, 1 death; septicæmia, 3 cases, 0 deaths; anthrax, 1 case, 0 deaths. The following deaths were reported, from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 11; dysentery, 1; diarrhoea and enteritis, under two years of age, 62; puerperal fever, 1; cholera morbus, 1. The total deaths numbered 434, in an estimated population of 1,500,595, corresponding to an annual death rate of 15.03 in 1,000 population. The total infant mortality was 148; under one year of age, 122; between one and two years of age, 26. The temperatures were seasonal. The total precipitation was 0.04 inch.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the week ending September 14, 1907:

	September 14, Cases.	Deaths.
Typhoid fever.....	182	18
Scarlet fever.....	12	1
Measles.....	183	4
Scarlet fever.....	108	4
Whooping cough.....	10	6
Diphtheria.....	189	20
Tuberculosis, pulmonary.....	365	142
Cerebrospinal meningitis.....	11	6
Totals.....	1,065	200

Society Meetings for the Coming Week:

MONDAY, September 23rd.—Medical Society of the County of New York.

TUESDAY, September 24th.—New York Dermatological Society; Metropolitan Medical Society of New York city; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology).

THURSDAY, September 26th.—Brooklyn Pathological Society; New York Celtic Medical Society; Brooklyn Society for Neurology.

FRIDAY, September 27th.—Academy of Pathological Science; New York Society of German Physicians.

SATURDAY, September 28th.—West End Medical Society, New York.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

September 12, 1907.

1. The Operative Treatment of Varicose Veins of the Lower Extremity, By JOHN T. BOTTOMLEY.
2. Rectal Anæsthesia, By JOHN H. CUNNINGHAM.
3. The Early Diagnosis of Pulmonary Tuberculosis for the General Practitioner, By EDWARD O. OTIS.
4. Report on a Peculiar Disease of Tropical Africa Called Onyali, By F. CREDITON WILLMAN.

1. The Operative Treatment of Varicose Veins of the Lower Extremity.

Bottomley thinks that the important ætiological factor in varicose veins is a congenital one; in a small proportion of cases it is inflammatory. 2. The operation that will give the best results must have as its essential feature extirpation of the internal saphenous vein; but to this such other procedures must be added as are suitable to each individual case. 3. Before operative measures are undertaken it must be demonstrated that the deep venous circulation of the lower extremity is not obstructed to any marked degree. 4. In properly selected cases it is believed that a permanent cure may be promised. 5. The operation is almost but not entirely free from danger. The author describes it as follows: As a preliminary step to any operation that has for its object the transference of the venous circulation from the superficial to the deep veins, it must be definitely established that there is neither thrombosis of the deep veins nor any marked impediment to the return of the blood through them. A history of a severe preceding phlebitis should arouse our suspicions. Mayo has adopted the diagnostic expedient of having doubtful cases wear an elastic stocking, or a bandage from the toes to the knee for a week. If this gives comfort to the patient and relieves the symptoms, it is assumed that the deep veins are sufficiently patent and the following operation is usually done: The leg is held in an elevated and extended position by means of an ankle support which is attached to an ordinary, upright, gynecological standard. This position serves a double purpose; it checks hæmorrhage and renders more accessible the field of operation. The internal saphenous is then divided between hæmostats in the upper third of the thigh. The proximal end is ligated; the distal end is threaded into the ring of the enucleator and again grasped with a hæmostat. The vein, put under moderate tension by a pull on the hæmostat, is then extirpated subcutaneously by pushing the enucleator in the direction of the knee. When six to eight inches of the vein have thus been found the ring is pushed up against the skin from beneath, a short incision made down on it, the vein grasped, the enucleator withdrawn, the freed length of vein pulled out through the short incision, rethreaded into the ring, and another length is then extirpated in a similar manner. This process is repeated until the vein has been removed down to a point four to six inches below the knee. The lateral branches are torn as met and usually do not bleed. As a substitute for the enucleator, long forceps which form a ring at the end when closed are sometimes used. Occasionally torsion is employed for removing portions of veins, especially when we are dealing with branches. The external saphenous, when varicose, is also extirpated.

2. **Rectal Anæsthesia.**—Cunningham describes his method as follows: To obtain the best results it is essential that the bowels should be thoroughly cleaned out. It has been his custom to give two ounces of a saturated solution of magnesium sulphate on the evening before operation, and early the following morning a large suds enema. Just before going to the operating table another similar enema is given. The ether breakfast has consisted of two ounces of beef tea. The apparatus which he has used on all his later cases and which has been the most satisfactory consists of a bottle, the body of

which is seven and a half inches in height, five inches being used for ether space, two and a half inches and the neck for vapor space. The diameter is four inches and the capacity on the ether space twenty-nine ounces, so that a large amount of ether may be used without materially lowering the ether column. The afferent tube which leads to the bottom of the ether column ends in a bulb with several small perforations so that the air ascends in several small bubbles. The stopper and the connections should be tight. The bottle is placed in a water bath at a temperature of between 80° and 90° F. Ether boils at 98.6° F. It is desirable to keep the temperature below this point. By keeping the ether as warm as possible without boiling, the air forced in by the bulb is more easily saturated. If the operation is a long one it may be desirable to renew the temperature of the bath. The efferent tube should be sufficiently long to allow moving the wash bottle away in case the operator wishes to change his position from one side of the table to the other. The afferent tube should be of sufficient length to allow the etherizer to inspect the patient from head to foot still retaining the bulb in hand. After narcosis is complete two or three squeezes of the bulb a minute will usually suffice to keep it so. It is noteworthy that the patients may be "run light," as they usually respond rapidly to the injections after being once etherized. If the patient becomes too profoundly anesthetized the efferent tube should be disconnected and such ether gas as is in the bowel forced out through the rectal tube by abdominal massage. An oxygen tank should be connected with the rectal tube and this gas made to distend the bowel. Artificial respiration and stimulation should be resorted to in the usual manner. When the operation is complete it has been his custom to expel as much of the gas ether as possible by massage of the abdomen with the rectal tube still in position. Briefly summarized, the points of interest are as follows: There is comparatively little ether used. There is no stage of excitement. Vomiting seldom occurs. Bronchial secretions are absent. There is a comparatively quick ether recovery. The bowels are slightly constipated. Unless the bowel is free from feces it is difficult to produce narcosis.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

September 14, 1907

1. An Epidemic Pneumococcic Catarrhal Disease.
By HARVEY G. BECK and WILLIAM ROYAL STOKES
2. The Rate of Elimination of Uric Acid in Man.
By LAURENCE B. MENDEL and BENJAMIN W. BROWN
3. Dynamic Illness.
By JOHN C. MCNEIRO
4. Resection for the Relief of Intestinal Obstruction.
By W. J. MAYO
5. Public Provision for Acquired Cases of Tuberculosis.
Sanatoria, and Dispensaries.
By CHARLES C. BROWNING
6. Climate and Outdoor Life in the Treatment of Tuberculosis.
By PAUL PAGET
7. Mesenteric Glands.
By ALFRED D. DENN
8. The Treatment of Gonorrheal Infection by a Specific Antitoxin.
By JOHN ROGERS and JOHN C. TORREY
9. The Larynx in Locomotor Ataxia.
By W. B. G. HARRARD
10. Chronic Treatment of Chronic Sinusitis of the Middle Ear.
By W. SUTHER BRANT
11. Otitis Pharyngea: Its Symptomatic Diagnosis and Treatment.
By JAMES F. MCKENSON
12. Acute Dermatitis of Syphilis.
By PAUL THOMAS JENNISON and WILLIAM J. BUTLER

1. An Epidemic Pneumococcic Catarrhal Disease.—Beck and Stokes describe an epidemic of a peculiar catarrhal condition which occurred in Baltimore about

two years ago. The same kind of epidemic appeared this year. The disease is clearly infectious. In all except ten cases there was a history of house infection. Forty-six cases occurred in thirteen families. In a family consisting of eight members, only two girls were affected. They slept in the same bed. Another family, in which six were affected, the disease was distinctly traced to a servant who had the symptoms for three days before the general outbreak. An interesting example of the epidemic character is an outbreak on board a bay steamer, in which 20 per cent. of the crew suffered the same symptoms, including the captain, chief engineer, second mate and watchman. A smear from the engineer's throat showed epithelial cells containing as many as sixty pairs of encapsulated diplococci. A significant feature of this disease was the formation of a pseudomembrane. This occurred in 12.5 per cent. of all the cases. The membrane was of a light yellow color, usually situated in the nose, pharynx, or nasopharynx, and occasionally the conjunctiva. It was easily removed, but usually a bleeding surface of the mucous membrane remained. Cover slip preparations showed an enormous amount of encapsulated pneumococci, and direct inoculation into animals produced pneumococcic septicemia. Severe bronchitis was present in ten of the cases. Some of them proved almost beyond a doubt to be due to a pneumococcus infection. Vomiting of clear or bile stained mucus after coughing occurred in 37.5 per cent. of the cases. This appeared to affect small children more constantly than adults. Vomiting was often accompanied with intense retching. Diarrhoea complicated four of the cases in this series, all of which occurred in children under four years of age. Fibrinous pleurisy complicated two cases and frontal sinusitis and purulent otitis media each complicated a single case. It is strange to say that pneumonia did not develop in any of these cases. The average duration of the acute stage was from one week to ten days. The cough frequently persisted much longer, and in some instances it continued for five or six weeks. Six of the patients had definite relapses; five occurred in young children and one in an adult. The interval between the subsidence of the primary attack and the onset of the relapse ranged from one to two weeks. The cough was very intractable and little influenced by ordinary cough mixtures. Antipyrine and the bromides diminished the intensity and frequency of the paroxysms. Much relief was obtained by a thorough cleansing of the mucous membrane of the nose and throat by the use of an alkaline spray. The mild forms of conjunctivitis yielded readily to the local application of boric acid solution. The severe mucopurulent and membranous forms were successfully treated with 10 per cent. argyrol solution. Quinine administered in large doses (twenty-five to thirty-five grains daily) proved an efficient remedy. It had the effect of promptly reducing the temperature and lessening the cough and coryza. The authors conclude that this disease exists as a distinct entity, characterized by purulent or fibrinous inflammation of the mucous membranes of the eye, nose, and throat. The infection can be communicated from diseased to healthy persons. The infection is caused by the pneumococcus, resembling in its cultural and pathogenic properties the cause of lobar pneumonia.

6. Climate and Outdoor Life in the Treatment of Tuberculosis.—Papaian draws our attention to our very imperfect knowledge of climatic and sea bathing as a consequence. We are not fully realizing, he says, the nature of our body relationship to the atmosphere, as evidenced by reactions on our tissues, particularly the nerves and the parts involved in certain pathological phenomena. How and why is it that certain atmospheric conditions cause the appearance of such as lumbago, sciatica and osteomyelitis, or rather rheumatic, neuralgic, mialgic, and pleuritic affections? We theo-

nize on the subject, but we are far from having scientific data as an explanation. It is probable that other less tangible influences occur on diseased people, perhaps the tuberculous, which we do not as yet appreciate. Certain it is that the mere change of climate, irrespective of locality, is often productive of good results and that certain localities which, by the usual factors of climate, would seem very ordinary in the treatment of tuberculosis, occasion apparently persistent cures. It then behooves the profession to undertake a systematic study of climate. The medical schools, concludes the author, should take up the matter.

8. Gonorrhœal Infections Treated by a Specific Serum.—Rogers and Torrey describe the method of administration of their serum as follows: The serum has always been given in small doses, viz., 2 c.c., or about 40 minims. No experiments have been carried out with larger amounts, as this quantity of potent serum has been found sufficient to act destructively on the gonococci without danger to the patient. This dose has generally been injected into the loose subcutaneous tissue between the deep fascia and the skin in the upper arm, using the other arm on the second injection. Any other convenient point, however, may be used. In the treatment of some of the patients the injections have been given in the neighborhood of the affected joints or deep in the buttock. It seems doubtful, however, whether any special advantage attaches to this method. The injections have been repeated, as a rule, every other day. In this regard one must be guided by the general condition of the patient and the degree of the reaction to the serum. In some instances it is necessary to allow an interval of four to six days to elapse between the injections. Sheep serum as well as rabbit serum was used. This last serum has been found to be efficacious in the treatment of some of the complications arising from the primary gonorrhœal infection. Acute urethritis, vaginitis, and conjunctivitis are not markedly benefited by the serum, and for the treatment of these infections it is necessary to resort to other agents. A probable explanation of this peculiarity may lie in the fact that many of the infecting microorganisms are not reached by the serum circulating in the blood and lymph. However this may be, acute urethritis should be allayed by the usual methods in order to obviate the possibility of a subsequent relapse. The complications which are amenable to serum treatment may be conveniently grouped according to their mode of origin in two classes: (1) Those arising by direct extension of the primary infection into organs like the prostate, epididymis, testicle, bladder, and Falloppian tubes, in direct continuity with the primary focus; (2) those due to the entrance of the microorganism into the circulation, either directly or through the lymphatics. These lesions include arthritis, iritis, and the rarer endocarditis, pleuritis, and meningitis. Gonorrhœal peritonitis may generally be more correctly placed in the first group. In cases which are pyæmic or suppurative in character with abscesses in the joints, tendon sheaths, subcutaneous tissues, periosteum, and viscera, there is always the possibility of a mixed infection, and the usual surgical treatment is necessary. After the pus has been freely evacuated the serum may prove useful in freeing the body from any gonococci which have not been eliminated by this treatment. During the past two years the serum has been distributed widely to applicants from all parts of the country and especially to many of the hospitals in New York city. About 22 per cent. of them have been treated personally by Dr. Rogers. No efforts have been spared to obtain reports from as many cases as possible, whether they had reason to anticipate that the result would be negative or positive. The majority of the patients who have been treated with the serum were suffering with gonorrhœal arthritis. Reports of ninety of these cases

comparably sure and in which the serum had received a fair test. These were of all degrees of severity and had lasted from a few days to several years. Forty-seven were monoarticular cases and forty-three polyarticular. By the use of the serum seventy-two, or 80 per cent. of these patients, were entirely cured, or much improved, and eighteen, or 20 per cent., showed very slight or no improvement. Fifty-seven of these patients had received other forms of treatment for periods of a week to several years with slight or no improvement, and were very much improved or entirely cured by the serum.

10. Cleansing Treatment of Chronic Suppuration of the Middle Ear.—W. Sohler Bryant, of New York, states that if the drainage in chronic suppuration of the middle ear is sufficient and there are no collections of inspissated material, dry wiping followed by application of boric acid powder gives rapid satisfactory results. If there is cheesy material within the tympanum, it may be wiped out or syringed out by means of Blake's middle ear syringe with a strong solution of sodium bicarbonate in neutral salt solution. If on repeated trial this method does not seem to clean the middle ear cavities sufficiently, and the physician believes that there is still some accumulation within, suction may be applied to the ear with advantage. This produces serous exudation and possibly some hæmorrhage, and there follows an œdema of all the tissues which does not at once subside. The serous exudation and hæmorrhage act as an antiseptic wash which neutralizes some of the bacterial elements and at the same time removes some of the solid particles. An advantageous hyperemia of the parts is also thus brought about. A persistent dirty discharge may require the use of hydrogen peroxide, followed by normal salt solution or alcohol or silver nitrate. When there is an area of caries, this should be treated by cleanliness, and, if the granulation tissue is not vigorous, stimulated with silver nitrate. After these various methods of treatment the ear ordinarily becomes sweet and clean; but in a certain number of cases a serous discharge continues. In order to stop this we must avoid all unnecessary irritation of the tympanum and make use of astringents either as dry powders or in solution. Powders of boric acid and xeroformbinismuth tribrom phenolate are the best. Solutions of silver nitrate, from 0.5 to 2 per cent. strength, are of value. When relapses occur they are treated according to the indication the ear presents at the time.

MEDICAL RECORD

September 14, 1907.

1. An Account of the Destruction of Mosquitoes in the "Original Infected District" in the New Orleans Epidemic of 1905; together with Yellow Fever Statistics of that District. By T. D. BERRY.
2. Intercurrent Typhoid Fever in Surgical and Renal Cases. By C. FRANK LYSTON.
3. Nutrition a Factor in Tooth Development. By WILLIAM J. LEDERER.
4. Philanthropy by Means of Emulsion (Bacilli Koch). By WILLIAM MEYER.
5. Morphism. By CHARLES J. DOUGLAS.
6. On Emulsion and Its Treatment. By MAX EISENBERG.
7. Removal of a Large Thyroid Tumor of the Neck—Apparent Death—Recovery Upon Removal of the Artery Forceps. By JAMES HUNTER WELLS.
8. Cancer of the Head of the Pancreas. By DELL B. ALLEN.

3. Nutrition a Factor in Tooth Development.—Lederer observes that the various conditions affecting the teeth can be classified as affecting the dental organs during certain periods of life, namely: 1. Those conditions bearing influence upon the teeth during intra-uterine life; this would be the period beginning with the first appearance of the epithelial inflection in the embryonal jaw (thirty-fourth to fortieth day) and ending at birth, the prenatal period. 2. Those conditions

affecting the denture during infancy and childhood, i. e., during the period beginning at parturition and ending with the eruption of the first permanent tooth. 3. Those conditions affecting the teeth from the time of the eruption of the first permanent tooth till death or such time as the teeth are lost. It is evident that in the first class, the conditions affecting tooth development are factors conveyed by the fetal circulation and are traceable to the mother. Any condition affecting the maternal blood is liable to have a reaction upon the embryo and fetus, and consequently modify tooth development. It therefore follows that the health of the mother during gestation is an important factor conducing to normal tooth development, and any pathological conditions present must be considered and corrected. All conditions which will lower the vitality of the mother are bound to affect the child *in utero* in some way, and the developing dental organs being part and parcel thereof, receiving blood supply from the same source, will consequently be modified if there be any aberration from the normal in the blood, chemical or physical. As to foods that are conducive to proper dental development the author cites von Winkel, of Munich, who describes a dietary for pregnant women as follows: Breakfast— $\frac{1}{4}$ litre milk, one roll. Noon— $\frac{1}{4}$ litre of soup, 150 grammes of beef without bones, $\frac{1}{4}$ litre vegetables or pastry (not fat), $\frac{1}{4}$ litre beer. Milk is the most important of all animal foodstuffs, containing all the elements necessary for the maintenance of life, and thus constituting a complete food. It contains all the four classes of food principles, namely, proteins, fats, carbohydrates, and salts. If pregnant women would drink more milk and substitute this perfect food for some of the "impossible epicurian artifices," lead a proper life, and not absolutely ignore Nature—by sacrificing some of their late wine suppers and gay all night parties—this would not only insure their own health, but they would be able to give birth to a child in good general health and with a good denture. The great mistakes so frequently made in infant feeding are the substitution of cows' milk for maternal feeding where mother's milk is obtainable, and also the too early ingestion of carbohydrates and other foodstuff that have no place in an infant's dietary. Opinions differ as to the period when young children should be given other food than milk; however, the consensus of opinion points to the fact that no solid food of any kind should be given prior to the eruption of the temporary teeth. Milk (maternal till about the eighth month, unless weaning becomes necessary through disease on part of the mother at an earlier period; good cow's milk after that) should be the principal food for eighteen months. Solid food should be withheld till about a year. Nutrition is the basis of all development, and if this important function is supervised according to a common sense physiological regimen the result will be a normally developed organism. It means a healthy body, a sound mind, and good teeth. Therefore nutrition is a very important factor in tooth development. Were it not so we would not obtain the abnormalities of tooth development and eruption following illnesses of nutrition, as scurvy, rickets, marasmus, etc.

4. **Phthisiotherapy by Means of Emulsion Bacilli (Koch).** A series of West-Hickman patients have been seen in which scrofulous lesions have been successfully treated. He thinks these cases would indicate that an early diagnosis gives the greatest advantages of all with regard to cure and results being the same in each diagnosis. The administration of bacilli is a direct handling on the results for advanced cases are generally hopeless and second stage cases hopeless. A cure is possible in some of tubercles but the probability of cure that is *sub judice* at present. The dose is to be guarded in cases of advanced disease of a serious kind, and the other patients of the same class should be regularly given

ing to reaction. No ill effects have followed large doses, even in the beginning of the treatment; but it is advisable to give small doses, since the larger doses may cause symptoms which alarm both patient and physician. In fever cases very minute doses have a tendency to reduce temperature; three of the twenty-five cases acted that way. Bacilli usually increase in number at first, and cough may be more severe for a time, but the improvement is early and rapid. Under tuberculin the weight increases and the general condition improves, the symptoms disappear, and the patient feels in every respect better; this naturally pertains only to certain well chosen cases. These observations have conclusively shown that patients while remaining at home and at work can take the tuberculin treatment and receive a great deal of benefit from it.

5. **Morphinism.**—Douglas describes his plan of treatment, which he has called the narcotic method. It consists in the use of various hypnotic remedies, so combined or alternated as to keep the patient asleep or in a quiet or comfortable condition for a short time, while the morphine is being completely withdrawn. When he awakes the period of suffering is passed, and all desire for morphine is gone. The painful part of the morphine withdrawal is accomplished while the patient is unconscious, on the same principle that a surgical operation is performed under the influence of anæsthetics. The hypnotic remedy most often recommended for morphinism is hyoscine, administered in large and repeated doses. He considers this plan of treatment too uncertain to be recommended as a routine measure. While it may answer as an exclusive remedy in some cases, yet usually it produces delirium, and occasionally the delirium lasts for some time after the administration of hyoscine has been stopped. He has, however, often found it useful as an adjuvant to other sedative remedies, but many patients do not bear it well, and are made worse by its exhibition if it is not combined with other remedies. The exact remedy or combination of remedies must be determined by the idiosyncrasy of the patient, and occasionally several combinations will be tried before we find the one best suited to the peculiarities of the patient in hand. But with experience the physician will be able to get his patient promptly into the right condition for a total withdrawal of morphine, without pain and without danger.

BRITISH MEDICAL JOURNAL

Vol. 35, 1907.

1. General Pathology and its Relations to Hygiene and Therapeutics. By C. G. Macleod, M.D., F.R.C.P.
2. General Remarks on the Upper Airway. By A. G. Macleod, M.D., F.R.C.P.
3. The Nephritis of the Urinary System. A Review of the Literature. By S. J. Martin, M.D., F.R.C.P.
4. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.
5. Preventive Medicine in the Navy and Army. By A. G. Macleod, M.D., F.R.C.P.
6. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.
7. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.
8. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.
9. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.
10. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.
11. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.
12. The Hygiene of the Human Body. By A. G. Macleod, M.D., F.R.C.P.

13. The Disposal of Excreta in Camp and Upon the Line of March. By P. B. GILES.
14. Water Supply in Camps, on the Line of March and in Battle. By N. FAICHNIE.
15. The Necessity for Trained Male Personnel in the Medical Services on Mobilization for War. By E. M. WILSON.
16. The Teaching of Hygiene in the Army. By R. J. BLACKHAM.
17. The Treatment of Burns and Scalds Afloat. By P. T. SUTCLIFFE.

2. Open Air Treatment of Pneumonia.—Rennie states that a great advance has been made in the recognition of the fact that pneumonia is not a true respiratory disease, but an acute infection, the pulmonary signs being merely a manifestation of the local reaction of the tissues of the body to the invading organism. In the absence of a specific remedy or serum, treatment must be based on the strengthening of the defensive mechanisms of the body. In acute pneumonia the two chief indications are to maintain the heart's action against the depressing toxins of the pneumococcus, and to remedy the imperfect aeration of the blood as manifested by marked cyanosis. The writer believes these two indications are most effectively met by the adoption of the open air method, as described by Northrup. Of twenty cases so treated, only one proved fatal, an old man, practically moribund, and with extensive consolidation. The patient is at once placed on the verandah or balcony of the hospital, where he is kept night and day. A screen is placed round the head of the bed to keep the cold winds from blowing directly on the patient. Even where complications are present, such as bronchitis, equally satisfactory results are obtained. The temperature does not rise above 103.8° F., and no antipyretic treatment is necessary. In most cases the temperature drops and the crisis occurs in two to three days. The pulse improves almost immediately, and in only a very few instances is any cardiac stimulant necessary. No alcohol is given. The tongue gets moist and cleans rapidly, and the appetite is much improved. No sedatives are required and as a rule sleep becomes at once quiet and refreshing. Cyanosis also rapidly disappears. Convalescence is rapid and satisfactory.

7. Prevention of Typhoid Fever.—Davies sums up the question of the prevention of typhoid fever as follows: First, as regards the typhoid patient himself. Here the preventive and protective measures should consist of: 1. Segregation from patients suffering from other diseases. 2. Provision of special clothing and bedding, distinctively marked and kept separate. 3. Special feeding cups, food utensils, bed pans, urinals, spit cups, clinical thermometers, and enema apparatus, all distinctively marked. 4. Specially detailed nursing attendants, who should be fed and housed apart from the general nursing staff, though they need not be absolutely isolated. But they should wash and change their clothes before mingling with the other nurses. 5. Strict disinfection of all excreta of the patients, also of sputa, bath water, and ablution water. 6. Disinfection of all utensils, whether used for food or excreta. 7. Destruction by fire of all food remnants. 8. Everything that enters the typhoid ward should be considered infective, and should be treated accordingly. 9. Disinfection of the patients' hospital bedding and clothing, special care being taken in the conveyance of clothing from the ward to the place of disinfection. Covered receptacles should be used and the infected clothing kept moist. On recovery the typhoid convalescent is still to be regarded as infective. Urotropine should be used, and the urine periodically examined for typhoid bacilli. These appear in the urine about the end of the second week, and continue to be discharged for weeks or even months. Secondly, in the case of men suffering but slightly or not at all, not reporting themselves sick, and yet possibly

capable of spreading infection, the correct procedure would be: 1. The recognition of the possibility or probability of such mild but dangerous cases being present in any body of troops. 2. The institution of a systematic inspection of all new arrivals for the purpose of detecting such mild cases of typhoid fever. 3. The provision of a quarantine or segregation camp where such new arrivals may be accommodated until a positive or negative diagnosis has been made.

17. Treatment of Burns.—Sutcliffe divides the different dressings used in the treatment of burns and scalds into three classes: 1. Powders. Boric acid and zinc oxide are sometimes useful in quite superficial burns, but are quite unsuited for deeper burns, as they form scabs under which septic material collects. 2. Oils. The oil most in use is Carron oil—a mixture of lime water and linseed oil. But it and all other oily dressings have the following disadvantages: a. Oil is not sterile and has no antiseptic properties. b. An oily dressing will not absorb any of the discharges, which are free and must be kept so under pain of setting up severe constitutional symptoms. c. The oily dressing must be changed every twenty-four hours. d. Oil makes a dirty dressing, soiling everything with which it comes in contact, and giving off a sickly offensive smell. e. The parts once bathed in oil, it is almost impossible to clean them. f. The space occupied by the stock of oil is considerable. g. Oil has no healing properties *per se*, and sooner or later must be changed. 3. Lotions. These are the most rational form of dressing for the following reasons: a. The water can be sterilized, and the lotions being antiseptic, organisms will not grow on the dressings. b. The inevitable discharges are absorbed and sterilized by the dressing. c. Such dressings may be left *in situ* for at least forty-eight hours. d. Lotions are clean, with the one exception of picric acid. e. Lotions are easily removed from the parts. f. The space occupied by the drug from which the lotion is made, is insignificant. g. Lotions have healing properties *per se*. The lotions in most common use are bichloride of mercury, boric acid, and picric acid. The first must be used so diluted, in order to prevent absorption, that its antiseptic properties are greatly impaired. Boric acid is a useful drug, but has no anæsthetic effect. Picric acid fulfils all the advantages of lotions—it is sterile and antiseptic; the discharges are absorbed; it may be left for forty-eight hours; it occupies small space; and it is stimulating to the new tissues. A five per cent. solution is the strength required, so that one ounce of the salt makes over ten pints of lotion. It must be borne in mind that the dry crystals are explosive. In severe scalds due to superheated steam, where the tissues are instantaneously killed, a lotion of bichloride of mercury is most suitable, as the parts must be kept as aseptic as possible, and there is no danger of the dead tissues absorbing the drug and thus causing poisoning. Should the patients recover sufficiently from shock, early amputation is the only rational treatment.

LANCET.

September 7, 1907.

1. Remarks on Peritonitis and Its Treatment. By J. BERRY.
2. Acute Yellow Atrophy of the Liver Following Intestinal Obstruction. By C. E. CAMPBELL-HORSFALL.
3. Intussusception Caused by an Inverted Meckel's Diverticulum: Excision and End to End Anastomosis. With Remarks on End to End Anastomosis. By L. A. BIDWELL.
4. A Case of Pyæmia Due to the Influenza Bacillus, with Multiple Arthritis and Meningitis. By L. S. DUNGEON and J. E. ADAMS.
5. Record of Changes Observed in the Blood Count and in Osseous Power of a Man Undergoing a Prolonged Fast. By F. J. CHARTERS.
6. Some Considerations on Epidemic Cerebro-spinal Fever. By W. WRIGHT.

7. The Treatment of Cancer, By L. DRAGE.
8. The Solubility of Air in Fats and Its Relation to Caisson Disease, By H. M. VERNON.
9. A Case of Selfinduced (?) Abortion, By A. B. M. THOMSON.

1. Peritonitis.—Berry states that the term peritonitis is a misleading one, in that it is not the mere inflammation of the peritoneum that is dangerous. This inflammation is in itself often exceedingly beneficial and protective. But peritonitis is dangerous in proportion as it is associated with absorption from the peritoneal cavity. It is the absorption of toxins from the peritoneal cavity, not the inflammation of the peritoneum that is dangerous. The peritoneal cavity is a vast lymphatic space from which absorption of toxins readily takes place. In the great majority of cases of peritonitis the causative bacteria are introduced into the peritoneal cavity from within by passing through the wall of one of the hollow abdominal viscera—the appendix, the intestine, stomach, gallbladder, Fallopian tube, etc. Not uncommonly the poisonous contents of the viscera are introduced through a visible opening in the wall of the viscus—so called perforative peritonitis. In appendicitis the amount of septic material escaping into the peritoneal cavity is usually quite small—perhaps only a drop or two—as the perforation of the appendix is usually preceded by adhesive inflammation of its lumen, shutting off its cavity from that of the cæcum, so that all that escapes is what is in the appendix at the time of perforation. In cases of fulminating appendicitis there is either a previous distention of the appendix with foul septic fluid, or the sudden rupture of an abscess that has slowly and quietly formed outside of the appendix and which ruptures secondarily. But where a large hollow viscus like the stomach or cæcum is perforated, there is rarely any preceding adhesive inflammation, the perforation occurs suddenly, and is immediately followed by the pouring out into the peritoneal cavity of a vast quantity of septic material. There is usually a sharp, severe pain, limited at first to the site of perforation. The peritoneum is normally insensitive to mechanical injury, but is very sensitive to the application of irritant poisons such as septic material. Sudden, severe, and persistent pain, accompanied by tenderness and rigidity of the abdominal muscles, is often sufficient for the diagnosis of perforation of the stomach. Nausea and vomiting usually follow soon afterwards, but it is not necessary or desirable to wait for the later symptoms of elevation of the temperature and increased frequency of the pulse, as these latter indicate septic absorption which it is desirable to forestall. Elevation of the pulse is much more important than a rise of temperature. As regards the effusion of serous fluid into the peritoneal cavity, while blood serum is bactericidal yet the bactericidal power of serous fluid diminishes in the immediate neighborhood of an infected area. Consequently its letting out by operation leads to the effusion of fresh, more strongly bactericidal fluid. The particular bacillus most often causing peritonitis is the colon bacillus. Of late undue stress has been laid upon the quality of the bacteria and too little upon the quantity of the poison. The severity of the attack depends chiefly upon the latter quality. Operation in cases of peritonitis does two things, only: 1. By closing a perforation or removing a septic focus, the further entrance of poisons into the peritoneum is prevented. 2. To a limited extent the poison already within the peritoneal cavity is removed. But operation cannot remove from the blood the poison, bacteria, or toxins already there. This must be done by an increasing the excretory powers of the kidneys, and other or due to the administration of fluid. For purposes of treatment the writer divides all cases of peritonitis into four classes: 1. Those in which there is no perforation of any viscus and no

collection of fluid in the peritoneal cavity. The amount of poison here is very small, and the best form of treatment is free purgation by salines and the administration of large quantities of fluid either by the mouth, the rectum, or into the subcutaneous tissue or a vein. Opium should be avoided. It may be desirable to drain the peritoneal cavity if there is any evidence of the accumulation of free fluid. 2. Those in which there is a recent perforation of a hollow viscus. Here an immediate operation should be performed with the object of closing the perforation and preventing further extravasation into the peritoneal cavity. The sooner the operation the better. Here it is prevention rather than cure of peritonitis that is aimed at. The less that is done to the peritoneum by washing or sponging the better, free drainage being the best means of getting rid of the extravasated septic material. Purgatives should be avoided and nothing given by the mouth, with the exception of water. 3. The great majority of cases of appendicitis. Most of these will improve and pass into a more favorable condition for subsequent operation, if not interfered with by operation at the very beginning. Purgatives or large enemata should never be given, nor any food or fluid by the mouth. The patient can very well do without food for a day or two. The thorax should be considerably higher than the pelvis, in order that any fluid may gravitate to the latter position where it is more easily dealt with. 4. Cases of general diffuse peritonitis with general distention of the whole abdomen and purulent fluid diffused over a large portion of the abdomen. The writer thinks the Ochsner method of treatment the best—i. e., immediate and radical surgical intervention, freely opening the abdominal cavity, breaking up all adhesions, opening all pockets and thoroughly irrigating the entire peritoneum. For the very worst class of cases, the Murphy method is undoubtedly good; this consists in making a small opening in the abdomen, closing the perforation or removing the appendix, the introduction of a large drainage tube into the pelvis, placing the patient in a sitting posture of from 35 to 45 degrees, and the administration of a quart or two of saline solution every two hours by rectum. The writer is opposed to indiscriminate immediate operation in appendicitis, and thinks that the method of treatment of twenty-five years ago gave a lower mortality.

5. The Blood in Fasting.—Charteris reports the results of the examination of the blood in a man who fasted for fourteen days. The pulse slowed gradually as the fast proceeded, became softer and weaker, but remained regular in rhythm. The arterial pressure gradually sank so that at the end of the fast the fall amounted to almost twenty-five per cent. of the normal reading. By the end of the first week of feeding the pressure was normal again. The blood changes were not very definite. The hæmoglobin was unaffected until the end of the first week when it began to fall, and thereafter fell steadily. The red corpuscles varied somewhat from day to day, but no striking effect was produced. There were no alterations in size, shape, or staining qualities. There was a slight leucocytosis with no diminution in size of the individual cells, but with a gradual but distinct increase in the percentage of the eosinophile cells. The opsonic index of the serum for the staphylococcus and the typhoid bacillus was investigated, but no alteration during the fasting period could be detected.

6. Cerebrospinal Meningitis.—Wright tells us that cerebrospinal meningitis was first recognized as a distinct disease in 1860 by Virchow. The epoplems are marked by irregularity of distribution and peculiar commensuration and reaction. No well defined symptoms of spinal rigidity have been noted. Epilepsies are generally localized and their duration variable. There is no vital diaphoresis and the axillæ are equally affected. About

seven to ten per cent. of the cases are under fifteen years of age and only three per cent. over forty. Some epidemics have confined themselves to adults of middle age. The disease is certainly more common under one year of age than is generally supposed. A second attack is extremely rare, but relapses may occur after the patient has apparently completely recovered. The micro-organism can thus remain latent in the cerebrospinal fluid. Communicability appears to be very little. No definite statement can at present be made as regards the channels of infection. Most epidemics occur during the winter and spring, but heat, cold, and moisture have but little effect in influencing the disease. Hygienic conditions, soil, and situation are of little importance. The writer advances the following theory: Is the meningococcus a constant or occasional habitant of the bowel of man, horse, or other animal, assuming pathological properties under certain conditions, and especially so in abnormal situations such as the meninges. No predisposing diseases or conditions are known. The incubation period is very difficult to determine—it may be between one and ten days. Much importance has been attached to Kernig's sign, but it is present in all forms of spinal meningitis. Deafness is the most common of the sequelæ, and is not usually accompanied by otorrhea. Permanent squint and other eye affections sometimes occur. Of the anomalous forms of the disease, the ambulant type is the most important, but it is very rare. Abortive and intermittent types are also met with. The chronic type may last for months, the patient being emaciated to skin and bone. The prognosis is uncertain and should always be guarded. It is exceedingly grave when the onset is sudden and severe, without prodromal symptoms. The mortality varies in different epidemics from twenty to seventy-five per cent. No specific has as yet been found for the disease. Symptomatic treatment, such as ice caps, cupping, frequent bathing, etc., is all that can be done. Morphine in large doses is sometimes beneficial, if given early. The principal disease to be distinguished from cerebrospinal meningitis is pneumonia. In the former the pulse respiration ratio is unaffected and the respiration is seldom labored as in pneumonia. A diagnosis from influenza is sometimes very difficult; pain in the joints is very uncommon in cerebrospinal meningitis. The writer deprecates the use of the term "simple" or "idiopathic" meningitis. Many cases diagnosed as septic, suppurative, and tuberculous meningitis, and as posterior basal meningitis are undoubtedly due to the meningococcus.

8. **Caisson Disease.**—Vernon states that it is now generally admitted that the very varied symptoms produced by rapid decompression from high atmospheric pressures and popularly known as "caisson disease" or "diver's palsy," are due to liberation of bubbles of gas, chiefly nitrogen, in the blood and tissues. The writer's investigations show that at body temperature fats dissolve more than five times as much nitrogen as an equal volume of water or blood plasma. The special tendency of the fat containing tissues (such as subcutaneous tissues, spinal cord, and peripheral nerves) of caisson workers and divers to suffer injury from the liberation of gas bubbles after rapid decompression is dependent upon this great solubility.

LA PRESSE MEDICALE

August 21, 1907.

Drainage in Gynecology. By Professor R. DE BOVIS.

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tients and found urobilin absent from the feces in ten. Three of these were cases of icterus, one a case of purpura, one a case of tabes with gastric crises, one an apparently healthy boy of fourteen, two were cases of cirrhosis, one of pulmonary tuberculosis, and one of acute rheumatism. In the last four cases urobilin was present in the urine though absent from the feces.

2. **Operation to Replace Symphyseotomy.**—Maie describes under this heading an operation which consists in forming a quadrilateral flap with its base downward to include the external genitals and lay bare the pubic arch which is then divided with a saw. The pieces of bone are connected by a piece of metal and the flap is replaced and sutured.

LA SEMAINE MEDICALE

August 21, 1907.

Drainage in Gynecology. By Professor R. DE BOVIS.

Drainage in Gynecology.—De Bovis discusses, with many references to the literature on the subject, the question whether to drain or not to drain after gynecological operations, as well as the advantages given for abdominal and vaginal drainage. He thinks that the indications for abdominal drainage are becoming more and more rare, but in complicated and serious cases vaginal drainage should be used rather than risk the consequences of the least imperfection of asepsis by not employing it.

BERLINER KLINISCHE WOCHENSCHRIFT

August 10, 1907.

1. Studies in Regard to the Influence of Metals Upon the Gastric Mucous Membrane. By A. BICKEL.

2. The Part Played by Hydrochloric Acid in Gastric Digestion. By J. KENTZLER.

3. Concerning the Hindrance of Test Tube Phagocytosis. By E. WEIL and K. TSUDA.

4. Kala Azar (Febrile Tropical Splenomegaly) in a Chinaman. By MARTINI.

5. Concerning Aberrant Bundles in Facial Paralysis. By R. LIPSCHITZ.

6. Concerning a New Preparation of Blood. By W. N. CLEMM.

1. **Influence of Metals upon the Gastric Mucous Membrane.**—Bickel's article might perhaps be termed more properly the physiological action of escalin, a preparation which contains metallic aluminium, upon the mucous membrane of the stomach. He says that escalin increases the gastric secret on markedly in man, that when introduced into the stomach it is washed back and forth by the secretion from the surface of the gastric mucous membrane, and that the metal contained in the escalin undergoes decomposition in the human gastric juice with formation of gas. He does not consider escalin of value as a hemostatic.

2. **The Part Played by Hydrochloric Acid in Gastric Digestion.**—Kentzler thus sums up the results of his studies: 1. Hydrochloric acid in a 0.5 per cent., lactic acid in a 1 per cent. liquor sodæ in a still weaker solution can prevent the occurrence of precipitation, yet the reaction appears immediately on increase of the alkalinity whereas it does not return after neutralization of the hydrochloric acid. 2. With the addition of gastric juice the react on takes place in the same way. 3. The acidification of the serum employed obstructs the formation of a precipitate, but the presence of gastric juice neutralizes the obstructive action of the acid. 4. The reactions of artificial gastric juice agree entirely with those of the normal gastric juice. 5. The already formed precipitate does not disappear in the presence of gastric juice which contains hydrochloric acid, and therefore the persistence of a precipitate cannot be looked upon as the result of digestion.

3. **Hindrance of Test Tube Phagocytosis.**—Weil and Tsuda state as the results of their studies the following conclusions. The aggressin of dysentery prevents the phagocytosis of the bacilli of dysentery through leuco-

1. Fæcal Urobilin and Its Clinical Importance.

Urobilin in the feces is a normal constituent of the fecal mass.

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cytes of guinea pigs. The prevention of phagocytosis is specific for bacilli subtilis and staphylococci underwent phagocytosis in the aggressin. The prevention of the phagocytosis therefore cannot be due to injury of the aggressin by the poisonous nature of the leucocytes. The suppression of the phagocytosis is not dependent on the opsonin loss of the aggressin for it takes place when the action of the aggressin is faced by opsonin laden bacteria. The prevention of phagocytosis is an active process through the aggressin, which probably, like the capsule of the anthrax bacillus, protects the bacteria from the phagocytosis.

Proceedings of Societies.

AMERICAN PÆDIATRIC SOCIETY.

Nineteenth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. B. K. RACHFORD, of Cincinnati, in the Chair.

The Use in Practice of the Theoretical Resources Provided by Percentage Feeding.—Dr. CHARLES HUNTER DUNN, of Boston, read this paper.

Cane Sugar Feeding in Its Relation to Some of the Disorders of Childhood.—Dr. CHARLES G. KERLEY, of New York, said in this paper that the study of the subject had been undertaken as a result of an impression the writer had received that the continued use of cane sugar in certain cases was not without harm. Careful history taking as regarded inherited tendencies and habits of life with resulting observations while under management had evolved a class of cases which he had termed "the sugar susceptibles." A sugar susceptible was usually a child of rheumatic or gouty ancestry, in whom, while the ailments from which he suffered varied considerably, there was one characteristic of all tendency to recurrence of the ailment and in most cases a progression to the degree of chronicity. In his studies he had considered seventy-eight patients ranging from the ages of eighteen months to ten years. Fifteen were among his own patients, whom he had cared for from infancy. The remaining sixty-three had come to him because of their illness. Blood examinations had been made in all the cases, and nothing been shown except a condition of anæmia. After the second year cane sugar could be found in excess in many children. More sugar was taken in than was good for the best interest of the patient—it was so easy for the child to get sweets, candy, cake, etc. Under the treatment outlined by the writer cane sugar was eliminated from the diet, for he considered that in all catarrhal conditions, such as bronchitis, asthma, coryza, and in eczema and chorea, the excess of sugar in the system produced a condition of overloading of the system. He did not think that the cane sugar by itself was capable of exciting any special trouble. It was only an agency acting in connection with other causes. In his work saccharin was used, and it was his opinion that children soon became accustomed to its use. The patients were systematically weighed. The absence of sugar did not seem to exert any harmful

influence on the children.

It was his opinion that in severe functional changes we lower the resistance of the individual and lower his tendency to suffer from catarrhal conditions.

Kernig's Sign in Infancy; a Study of Two Thousand Cases.—Dr. JAMES L. KELLY, of Boston, read a paper in which he reported that he had observed the sign in 2,000 cases of children under the age of 10 years. He found that the sign was present in 1,483 cases, and in 517 cases it was absent. He found that the sign was present in 1,483 cases, and in 517 cases it was absent. He found that the sign was present in 1,483 cases, and in 517 cases it was absent.

was brought to a right angle with the body of the patient. In 1899 Osler discovered that the sign could be obtained in the recumbent position as well as in the sitting posture. Kernig first observed the sign in a number of patients who were sitting over the side of their beds with their feet hanging down, and he usually tested for it in this position. Kernig's sign was not accompanied by pain. Its cause was not the same in all cases. It was no doubt due to an excitation of the multipolar cells in the spinal cord, due to reflex excitability. The observations in this paper were derived from the study of 2,000 cases of children. Not all of this number had Kernig's sign, but only a certain number. It must be observed in the examination of the newly born that there was a slight natural contraction of the flexors in nearly all cases, and this fact must not be lost sight of when an examination for Kernig's sign was made. During the crying spell of the infant there was much rigidity of the abdominal muscles, which tended to mask this sign. This abdominal rigidity might even turn to tonic spasm of the muscles. Always consider the pathology of infancy when testing for Kernig's sign in infants. Tenderness of the legs prevented a satisfactory examination. Pain and tenderness in the legs of the very young were due mostly to scurvy. Of the two thousand children mentioned in this paper, 507 were normal and showed no Kernig's sign. Kernig's sign was recognized in two cases of pneumonia, but this was due no doubt to some concurrent meningitis. It was absent in a considerable number of babies suffering with nervous affections. It was not present in seven cases of encephalitis. Kernig's sign appeared at all stages equally. In the tuberculous form of meningitis it was late in appearing. In the series of improved cases it was present in twenty-six per cent., and was accompanied by bulging of the fontanelles.

The sign was present in thirty per cent. of the cases in which the cerebral pressure was increased. Intracranial pressure had no effect on Kernig's sign. Kernig's sign varied directly with the knee jerk.

The writer concludes that Kernig's sign was never found in infants except in meningitis; never present in some cases of meningitis; occurred at all ages; had no connection with the degree of intracranial pressure; was more pronounced with exaggerated knee jerk; and was of no value in the diagnosis between tuberculous and cerebrospinal meningitis.

The Bacteriology of Meningitis.—Dr. F. S. CHURCHILL, of Chicago, said in this paper that he had been anxious for some time to learn how the infection got into the brain. It was common to have patients with a severe type of this affection come into contact with others who did not take it. Some cases of meningitis showed the pneumococcus in cultures made from the spinal fluid. He reported the case of a boy, ten years of age, who after an operation for appendicitis had meningitis accompanied very soon with deafness. On autopsy the meningococcus was found in the gall bladder and the brain.

Of the total number of cases reported, 1,800, 1,483 showed the meningococcus, and 178 showed the pneumococcus in culture examinations. The meningococcus was first brought forward in 1887 by Weichselbaum. It was Gram negative.

The writer advised that in the case of meningitis one should isolate certain persons who attended patients with meningitis, such, for instance, as those persons who had been in contact with the patient. He advised the writer that the pneumococcus variety was very virulent, and that it was necessary to keep the patient in good condition.

Congenital Stenosis of the Duodenum.—Dr. H. L. K.

case. Congenital occlusion of the intestine, they said, was rare. The case reported was that of a newly born baby. The infant seemed to be normal at birth and apparently healthy. Soon after birth it began to vomit a greenish fluid. The next two days it again vomited three times. During this time it passed meconium. On the fifth day after vomiting stomach lavage was practised, and this seemed to relieve the vomiting temporarily. The stomach was washed out each day. The child grew progressively weaker until the thirteenth day, when it died. The diagnosis was made on autopsy. Stenosis of the duodenum was discovered at the lowest portion. That portion of the intestine between the stenosis and the pylorus was much dilated and was in the form of a sac.

The cause of this anomaly had never been scientifically explained. It might be due to fetal peritonitis or to amniotic bands constricting the intestine.

Influenzal Meningitis.—Dr. S. S. ADAMS, of Washington, reported the case of a child whom he had been called to see because it had a slight fever and had bitten off the bulb of a clinical thermometer which had been introduced into its mouth by a nurse. The patient showed no special symptoms, and after giving the usual treatment in such cases he did not see the child until the following day. As the symptoms had not abated on the second visit, and as others had presented themselves, he was led to make a diagnosis of influenza. The child grew rapidly worse, had several chills, tossed about the bed, and showed marked nervous symptoms. The next day, the condition having grown progressively worse, a consultation was held and the diagnosis of influenzal meningitis was confirmed. On the second consultation Kernig's sign was observed together with twitchings of the muscles and ankle clonus. By consent of all, a lumbar puncture was made and two ounces of fluid were withdrawn. This fluid was subjected to careful bacteriological examination and the bacillus of Pfeiffer was demonstrated. After the first withdrawal of fluid the child appeared to be much better, but this was accounted for by the relief of intracranial pressure due to the release of the fluid. As had been expected, the patient on the following day was in a critical state, and a second lumbar puncture was made, one ounce of fluid being withdrawn at this time. In two days after the last puncture the child died. The case was of importance for the reason that after reviewing the literature, both foreign and American, he had seen but few cases reported by a physician of foreign residence. He desired to have it put on record that this case was the first one reported by an American physician in which the Pfeiffer bacillus had been found in the fluid of the spinal canal in a case with well developed clinical symptoms of influenzal meningitis.

Dr. KOPLIK, of New York, thought there had been quite a number of cases of meningitis in which the Pfeiffer bacillus had been found, but which had not been reported.

Anorexia Nervosa in Children.—Dr. F. FORCHHEIMER, of Cincinnati, read a paper in which he said that this subject had been spoken of a great deal by physicians. For several years back cases had been reported under this title. In 1895 Marshall reported a fatal case and in 1896 Gull did likewise. It had been looked upon by many as hysteria. It was a neurosis. The patients usually took no food, and, as the cases were found in the young, they were often the result of faulty training and the condition had been brought about by pampering. Most of the children were allowed to grow up of their own accord and had no restrictions put upon them.

This condition was purely a psychic one, and we must agree that we were dealing with infantile hysteria. He believed that they could be cured if removed from the cause. We must discipline thought and action until our new instruction took root as a fixed idea. We must

employ the art of mental suggestion in these cases and study the patients mentally and physically. Drive the child straight as with a bit; do not push it ahead or try to pull it back, but keep it on the go in one direction. Drugs might be used. Electricity and hydrotherapeutics were especially valuable. Have a good nurse who understood children. Much good was obtained from a complete change of surroundings. Send the patient to a good institution or to visiting proper relatives or strangers. The feeding was the controlling factor. The object was to make the patients gain weight. Gavage should only be resorted to as a last resort.

Dr. CHARLES G. KERLEY, of New York, spoke of a case of persistent vomiting in a young child in which the attacks were undoubtedly brought on by the mother, who, after each feeding, either by action or look, seemed to indicate that she expected the attack of vomiting to come on. Upon putting the child into the care of the housemaid, who fed it without any notice, these attacks of vomiting ceased, but when it went back to its mother again the vomiting returned. Finally the child was sent away to another family, where it greatly improved.

(To be concluded.)

Book Notices.

A Textbook of Physiological Chemistry. For Students of Medicine and Physicians. By CHARLES E. SIMON, B. A., M. D., Professor of Clinical Pathology at the Baltimore Medical College. Third Edition, Thoroughly Revised. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. xix-17 to 490.

In this new edition of Simon's textbook the author brings the volume up to date by including references to recent work in physiological chemistry, and this without increasing the size of the volume, a somewhat difficult task to accomplish in view of the increasing amount of literature on the subject which had to be considered. As a guide to practical work in the laboratory and a reference book to keep the practitioner of medicine abreast with current developments in the domain of physiological chemistry, this volume amply fulfills its purpose. The publishers are deserving of praise for the care bestowed in making the book free of typographical errors, as well as for its compactness and ease of handling. It is essentially a student's manual, and is well adapted by its size and weight for this purpose.

Clinique thérapeutique du praticien. Par H. HUCHARD, de l'Académie de médecine, médecin de l'hôpital Necker, et Ch. FIESSINGER, membre correspondant de l'Académie de médecine. Paris: A. Maloine. 1907. Pp. 501.

In the brief preface of this practical work, the senior author duly acknowledges that it illustrates a form of collaboration in which one of two authors writes the book in its entirety, but expresses the views of both. Dr. Fiessinger, five years ago, was called to the responsible position of chief editor of the *Journal des praticiens*, which was founded in 1887 by H. Huchard, who still retains scientific control of this highly esteemed periodical. The greater part of the articles constituting this volume have already appeared in the columns of the *Journal des praticiens*, and have met with high appreciation by its readers, who will be glad to have them in a systematic arrangement convenient for reference. The subjects considered are, first, the urgent clinical procedures. This is followed by chapters on the treatment of special symptoms and underlying organic pathological conditions, such as jaundice and cirrhosis of the liver; albuminuria, œdema, uræmia, hæmaturia, etc. The relief of painful conditions, the management of cough, coma, convulsions, hicough, chronic rheumatism, dia-

betes, and a long list of special diseases takes up a great part of this compendious work, which concludes with a special chapter on affections of the heart. The remarks upon the production of 'diuresis by reduction of the liquids consumed and on the therapeutic effects of the restriction of food in cardiopathy are especially to be commended.

Modern Methods of Diagnosis in Urinary Surgery. By EDWARD DEANESEY, M. D., B. Sc., F. R. C. S., Hon. Surgeon, Wolverhampton and Staffordshire General Hospital. London: H. K. Lewis, 1907. Pp. 97.

The exact purpose of this little book is somewhat obscure. It is not by any means complete enough for the specialist, and for the general surgeon or the student it is too brief and insufficiently illustrated to serve as a guide to the elaborate modern technique of urological diagnosis. The general surgeon, to whom the book is supposed to be addressed, should be thoroughly familiar with the subjects with which it deals, especially if he essayed renal surgery. An attempt to cover the important subjects of urinary diagnosis, of physical and instrumental examination of the urinary organs, is, to say the least, audacious. How well it has been performed in this instance may be judged from the fact that catheterism of the ureters, the most important of all procedures in urological diagnosis, next to cystoscopy, receives no mention, and that the method of separation is the only method of obtaining separate urines from each kidney considered in this book. The Luys separator is used by but a few surgeons and throughout the world progressive surgeons prefer catheterism of the ureters to the uncertainty of the "separator." Redeeming features of the book are the introductory chapters on general urological symptomatology, but their contents can be found in any of the better textbooks on genitourinary diseases.

Gynecology and Abdominal Surgery. Edited by HOWARD A. KELLY, M. D., F. R. C. S. (Hon. Edin.), Professor of Gynecological Surgery at the Johns Hopkins University, etc., and CHARLES P. NOBLE, M. D., Clinical Professor of Gynecology at the Woman's Medical College, Philadelphia, etc. Illustrated by Hermann Becker, Max Brodel and others. Volume I. Philadelphia and London: W. B. Saunders Company, 1907. Pp. viii-851.

This sumptuous volume will fittingly serve as a companion to Dr. Kelly's luminous work on *Surgical Gynecology*. The editors insist with becoming positiveness on the unity of gynecology and abdominal surgery, and point with pride to the fact that gynecology takes credit for the development of the field of abdominal surgery, a fact which there has been some disposition to ignore or to dispute in recent years. They have omitted much that was elementary in gynecology, and have included, possibly, as a substitute, certain portions of the history of gynecology and bacteriology as it is related to gynecology. The latter could hardly be ignored in any comprehensive textbook at the present time.

They have introduced an essay on medical gynecology, a better term for which would be nonoperative, or office, gynecology. To some of the familiar and common operations in gynecology and abdominal surgery they have added nothing; indeed, some of these chapters were long ago closed, and nothing or very little that is new remains to be added.

The illustrations, like those in Kelly's work before mentioned, leave little to be desired, little that is possible in the shape of beautiful and accurate delineation. The impression which one obtains in reviewing such a work by numerous authors with varying style is not one of harmony and symmetry. In, though the editing is done with care, it would hardly be possible to produce

so pleasing a result as would proceed from the uniform and sustained style of a single writer, such as either of the distinguished editors.

BOOKS, PAMPHLETS, ETC., RECEIVED.

A Textbook of Physiological Chemistry. For Students of Medicine and Physicians. By Charles E. Simon, B. A., M. D., Professor of Clinical Pathology at the Baltimore Medical College. Third Edition, Thoroughly Revised. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. xix-17 to 490.

Materia Medica and Pharmacy. By Reynold Webb Wilcox, M. A., M. D., LL. D., Professor of Medicine at the New York Postgraduate Medical School and Hospital, etc. Seventh Edition, Revised. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. ix-490. (Price, \$2.50.)

Mitteilungen aus dem Laboratorium für radiologische Diagnostik und Therapie im k.k. allgemeinen Krankenhaus in Wien. Herausgegeben von Dr. Guido Holzknecht, Privatdozent für medizinische Radiologie an der Universität in Wien. Zweites Heft. Mit 1 Tafel und 33 Abbildungen im Text. Jena: Gustav Fischer, 1907. Pp. 100.

Die kindliche Psyche und der Genuss geistiger Getränke. Abhandlung für Lehrer, und gebildete Eltern nach einem in der Wiener pädagogischen Gesellschaft gehaltenen Vortrage, von Leopold Lang. Mit einem Vorworte vom Dozenten Dr. Alexander Pilcz. Mit 14 Tafeln im Texte. Wien: Josef Safar, 1907. Pp. 80. (Price, M 1.40.)

Five Hundred Surgical Suggestions. Practical Brevities in Diagnosis and Treatment. By Walter M. Brickner, B. S., M. D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, New York, and Eli Moschowitz, A. B., M. D., Assistant Physician Mount Sinai Hospital Dispensary. Second Series. New York: Surgery Publishing Company, 1907. Pp. 108.

Der Hypnotismus, sein Wesen, seine Handhabung und Bedeutung für den praktischen Arzt. Von G. v. Voss, Greifswald. Halle a.S.: Carl Marhold, 1907. Pp. 40.

Stoffwechselpsychosen. Die Störungen des Sauerstoff-gaswechsels im menschlichen Organismus. Von Dr. med. Walther Ewald, Sekundärarzt am städtischen Siechenhaus in Frankfurt a. M. Würzburg: A. Stuber, 1907. Pp. 57.

Grundriss und Atlas der speziellen Chirurgie. Von Dr. Georg Sultán. I. Teil. München: J. F. Lehmann, 1907. Pp. xv-459.

Die Einwirkung der Genussmittel auf den menschlichen Organismus, speziell auf die Verdauungs-Organen. I. Tabak, Kaffee und Tee und Verdauung. II. Alkohol und Verdauung. Von Hofrat Dr. Friedrich Crämer. München: J. F. Lehmann, 1907. Pp. 190.

Alte und neue Gynäkologie. Herrn Geheimrat Professor Dr. Franz Ritter von Winckel, zur Feier seines 70. Geburtstages. Ueberreicht von den Aerzten der kgl. gynäkologischen Universität-Poliklinik im Reisingerianum zu München. Mit 30 Abbildungen im Text und 5 Tafeln. Herausgegeben unter Mitwirkung von Dr. E. Aulhorn, Dr. R. Benndorf, Dr. H. Eltze, Dr. M. Kachel, Dr. Th. Petri, Professor Dr. Sakurai, und Dr. A. Stoecker, von Professor Dr. Gustav Klein, Vorstand der kgl. gynäkologischen Universität-Poliklinik. München: J. F. Lehmann, 1907. Pp. 174.

Practical Diagnosis. The Use of Symptoms and Physical Signs in the Diagnosis of Disease. By H. Hart Amory Hare, M. D., B. Sc., Professor of Therapeutics in the Jefferson Medical College Hospital, etc. Sixth Edition, Revised and Enlarged. Illustrated with 100 drawings and 16 Plates. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. xii-616. (Price, \$4.50.)

Index Catalogue of Medical and Veterinary Libraries. Part IV. Animals. M. R. C. V. S., 1907. Part V. Agriculture. M. R. C. V. S., 1907. Part VI. Agriculture. M. R. C. V. S., 1907. Part VII. Agriculture. M. R. C. V. S., 1907. Part VIII. Agriculture. M. R. C. V. S., 1907. Part IX. Agriculture. M. R. C. V. S., 1907. Part X. Agriculture. M. R. C. V. S., 1907. Part XI. Agriculture. M. R. C. V. S., 1907. Part XII. Agriculture. M. R. C. V. S., 1907. Part XIII. Agriculture. M. R. C. V. S., 1907. Part XIV. Agriculture. M. R. C. V. S., 1907. Part XV. Agriculture. M. R. C. V. S., 1907. Part XVI. Agriculture. M. R. C. V. S., 1907. Part XVII. Agriculture. M. R. C. V. S., 1907. Part XVIII. Agriculture. M. R. C. V. S., 1907. Part XIX. Agriculture. M. R. C. V. S., 1907. Part XX. Agriculture. M. R. C. V. S., 1907. Part XXI. Agriculture. M. R. C. V. S., 1907. Part XXII. Agriculture. M. R. C. V. S., 1907. Part XXIII. Agriculture. M. R. C. V. S., 1907. Part XXIV. Agriculture. M. R. C. V. S., 1907. 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The Seaside Hospital for Children.—The plans for the new Children's Hospital at Rockaway Beach have just been submitted to the Association for Improving the Condition of the Poor, the organization which raised \$250,000 toward the construction of this seaside institution for tuberculous children. The plans show a series of three story pavilions, surrounded by broad verandas, with accommodations in each building for 60 patients. The pavilions, fourteen in number, are placed parallel

the two pavilions at either end of the series which run parallel to the ocean. As a site for the hospital the city has agreed to reserve 1,000 feet of its new five mile beach at Rockaway. According to the Committee on Tuberculosis of the Charity Organization Society, the new hospital is the result of the successful work carried on by its sister organization for the past three years at its Sea Breeze Hospital at Coney Island. Fresh air and outdoor life combined with careful medical oversight have worked such marked changes to the majority of the one hundred and ten little cripples that have been cared for at Sea Breeze, that this experimental station soon attracted wide attention throughout the country and finally led the Board of Estimate and Apportionment to set aside the stretch of beach that will provide amply for the hospital wards, the kindergarten, and school room, the nurses' training school, and the pathological laboratory and all the necessities and conveniences which appertain to a modern hospital sanatorium and school. Among American cities, New York city will then have the first seaside hospital for the treatment of bone tuberculosis in children, as it already has the first municipal country sanatorium for consumptives.

Official News.

Public Health and Marine Hospital Service
Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending September 13, 1907:

[illegible]

Mexico—Manzanillo	Aug. 17.....	1 on SS.
Mexico—Vera Cruz.....	Sept. 5.....	San Juan.

Plague United States.

California—Berkeley	Sept. 1.....	1
California—San Francisco.....	Sept. 14.....	1
Total for San Francisco since the new outbreak to September 10, 21 cases and 9 deaths; the case and death in Berkeley was originally reported with the San Francisco cases.		

Plague Foreign.

Australia—Brisbane	July 7-25.....	3
Brazil—Rio de Janeiro.....	July 27-Aug. 10.....	16
China—Amoy	July 29-Aug. 4.....	5
India—Bombay	July 26-Aug. 6.....	Epidemic.
		24

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the seven days ending September 11, 1907.

BLUE, RUPERT, Passed Assistant Surgeon. Relieved from duty at the Jamestown Tercentennial Exposition and directed to proceed to San Francisco, Cal., for special temporary duty.

BRINKERHOFF, W. R., Director of the Leprosy Investigation Station. Excused from duty, without pay, for a period of twenty-eight days, from September 14, 1907.

CLEAVES, F. H., Acting Assistant Surgeon. Granted leave of absence for six days, from August 26, 1907, under paragraph 210, Service Regulations.

COFER, L. E., Passed Assistant Surgeon. Directed to proceed from Englewood, N. J., to Morris Heights, N. Y.

GOLDBERGER, JOSEPH, Passed Assistant Surgeon. Granted leave of absence for five days, from August 26, 1907, on account of sickness.

GRIFFITTS, T. H. D., Acting Assistant Surgeon. Granted leave of absence for seven days, from September 3, 1907, under paragraph 210, Service Regulations.

JAMES, W. F., Acting Assistant Surgeon. Leave of absence granted Acting Assistant Surgeon James for fifteen days, from August 17, 1907, revoked.

KENNARD, K. S., Acting Assistant Surgeon. Granted leave of absence for twenty-eight days, from September 10, 1907.

KORN, W. A., Passed Assistant Surgeon. Granted leave of absence for two months, from September 21, 1907, with permission to go beyond the seas.

LAVINDER, C. H., Passed Assistant Surgeon. Granted leave of absence for five days, from September 25, 1907.

NAULTY, CHARLES W., JR., Acting Assistant Surgeon. Granted leave of absence for four days, from September 10, 1907.

OAKLEY, J. H., Passed Assistant Surgeon. Directed to proceed to Seattle, Wash., for special temporary duty, upon completion of which to rejoin his station at Port Townsend, Wash.

ROBERTS, NORMAN, Assistant Surgeon. Granted leave of absence for seven days, from September 11, 1907, under paragraph 191, Service Regulations.

ROSENAU, M. J., Passed Assistant Surgeon. Granted leave of absence for five days, from September 11, 1907, under paragraph 210, Service Regulations.

W. C. P. ... relieved from duty at the Jamestown Tercentennial Exposition and directed to proceed to San Francisco, Cal., for special temporary duty.

... Assistant Surgeon Blue for special temporary duty.

... Assistant Surgeon Blue for special temporary duty.

... Assistant Surgeon Blue for special temporary duty.

WILDER, T. H., Artist, Hygienic Laboratory. Granted leave of absence for eleven days, from August 7, 1907, on account of sickness.

Boards Continued

A board of officers was convened to meet at Seattle, Wash., for the examination of alien immigrants. Detail for the board: Passed Assistant Surgeon J. H. Oakley, Chairman; Passed Assistant Surgeon M. J. White, and Acting Assistant Surgeon F. R. Underwood, Recorder.

A board of officers was convened to meet at Wilmington, N. C., for the purpose of examining cadets in the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon C. H. Lavinder, Chairman, and Acting Assistant Surgeon Thomas M. Green, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending September 14, 1907:

ARTHUR, W. H., Major and Surgeon. Granted fifteen days' leave of absence.

CROSBY, W. D., Major and Surgeon. Detailed as a member of the Army Retiring Board, appointed to meet in Washington, D. C., by paragraph 8, S. O. 239, October 9, 1906, War Department, vice Major James D. Glenan, surgeon, hereby relieved.

CULLER, R. M., First Lieutenant and Assistant Surgeon. Assignment to duty at Fort Slocum, N. Y., revoked, and instead ordered to Fort Monroe, Va., for duty at that station.

FARR, C. W., Captain and Assistant Surgeon. Relieved from further duty in the Philippine Islands, and upon expiration of present leave of absence will proceed to Fort McKinley, Me., for duty.

FLAGG, C. E. B., Captain and Assistant Surgeon. Ordered to report in person on September 17, 1907, to Major W. D. Crosby, surgeon, president of the examining board, Army Medical Museum Building, Washington, D. C., for reexamination to determine his fitness for promotion.

KIERSTED, H. S., Captain and Assistant Surgeon. Upon expiration of the leave of absence granted in S. O. 58, March 11, 1907, War Department, will proceed to Presidio of Monterey, Cal., for duty.

MORSE, C. F., Captain and Assistant Surgeon. Granted ten days' leave of absence, effective October 1, 1907.

NELSON, KENT, Captain and Assistant Surgeon. Granted four months' leave of absence.

PHALEN, J. M., Captain and Assistant Surgeon. Detailed as a member of the board of medical officers appointed by paragraph 21, S. O. 16, January 19, 1906, War Department, for the study of tropical diseases as they exist in the Philippine Islands, vice Captain P. M. Ashburn, assistant surgeon, hereby relieved.

PIPES, H. F., First Lieutenant and Assistant Surgeon. In addition to his other duties at the General Hospital, Washington Barracks, D. C., is assigned to duty with Co. C, Hospital Corps, relieving First Lieutenant J. B. Huggins, assistant surgeon, who, upon being relieved, will report to the commanding officer, General Hospital, Washington Barracks, D. C., for duty.

SMITH, L. L., First Lieutenant and Assistant Surgeon. Relieved from temporary duty at Fort Monroe, Va., and ordered to return to station, West Point, N. Y.

... Assistant Surgeon Blue for special temporary duty.

... Assistant Surgeon Blue for special temporary duty.

... Assistant Surgeon Blue for special temporary duty.

Major W. D. McCaw, surgeon.

... heretofore issued, report for duty at the stations set opposite their names.

CUTLER, R. M., First Lieutenant and Assistant Surgeon, Fort Slocum, N. Y.

GOSMAN, G. H. R., Captain and Assistant Surgeon, Columbus Barracks, Ohio.

MORSE, A. W., Captain and Assistant Surgeon, Fort Leavenworth, Kas.

YOST, J. D., Captain and Assistant Surgeon, Fort Lawton, Wash.

ZINKE, S. G., First Lieutenant and Assistant Surgeon, Fort Leavenworth, Kas.

The following named assistant surgeons are relieved from duty in the Philippines Division, to take effect at such time as will enable them to comply with this order, and will proceed on the transport to sail from Manila on or about November 15, 1907, to San Francisco, Cal., and upon arrival will report by telegraph to the Adjutant General of the Army for further orders:

Captains P. M. ASHBURN, W. R. DAVIS, J. H. FORD, G. P. PEED, W. M. ROBERTS, J. L. SHEPARD, R. M. THORNBURG, J. W. VAN DUSEN, G. McD. VAN POOLE, and R. N. WINN; First Lieutenants C. LER. COLE and J. F. SILER.

The following named assistant surgeons will report in person, on the dates specified, to Major WILLIAM H. ARTHUR, surgeon, president of the examining board, at the Army Medical Museum Building, Washington, D. C., for examination to determine their fitness for advancement:

First Lieutenants J. A. CLARK and E. D. KILBOURNE, on October 4, 1907; J. M. COFFIN and L. T. LEWALD, on October 8, 1907; S. J. MORRIS and J. W. HANNER, on October 11, 1907; L. M. HATHAWAY and W. A. POWELL, on October 15, 1907; J. D. FIFE and E. M. TALBOTT, on October 18, 1907.

The following named assistant surgeons will report in person, on the dates specified, to Lieutenant Colonel GEORGE H. TORNEY, deputy surgeon general, president of the examining board, at the General Hospital, Presidio of San Francisco, Cal., for examination to determine their fitness for advancement:

First Lieutenants J. R. HARRIS and G. H. SCOTT, on October 1, 1907; R. L. CARSWELL and P. W. HUNTINGTON, on October 8, 1907.

The following named surgeons have been appointed members of a board of officers to meet at the Army Medical Museum Building, Washington, D. C., on September 17, 1907, for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion:

Majors W. D. CROSBY, C. F. MASON, and F. A. WINTER.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending September 14, 1907.

CLAYTON, J. C., Acting Assistant Surgeon. Appointed an acting assistant surgeon, from September 5, 1907.

CURTIS, E. E., Assistant Surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to 'the Culgoa.

FAUNTLEROY, A. M., Passed Assistant Surgeon. Detached from the naval station, Tutuila, Samoa, and ordered to the Naval Hospital, Mare Island, Cal.

GUNNELL, F. M., Medical Director, retired. Detached from duty as senior member of the naval examining and medical examining boards, Washington, D. C., and ordered home.

HOUGH, F. P. W., Acting Assistant Surgeon. Detached from the Naval Hospital, Annapolis, Md., and ordered to Washington, D. C., September 16, 1907, for examination for appointment as assistant surgeon in the Navy, and then to await orders.

MYERS, T. D., Passed Assistant surgeon, retired. Detached from duty in connection with the Naval Medical School, Washington, D. C., and ordered home.

PRICE, A. F., Medical Director. Detached from duty as a member of the naval retiring board, Washington, D. C., and ordered to continue other duties.

ROSEITER, P. S., Passed Assistant Surgeon. Detached from the Naval Academy and ordered to the Naval station, Tutuila, Samoa.

STIMMENS, F. H., Assistant Surgeon. Detached from the Naval Hospital, Annapolis, Md., September 11, 1907.

22nd, and ordered to instruction in the Naval Medical School, Washington, D. C.

STRAETEN, R. J., Assistant Surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to instruction at the Naval Medical School, Washington, D. C.

WELLS, H., Medical Director. Detached from command of the Naval Hospital, Boston, Mass., and granted sick leave for three months.

Births, Marriages, and Deaths.

Born.

McANDREW.—In Jolo, Philippine Islands, on Wednesday, July 17th, to Dr. Patrick H. McAndrew, United States Army, and Mrs. McAndrew, a son.

Married.

AYDELOTT—KISSICK.—In Lewis County, Kentucky, on Wednesday, August 28th, Dr. Charles U. Aydelott, of Cincinnati, and Miss Margaret Kissick.

BETSON—CLARKE.—In Laurel, Delaware, on Wednesday, September 4th, Dr. George W. Betson and Mrs. Ida Clarke.

BOYER—LE TOURNEAU.—In Marlboro, Massachusetts, on Wednesday, September 11th, Dr. Joseph Napoleon Boyer and Miss Seraphine Celia Le Tourneau.

BOYLE—STOKES.—In Washington, D. C., on Thursday, September 5th, Dr. Edward M. Boyle and Miss Bertha D. Stokes.

KERNAN—SHERRILL.—In Lee, Massachusetts, on Wednesday, September 4th, Dr. John Devereux Kernan and Miss Charlotte Foote Sherrill.

MORRIS—CARTER.—In Baltimore, Maryland, on Tuesday, September 10th, Dr. Roger S. Morris and Mrs. Mary B. Carter.

MOUNTJOY—SCHOLZ.—In St. Louis, Missouri, on Tuesday, September 3rd, Mr. J. Leroy Mountjoy and Dr. Grace Scholz.

NICHOLL—KNIGHT.—In Philadelphia, on Wednesday, September 11th, Dr. William S. Nicholl and Miss Margaret J. Knight.

Died.

ADLER.—In San Francisco, California, on Tuesday, September 10th, Dr. Alexander Adler.

BOWERS.—In Columbus, Texas, on Thursday, September 5th, Dr. John Henry Bowers, aged eighty-nine years.

BOYER.—In Philadelphia, on Monday, September 2nd, Dr. John H. Boyer, of Moreauville, Louisiana, aged thirty-three years.

HILL.—In Providence, Rhode Island, on Monday, September 9th, Dr. Lester Seneca Hill, aged sixty-three years.

JACKSON.—In Barrie, Vermont, on Friday, September 13th, Dr. John Henry Jackson, aged sixty-three years.

LEWENGOD.—In New York, on Monday, September 9th, Dr. Samuel Lewengood, aged forty-five years.

MARKOE.—In New York, on Friday, September 13th, Dr. Francis Hartman Markoe, aged fifty-two years.

MARTIN.—In Los Angeles, California, on Wednesday, September 4th, Dr. Samuel J. Martin, aged sixty-nine years.

MILES.—In Denver, Colorado, on Sunday, September 8th, Dr. Timothy Willis Miles, aged fifty-eight years.

MURPHY.—In Morgantown, North Carolina, on Wednesday, September 11th, Dr. P. L. Murphy, aged fifty-eight years.

PUICK.—In Justin, Texas, on Tuesday, September 3rd, Dr. Wade Puick.

SHEPARD.—In Brooklyn, on Sunday, September 8th, Dr. A. Warren Shepard, aged seventy-five years.

SWASEY.—In Portland, Maine, on Thursday, September 12th, Dr. John H. Swasey, aged fifty-seven years.

SWIFT.—In Goshen, Arkansas, on Friday, September 6th, Etta Swift, wife of Dr. C. E. Swift, aged thirty-two years.

TAYLOR.—In Providence, Rhode Island, on Wednesday, September 11th, Dr. Vernon O. Taylor, aged sixty years.

WOLF.—In East Berlin, Pennsylvania, on Monday, September 9th, Dr. F. Calvin Wolf.

Original Communications.

DERMATITIS EXFOLIATIVA NEONATORUM (RITTER'S DISEASE),

With Report of a Case.

BY EDWARD P. CARLTON, B. S., M. D.,
Chicago, Ill.

Fellow of the American Academy of Medicine.

Dermatitis exfoliativa neonatorum is defined as an acute disease of infants, which is accompanied by few constitutional symptoms, and characterized clinically by an erythema, slight turgescence of the skin, and a variable amount of exudation, which is followed by exfoliation of the outer layer of the epidermis.

History, Etiology, and Pathology.

Ritter von Rittershain (1), in 1878, reported 297 cases of this disease. In 1868 and 1870 he described cases, but under a different name; 165 were males, and 132 were females. He considered it pyæmic in nature, and the disease was evidently epidemic for ten years in the institution under his supervision.

Boeck (3), in 1878, described a rare case of pemphigus neonatorum, which undoubtedly was a case of Ritter's disease. He made a post mortem examination, and examined specimens of the epidermis histologically. The result of the post mortem examination was negative, and the only findings microscopically were dilatation of the vessels of the papillæ, and the absence of cell infiltration. No marked cellular proliferation of any kind was noted.

Kaposi (4), in 1881, asserted to have seen many cases, and said it was described by Hervieux, Billard, and others, but he confounded it with pemphigus. He did not consider it a pyæmia, but an increased physiological desquamation. Later (1889) in his textbook he includes it with Köbner's epidermolysis hereditaria bullosa, as a traumatic vesicular formation in a skin which is congenitally irritable and inflammatory.

Bohn referred to it in Gerhardt's *Handbuch der Kinderheilkunde*. He stated that he had seen a few cases.

Weyl (5) described it in 1883, and Brocq (6), in the same year referred to it as a kind of pemphigus.

Caspari (7) reported one case in 1884. He objected to calling it a dermatitis from the absence of fever. He considered it an epidermolysis of unknown nature, with secondary hyperæmia and an acute disturbance of nutrition. His case was preceded by an acute septicæmia, and accompanied by intestinal disease.

Elliot (8) reported five cases in 1888, and gave an extended description of two, with a bibliography. He reported another case in 1892. In one case the disease was preceded by an eczema. In the second case described, the mother, during the last four or five months of pregnancy, suffered from an itchy skin eruption. It had disappeared two weeks before labor. It consisted of "little blisters" on the extensor surfaces of the arms and thighs. He considered it an epidermolysis caused by acute disturbances of the nutrition of the upper, nonvascular portion of the epidermis.

Hallopeau (9) reported a case before the Dermatological Society of Paris in 1892.

White (10) reported one case in 1895. Ten days after the baby's birth the mother and child were both exposed to carbon monoxide gas, and the mother showed symptoms of poisoning for twenty-four hours. The child was drowsy, presented symptoms of bronchial irritation and lividity. Two days afterward an eruption appeared, and White considered it as a possible vasomotor disturbance, due to the asphyxia.

Martin, in 1895, reported a case of which I can find no record.

Escherich (11), in 1895, discussed the disease before the Grazer Dermatological Congress, and reported five cases. Rille discusses three of these cases. He does not consider it a primary inflammation. Two cases showed umbilical infection, one pneumonia and others intestinal infection.

Deland (12), in 1896, reported one case. When the mother was seven months pregnant her youngest child, three years old, had scarlatina. He considered Ritter's disease an intrauterine exanthem, the cutaneous lesions only being manifested after birth.

Pagliari (13) reported a case in 1897 with the results of histological examination. He noted abundant infiltration of the papillary bodies and the sweat glands.

Winternitz (14) reported three cases in 1898. In the first case, the mother, during the previous (second) pregnancy, suffered from purulent parametritis, and fourteen days before the end of the third pregnancy her two children had an itchy exanthem, presenting some large vesicles, with pus. The second case was preceded by a slight infection of the conjunctival sac. He considers the disease as having four possible causes: 1. A local infection, with bacteria; 2, an irritation of the central vasomotor apparatus; 3, an increased physiological process; and 4, a nutritional disturbance of the upper por-

vascular layer of the epidermis, with the point of attack in the corium. A careful histological examination showed the following: Loss of the horny layer of the epidermis, the cells of the rete mucosum were swollen, but the nuclei were usually seen. The vessels in the papillæ were dilated. Round cells were never noted in considerable numbers and bore no relation in number to the loss of the epidermis. The epithelium surrounding isolated papillæ was infiltrated with round cells; likewise some of the hair bulbs and sebaceous glands. The sweat glands were not affected. Blood was occasionally noted in the epithelium, in certain places extending to the outer surface. The changes in the epithelium were due to epithelial growth from increased nutrition. Only rarely was the entire epidermis lost, exposing the corium. The bullæ were produced mechanically, by traction, the exudate filling the space produced between the horny layer and the rete. No scarring results unless there is some complication. He noted

which is considered a toxic erythema in which the eruption is determined by the peculiar tendency of the child's skin to desquamate at this period. The physiological exfoliation may be delayed, or prolonged, as by enteritis, etc. He thinks the inflammation in the papillæ acts as an irritant to the rete cells, which are also offered increased nutrition. Increased physiological desquamation is the result. The erythema, in short, he regards as toxic, from the enteritis. He concluded, from histological examination of the tissues, that there was abnormally strong proliferation of the lowermost cells of the rete, with deficient cornification of the outer layer. The throwing off of this imperfectly-formed outer layer, composed mostly of nucleated cells, was the result. The papillæ were swollen, the vessels of the same were dilated, and some of the papillæ showed infiltration, with small cells, leucocytes, and mast cells. Spindle cells were occasionally noted. To a less extent, the subpapillary tissue and the upper



Dr. Carlton's case of dermatitis exfoliativa neonatorum.

a widely spread inflammatory oedema of the corium, especially of the papillary and subpapillary portion. Blood and lymph vessels were dilated. The round cell infiltration was insignificant, and when present mostly around the papillary and subpapillary vessels, and never a thick infiltrate. Capillary hæmorrhages were occasionally seen, due to injury. No inflammation sufficient to explain them was noted. The papillæ were increased in size, and their boundary lines often indistinct. Mast cells were not numerous, and the round cells were more frequent under parts of the skin showing least loss of epidermis. The elastic tissue showed slight oedema, and stained less readily. In many places the connective tissue cells were increased. The results of the two post mortem examinations were practically negative.

Prissmann (15) reported one case and Arning (16) two cases in 1898. Arning's cases were twins. The mother of Prissmann's case was a syphilitic, and the disease began as an eczema intertrigo.

Luitlén (17) reported two cases in 1899. The first case suffered previously from an intertrigo of the neck, and on entering the hospital had an intestinal affection. He lays stress, from an ætiological

point of view, on the importance of the dilatation of the deep vessels he considered secondary.

Das (18) reported a case in 1899.

Bender (19) reported three cases in 1900. He does not consider the disease primarily an inflammatory exudation of the cutis, and it does not agree in origin with a vesicular exanthem, but growth and exfoliation may follow this inflammation. The changes in the corium are regarded as the result of changes in the epidermis. The primary cause he considers a disturbance of the trophic nerves, or of the circulation. There may be an inherited predisposition. He does not regard it as a pyæmia. The results of histological examination of the tissues did not differ materially from those of the previous investigators. He noted a lack of plasma cells, and any indication, or marked indication, of inflammatory infiltration. The connective tissue of the cutis and subcutis was thickened, but the entire derma was diminished, as a result of drying and necrosis in the upper layers. He considers the exudate as produced by irritation of the derma, and the serous, or serocellular infiltration of the cutis as produced in the same manner, and accompanied by a dilatation of the vessels and a flattening of the papillæ.

Stelwagon (20) reported a case in 1902. He does not consider it an intrauterine exanthem.

Baker (21) reported a case in 1906. He regarded it as a pyæmia resulting from umbilical infection.

The case which I report gave an absolutely negative history.

Several post mortem examinations have been made with few findings. Bacteriological investigations have not yielded definite results. In reviewing the cases reported since 1878 about one half were preceded by eczema, intestinal irritation, or umbilical infection (about equally divided).

Symptoms.

I. Prodromal.—Ritter noted dry, scaly skin in a few cases, which occasionally persisted after the attack. Other symptoms noted have been redness around the mouth, with slight fissures; irregular, mostly confluent patches in the median line on the palate, indicating loss of epithelium, which is covered with a thin, grayish white exudate. It is probably similar to the eruption on the external surface. The entire mucous membrane may be reddened, and miliary plaques of exudate have been noted on the gums.

II. Time of Appearance of Eruption.—Rarely before the end of the first week; especially between the second and the fifth weeks. Winternitz cites one case on the fourth day.

III. Invasion.—It is usually acute, spreads rapidly, and in thirty-six to forty-eight hours has reached the extremities.

IV. Intensity.—This varies, and is usually not severe enough to be fatal unless there is some complication.

V. The Eruption.—This appears suddenly as an erythema, accompanied by a slight turgescence, due to the hyperæmia. It usually appears first on the lower part of the face, especially about the mouth, and from this point spreads over the cheeks, forehead, neck, chest, abdomen, and extremities. My case began above and below the clavicles, extending from there to the face, and downward onto the trunk. It may appear in several patches, or may be generalized from the first. In nearly all cases, however, the extremities are the last to be attacked. At first it may be localized at other places than on the face, later becoming generalized, but extension is always rapid. In Stelwagon's patient it began in the flexures of the genitocrural region. The mucous membranes of the nose and mouth are frequently involved. In one case a few vesicles were noted in the mouth. Fissures are frequent at the angles of the mouth, and all mucous outlets of the body. The eyes may present mild conjunctivitis, with photophobia, and a slight mucopurulent secretion; fissures may form at the canthi. The color of the skin varies from a light to dark purplish red. Vesicles and bullæ are not common; the latter are never tense, and are produced mechanically, even when the exudate is considerable they are flaccid. In areas where no bullæ or vesicles are noted and the exudate is sufficient, large areas of epidermis may be slid and moved along by pressure from the examiner's hand.

VI. Exfoliation.—The deeper layers of the rete and corium are seldom exposed, and therefore scarring does not result, unless there is pyæmia, etc. The exfoliation consists in the throwing off of the

outer horny layer of the epidermis. It begins, as a rule, where the erythema was first manifested. Some clinicians state that it may occur without any exudation, but this seems doubtful. In some cases the exudation is more than in others, and the exudate may accumulate in crusts. Slight friction usually removes the exfoliating epidermis; in some cases large areas of skin may be removed in the form of casts, as of the hands and feet. The surface exposed is reddened, has a glazed appearance, somewhat resembling a burn. There is very little oozing, but some places may be moist and excoriated. In some cases the exfoliation is comparatively dry, and the child has a scaly appearance. It may look pitiable, but not be very sick. Cases with little exudation require a longer time to exfoliate. In Baker's case the hair was lost. Loss of the nails was reported in one case.

VII. Regeneration.—Unless complicated, it is rapid. The skin for a time may be scaly or irritable. In fatal cases it may appear like parchment, or areas of gangrene may appear, or it may be sodden, moist, and have a dark color.

VIII. The Course.—The disease usually runs its course in from seven to ten days. Severe cases may last a month or longer. Complications and sequelæ prolong the disease.

IX. Relapses.—They are rare, but undoubted cases have been noted. They are always milder than the first attack, and disappear in from two to four days.

X. Fever.—With the exception of seven cases, the disease has run its course without fever, unless complicated. Winternitz's second patient had a fever of 105° F., which may have been explained by salve, clothing, and intestinal complication, as this complication was most intense at the time of the greatest eruption. The bowel affection he regards possibly as similar to the external eruption, but involving the intestinal mucosa. It was characterized by frequent, watery, and odorless bowel movements of the normal color. In Das's case a fever of 103° F. was noted for one day. The bowels were affected in this case also. In Bender's cases, a fever of 106° F. was noted in the first patient and 103° F. in the second. Four of Ercherich's five patients had fever. My patient showed no fever throughout its attack.

XI. Systemic Disturbance.—There is usually none during the invasion, eruption, or the exfoliation, unless there is a complication. Marasmus and sequelæ may be fatal after the disease has run its course. In several cases gastrointestinal symptoms have been noted during the course of the disease, and as they occurred without fever, some have regarded them as a symptom of the disease, and not a complication. When the disease is at its height, the child is usually irritable, may not sleep well, but nurses, and the weight is maintained; in some cases a gain in weight has been noted.

XII. Complications.—Ritter speaks of icterus, which Pagliari mentions in his case also. The eye complications may be serious. The lids may be affected and the cornea exposed. Anæmia results, which may be followed by purpuric eruptions of the skin and hemorrhages. Elliot reports a fatal case from hemorrhage of the eye. Thrombosis is a fairly frequent complication. Erysipelas and ascaris are

not frequent. Diarrhœa has been noted in several cases, apparently not due to intestinal infection, as there was no fever or vomiting.

XIII. Sequelæ.—General furunculosis, abscesses, and circumscribed areas of gangrene are the most frequent. Eczema, seborrhœa of the scalp (Deland), and chronic diarrhœa have been noted. Marasmus may appear after all skin lesions are healed.

XIV. Death.—It may be due to the intensity of the attack, as in one of Bender's cases, or a result of complication by other diseases, or due to sequelæ.

Prognosis.

The prognosis is grave. About 50 per cent. of the patients reported have died. Ritter's mortality (1868-1878) was 48.8 per cent. for 297 cases. Of the cases reported since (1878-1907), 13 patients have recovered and 16 patients have died, making a mortality of 55 per cent. The outcome of four other cases is unknown.

Distinctive Diagnosis.

The author is not a dermatologist, and will not therefore give a detailed description of the various diseases which may be mistaken for Ritter's disease. The diseases to be excluded are generally stated to be erythema neonatorum, erysipelas, acute eczema, pemphigus neonatorum, and syphilis. The general practitioner will be most confused in distinguishing it from pemphigus neonatorum. Good descriptions of this disease, however, may be found in the textbooks on dermatology, and it is better to consult these carefully when a case is suspected, rather than to try to memorize the distinctive features of two rare diseases. I have included several cases which Luthlen and others would exclude, but the number of cases recorded is still too small to generalize from, and every practitioner knows of the great variations in the common diseases in infancy.

Treatment.

Unless there is complication, the treatment consists of good nursing, and protecting the patient by careful hygiene. In my case no medicine was given internally, whatever. The usual treatment recommended externally consists in the use of mild antiseptic powders, or bland oil, which may also have an antiseptic added to it. Where the exudation is considerable, it is best to try to delay the exfoliation until the epidermis has regenerated underneath. Complications require their usual treatment, but the patients are young, and careful nursing is more important than medicine.

The report of my case is as follows:

On October 14, 1905, I was called in the evening to attend Mrs. T. M. during confinement, at Keyeser, Wisconsin. The child was born at 3 a. m. on the 15th, left occipitoanterior position, and the placenta was removed by the Crédé method at 3.45 a. m. The labor pains were not severe, and the mother was in good condition after the birth of the child. It was her third child; the two previous labors were normal, not especially severe, and the children were living and healthy. She was a healthy young woman of Danish parentage; her mother a healthy young Scotchman. Both gave absolutely negative histories. The baby was a girl weighing about eight pounds, well formed, and vigorous. The umbilical cord was carefully tied, cut with sterile scissors, the stump was treated with alcohol, followed

with boric acid. It was then folded in dry, aseptic gauze, and separated normally, without infection or suppuration. The puerperium was uneventful.

On the 28th of October, thirteen days after birth, the father came to the office and asked for some dusting powder, saying that in the morning the mother thought the skin appeared redder than it should. I gave orders to discontinue bathing for a day or two, and gave him a dusting powder composed mostly of starch, with a little talcum and boric acid added, and told him to report at once if the child did not get better.

I heard nothing more of the case until November 2, when I was called to see the child. It presented a pitiable appearance, but was evidently in good condition, and this the parents gave as their reason for not calling me before. The temperature was normal, respiration not accelerated, and the pulse was of good strength. They first noticed the redness on the 28th of October, on the left side of the "neck," above and below the clavicle, extending onto the chest, anteriorly. The right side of the neck next showed an erythema, and then the forehead, face, arms, legs, and hips, in the order named. On November 2nd I found the eruption covering the face and forehead, and body anteriorly and posteriorly, the arms and just below the elbows, the thighs and extending a little below the knees. Above and below the clavicles, over the shoulders, on the buttocks, and on the back, the exudation was more noticeable, and the outer layer of the epidermis was noticed to be loosened. On the face there was very little exudation; also on the abdomen, with the exception of the epigastrium, where the greatest exudation noticed was found. On November 3d the erythema had extended to just above the wrists, and about to the ankles, on the extremities. The photograph was taken on this day, which was the sixth day after the redness was first noticed. Exfoliation was taking place rapidly on the arms, thighs, neck, face, abdomen, and back. In the folds of the neck and over the epigastrium there were several large, flaccid, bleblike areas. The child could hardly be held by the mother without loosening large areas of epidermis. The scalp showed, on inspection, an exfoliation similar to the other parts, but the epidermis was adherent to the hairs, and seemed to be raised up somewhat into small vesicles.

I saw the patient frequently. There were no bullæ at any time on the plantar or dorsal surfaces of the feet. The horny epidermis rolled off in large casts. The hands showed an erythema on the 4th of November; exfoliation began on the 7th; on the 8th the horny epidermis separated in large casts, which were removed without difficulty. The gums showed small ulcers on the 6th of November, but these did not increase in size, and had not increased in numbers on the 8th of November.

The further history of the case was uneventful. Exfoliation of the entire body surface was complete about the 15th of November, but the skin was still reddened. At no time, or on no part, was exudation sufficient to cause bullæ. Only over the epigastrium and in the folds of the neck was it sufficient to produce flaccid blebs, which were followed by a small amount of crusting.

There were no intestinal complications; there was no fever; no loss of weight; no complications, and no sequelæ. The child was irritable for two or three days, and was sleepless for this time, but nursed readily, and no medicine was given. I saw the child at intervals until May, 1906, and during that period the child was healthy. The eyes, during the exfoliation, showed a slight conjunctivitis, with a slight mucous discharge. The nose presented fissures, with a slight excoriating discharge.

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283 WEST ADAMS STREET.

IN MEMORIAM OF PROFESSOR J. J. GRANCHER.
OF PARIS, FRANCE, 1843-1907.By S. A. KNOPF, M. D.,
New York.

Professor Grancher, of the faculty of medicine of Paris, whose recent death was announced in nearly all the leading medical journals of the world, has been so great and unique a figure in modern medical science that I deem it not only a privilege, but a duty to place before the American medical profession the story of his life.

Joseph J. Grancher came from humble parentage. He was born in 1843 in the little town of Felletin in the department of La Creuse, France. In 1860 he came to Paris working first to obtain his degree as bachelor of art and science, and then becoming a student at the faculty of medicine. In due course of time he became externe, then interne, and in 1873 brilliantly passed his examination as doctor of medicine, submitting as thesis a work on the pathological unity of tuberculosis. This was at a time when the duality of tuberculosis (distinction between simple tuberculosis and so-called caseous pneumonia) was taught and defended by such men as Virchow, Reinhard, and Niemeyer. In his thesis *L'Unité de la tuberculose*, Grancher showed convincingly by his histological demonstration of lesions in both diseases that pathologically they were identically the same.

He thus verified what had been taught by Laënnec a generation before, and what ten years later (1883) became an indisputable fact through Koch's great discovery of the tubercle bacillus. Shortly after passing his doctor examination Grancher was invited by Professor Tillaux, then director of the school of anatomy at Clamart, to take charge of the histological laboratory, which had been newly created. There young Dr. Grancher attracted large and enthusiastic audiences, mainly composed of hospital internes and externes, who came to listen to his admirable lectures on histological pathology.

In 1875 Grancher passed brilliantly in the *concours d'agrégation* and thus became professor agrégé (adjunct professor). Eight years later, when hardly forty years old (which is very young for a Paris professorship), he was elected professor, succeeding Parrot in the chair of diseases of children.

Grancher was an ardent disciple and favorite pupil of the immortal Pasteur, and to the former much



T. J. GRANCHER.

credit is due for the propagation of the Pasteurian doctrine.

As a clinical teacher Grancher had few equals. His children's clinic was one of the most frequented of all the Parisian clinics. He varied his subjects, was always clear and comprehensive, and free from all oratorical efforts. His clinics were always interesting and his methods inspiring. His demonstrations of the physical means (inspection, palpation, percussion, and auscultation) to diagnose an incipient pulmonary tuberculosis, were marvels of precision and clinical teachings. His monumental work, *Les Mécanismes de l'appareil respiratoire*, contains his principal lectures on tuberculosis. The latter theme was always his favorite one. He has written on hydrophobia, fermentation, pneumonia, and all the diseases of childhood, but the one subject he wrote and taught most about was always tuberculosis.

And this brings us to the tragedy in the life of this remarkable man, and explains perhaps also his

predilection for the study of the pathology diagnosis, prophylaxis, and treatment of this disease of diseases.

Grancher contracted tuberculosis at the age of thirty and fought it in himself for more than three decades. He never completely mastered it and finally succumbed to an attack of the grippe, complicated by double pneumonia. His tuberculous trouble had, doubtlessly, made him more vulnerable to an invasion of the grippe bacillus and pneumococcus. Had he been less ambitious, had he been less eager to do a great life's work, had he taken the cure as he prescribed it for others, Professor Grancher, like Brehmer, Dettweiler, and many other European and American physicians, formerly tuberculous, might have been a living example of the absolute curability of pulmonary tuberculosis. Instead of striving for a complete cure he contented himself to live just carefully enough to be able to do his great work as a scientist, teacher, physician, and humanitarian.

If he suffered no one but himself knew, he never complained. His placid countenance never betrayed emotion, psychical or physical suffering.

Professor Grancher was a man difficult to approach; he seemed cold, almost unsympathetic. Tall of stature, pale, emaciated, bald, and of ascetic appearance, he was a man of few words. He made a particularly impressive appearance when wearing the red silk robe and cap, the insignia of his grade as professor, at examination times.

It was my privilege to have had Professor Grancher as presiding judge of those before whom I was called to defend my thesis for the final degree. This was more than twelve years ago, but I vividly recall some very anxious moments of that day. Professor Grancher was the last of the four judges to speak and to pass on the merit of my thesis. He began by severely criticising the shortcomings of my work which made me feel fearful of the outcome of the ordeal. All of a sudden his manner changed, perhaps he had seen some redeeming features in my essay after all. At any rate, with a kindness and gentleness I had never expected to find in this man with a face of a Spanish monk of inquisition times (as Professor Letulle describes him in his eulogy), the august president congratulated me on my humble efforts in behalf of modern phthisiotherapy and welcomed me into the ranks of those endeavoring to fight the great white plague. In giving me my rating for the final degree, he proved a just, kind, and lenient judge.

I have since had occasion to see more of the man Grancher, I have learned of his many kind deeds done in secret and his deep humanitarian interests in the antituberculosis crusade. Of this interest his and Madame Grancher's *L'Œuvre de préservation de l'enfance contre la tuberculose* is the best possible proof. To this noble work destined to prevent children predisposed to tuberculosis, either by heredity or environment, from developing the disease, they have devoted a large portion of their wealth. Professor Grancher consecrated to the protection of the children the best efforts of his last years. Professor Maurice Letulle, in his touching tribute to Grancher, relates that the departed master's last thought was for this work and his last prayer was that this

saving the children may be carried on by his widow, his other surviving relatives, friends, and pupils.

I saw Professor Grancher the last time two years ago, at the occasion of the Paris Tuberculosis Congress. He spoke enthusiastically about *L'Œuvre de préservation*, expecting great good to come of it. The universal adoption of such methods he considered one of the greatest weapons to attack the foe.

He promised me to come to our Washington Tuberculosis Congress in 1908. He longed to see the new world as he called the United States, and wished to visit our tuberculosis institutions of which he had heard so much. Now we shall not have with us this master of tuberculosis who has done so much for the better understanding of its pathology, its diagnosis, its prevention, and its treatment.

In his own life he demonstrated how, by careful hygienic and dietetic treatment and management, the disease can be arrested and life prolonged and made comfortable.

To those who like to ascribe to the tuberculosis patient peculiar mental characteristics, incompatible with success and useful labors, to those who carry their phthisiophobia so far as to express a desire for the complete isolation and ostracism of such patients, the life of Professor Grancher shows the folly, not to say cruelty, of their views.

The world is better, science and humanity richer because a Laënnec, a Stevenson, a Brehmer, a Dettweiler, and a Grancher have lived. All five were consumptives, yet who would dare to question their sanity to the last, their high quality as physicians, scientists, philosophers, poets, and the inestimable services they have rendered to humanity at large?

16 WEST NINETY-FIFTH STREET.

AUTODERMIC GRAFTING OF THE HAND FOR DEFORMING CICATRIX.

By ROCCO BELLANTONI, M. D.,
New York.

CASE.—P. C., a girl of five years, sustained, at the age of three months, severe burns of the palmar region of the right hand. Treated in a hospital, she recovered after a stay of over one month, the wound leaving a



FIG. 1.—Position of the finger before operation.

deforming cicatrix, as the ring finger remained retracted in such a position that the first phalanx was bent over the metacarpus and the two other phalanges were resting in the palm of the hand.

The first photograph does not represent her hand before she was operated upon, as the picture was taken

after the operation had been performed, but the appearance of the finger was similar to that before the operation. A first operation had been performed some time after the accident, but without any practical result. The exact modus of operation could not be well ascertained. Dr. Viggiani, who saw the child in 1906, five years after the burn, operated upon her, opening part of the cicatrix



FIG. 2. Hand eight days after operation.

and forcing the ring finger with a bandage into its proper position. But the finger soon resumed again its first misplaced position. This condition of the finger, beside deforming her hand, prevented all useful movements.

The parents, observing that the girl was unable to use her right hand at an age when it was necessary to develop every faculty, intellectual and physical as well, were prepared to accept any measure, provided it would restore the normal functions to the hand of the girl, and consented to disarticulation of the finger.



FIG. 3. Hand one month after operation.

Operation. I examined the child with Dr. Viggiani and advised the plastic operation. This proposition was accepted by the parents and I and Dr. Viggiani performed the operation on January 11, 1906. After the removal of the entire cicatrix we grafted two pieces of the skin, taken from the anterior and lateral region of the arm of the same child, upon the denuded area. The cicatrix reached down to the tip of the finger and in the palm to the gastrocnemius pulcrum. Our intent on

in placing two grafts was to diminish the secondary retraction in the process of recovery. The grafts were placed in such a manner that their union corresponded to the line of the metacarpal bones, so that the cicatrix between the grafts produced the least possible impediment.

The after treatment during a period of more than a month consisted in bandaging, keeping the finger in a slightly forced extension. When the new cicatrix was formed massage was practised every day, and this and the extension bandage were continued until the union of the two grafts was assured.

The girl, after one year and a half, is using her hand very normally.

371 and 373 BROOME STREET.

HOW FAR MAY THE GENERAL PRACTITIONER EMPLOY AND BENEFIT FROM LABORATORY METHODS OF DIAGNOSIS?*

By ROBERT N. WILLSON, M. D.,
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Twenty years ago the laboratory side of medicine was a force feebly reaching out for recognition. Its eyes were not yet open. It appeared to be the product of an abnormal, and perhaps of an unhealthy, conception. During its early years it was a marantic, weakly offspring. Its enemies were so numerous and so relentless that they had well nigh done it to death before it began to live. It was left shivering on the doorstep of the general practitioner by Edward Jenner one morning in the latter part of the eighteenth century (1780-1798). To-day it is a rank growth, forcing its leaves and branches in every direction, until its truest friends are forced to inquire whether medical science would not be better conserved by a judicious pruning, and by the application of the gardener's knife and the straightening rod. Certain it is that the clinician stands aghast before the assertions of the thoroughbred laboratory disciple. In return the scientist finds the clinician often unnecessarily irresponsible and indisposed to encourage advances that threaten the proprietorship of his domain. Equally galling are the condescension with which many laboratory exponents look over their glasses upon bedside methods, and the uncompromising hauteur with which the dyed in the wool clinician gazes through and beyond them. To the every day doctor of the old school, who knows his limitations, but also realizes his power, there would seem to be no midground for mutual cooperation and approval!

In response to your call I venture to address you briefly to-day as a student of internal medicine, pure and simple, including, as that term must always do, primarily an accurate diagnosis, very little therapeutics, abundant intelligence and common sense, and every scientific method of diagnosis and treatment that can be proved to be practical and available for general use. I have the heartiest respect for him who resents the employment of other means of diagnosis than those which Nature has furnished him in eyes, fingers, and nose. I sympathize with and admire him, because he accomplishes so much, when seen at his best, from so imperfect a vantage ground.

Years ago, however, was decided the race between the steam engine and the General coach.

* Read by invitation before the Medical Society of New Jersey, June 20, 1905.

Not long after was settled the controversy between the microscope and the naked eye. Still more recently have the essential humors given way before bacterial and autotoxines. With each new life and death has come the conviction that new fields are opening that stretch beyond old powers of vision. Yet each era has been sufficient for its own difficulty. Each problem has found its key! With the change in time has come the consciousness that there are aids at hand that tend to celerity, accuracy, and finesse. Only Balaam's steed congratulates himself that he is an ass rather than a man. Only he whose lens has become amber clouded and dim fails to note all that may be accomplished by employing the means that are ready to hand. And yet, how far to indulge; how deep to submerge oneself in the swiftly flowing river of modern methods and new ideas; and how to discern the good and discard the worthless without loss of precious time—ay, there's the rub—without loss of time and enthusiasm; this is a master problem which cannot be studied without profit by you and me. This is, by the way, an area over which waves a flag of truce, and on which radical and conservative may well rest from the combat, and learn by arbitration to cement an alliance that will be as pregnant with good as it has been long delayed. Owing to the thickness of the smoke of battle and to the dimming of the eyes by the sweat of exertion, the contestants have overlooked the possibility of good in one another.

Had I time and space I should like to discuss the value and availability of laboratory methods for the general practitioner from the standpoint not only of diagnosis, but of treatment, and prognosis, and of the correlation of all three. Since this is beyond the possibilities of both time and patience, I choose the more important field, that of the diagnosis of disease.

At the start let me say that I am convinced there is no condition known to the doctor that can be diagnosed completely and exclusively by means of olden methods or by the new. We have, for example, left behind—I trust far behind—the willingness to pronounce a given case one of heart or kidney disease while remaining ignorant, and satisfactorily ignorant, of the fact that other organs are at that very time primarily or secondarily involved, and of their importance as factors in the final verdict. Heart disease and kidney disease are only partial diagnoses. Arteriosclerosis is often the underlying cause of one or both, and it may be that in the given case this condition cannot be discovered either by finger or eye, and yet appear plain through the ophthalmoscope, the microscope, and the test tube. We are also beginning to react, let us hope, from that recent state in which many have seemed content with a diagnosis partially arrived at through laboratory methods, to the neglect of the far simpler, and even more indispensable employment of Nature's contribution to the physician's equipment, the hand, ear, and eye. I am personally more than willing to concede that certain of the laboratory procedures now in vogue are of greater influence in the display of one's bedside importance than in actual benefit to the patient or his physician. The principle I would lay down and reiterate is this—*and I hope that I need not be misunderstood—*we

must employ to the full measure of its utility every available help to a knowledge of the precise condition under diagnosis or treatment. Once grant the truth of my premise that every known aid to accuracy must be utilized, and I shall lead you to the main object of this discussion, the practicability of scientific methods for the physician, wherever and under whatever circumstances he may be found. Let me submit another proposition that will hardly invite criticism. The first years of the medical man's life offer little prospect of comfort or ease, and occasionally afford not even a return that guarantees the daily bread. I would suggest the scientific side of medicine as the logical as well as the most promising legitimate means of support for the young man, and an avenue to success that appears broad and smooth beside the rocky, winding path up the mountain which our fathers have climbed and are climbing still. Let me ask of myself and you three questions, and in their brief answers lay the subject before you and those who come after in what appears to me a businesslike way:

I. Are laboratory methods useful and necessary in the diagnosis of disease?

II. To what extent are laboratory methods available for the general practitioner? and

III. Can laboratory methods be used by the well equipped physician as a means to dignity and self support?

I. Are laboratory methods useful and necessary in the diagnosis of disease?

This question resolves itself at once into the following: Do the uranalysis, the study of the blood, sputum, and feces, of the spinal fluid, of the exudates and transudates, of cultures, of scrapings, of stomach contents, of blister serum, of opsonins, vaccines, and antitoxines, of sections frozen at the side of the operating table, of animal experimentation, of spirochetæ and trypanosomes, or ankylostoma, and the mosquito—do these render indispensable service to the physician in the diagnosis and management of disease, or can he afford to forego them on the ground of inutility or ignorance? Will any inherent human talent compensate for their neglect?

I think we are safe in saying that no physician graduated within the last fifteen years fails to understand the value of these procedures. Probably no one who graduated twenty-five years ago had impressed on him at that time the need of their employment as aids to natural methods. Certainly we must all admit that many times our grasp upon a case is comparatively loose, because we have not availed ourselves of data within our reach. Probably no physician really believes to-day that a patient has been thoroughly examined until every secretion and excretion has been studied, also the blood, and the reports of all compared and contrasted with the physical examination. Only those who lightly weigh their words venture to assert that a diagnosis deserves the name until these data are in hand. Even when tempted to be careless we hesitate to neglect these allies not so much through timidity or ignorance as because of our appreciation of the essential value of their testimony.

Only recently I reported (in association with your president) an instance of aortic aneurysm rupturing in a child of four years, the causal factor

in which was determined by, and only by, the aid of laboratory methods. In order to prepare this discussion I have temporarily laid aside the blood study of a patient in whom the diagnosis became possible only under the microscope, and even now rests between general sarcomatosis, malaria, and acute leucæmia. The patient is an important one, as that term is used, and the physical diagnosis, if trusted to alone, would leave the examiner in grave doubt as to whether the case is not one of neurasthenia.

If a simple uranalysis will often indicate the presence of organic disease, if the blood examination will at times render a final conclusion, even if only partial, as to a fatal malady, if the study of the stools will reveal an unsuspected parasite or its ova, perhaps also fatal unless removed, if the staining of the sputum or the blood often determines for or against the ravages of a dread disease—if these and many similar tests render possible and easy the recognition of otherwise obscure conditions, that might be altogether overlooked by us no matter how scrupulous our care, and perhaps be discovered by another—if these aids to accuracy are indeed within the busy doctor's reach, then there can be no hesitation in our agreement that they must be invoked in every instance. Without them no study has been more than partway thorough!

As over against this conclusion let us place our actual practice. How many patients in a year neglected by us on the ground of expense, trouble, and carelessness! How many diagnoses missed by us and made plain to the doctor next door who has used his test tube and lenses morning and night, at bedside and in the laboratory, usually after we have retired to sleep, always on borrowed or stolen time! How many human fellow beings have died of disease because we have neglected our opportunities, and made a late instead of an early diagnosis, thus losing the opportunity of cure! This is the secret of the mortality of tuberculosis and cancer, and of probably every disease with an increasing annual death rate. If he cannot prevent, let the physician diagnosticate in the incipency, and the odds are with him that he can cure! The laboratory in this quest to the general examination a strong right arm! It is not the whole body; nor is it even the central mechanism!

II. To what extent are laboratory methods available for the general practitioner?

First of all, what time has the busy doctor at his command to devote to scientific medicine? I answer, if he will use the odd minutes, those often spent over a glass or a cigar, an hour can be saved out of the twenty-four! Much can be accomplished in that hour. Two hours are better than one, and if he is a night owl the addition of hours may be secured when his family have retired to bed. If he is too busy and too prosperous to take a mark me, I did not say sacrifice this time, he not only can but he must have an assistant, on whom he can depend for accurate and prompt laboratory reports. Within a short time a busy and prominent physician ordered a member of his family to the operating table, and the day arrived with at the pretense of an examination of the urine. The specimen examined by me before operative measures were allowed commenced albumin casts and blood, a finding which

alone postponed the step until a safer day. The physician had not taken the trouble, or had failed to recognize the necessity, of assuring himself that the patient would survive the operative procedure. In the cities there are many young medical men who are eager to assist in this line. In the country this is not always true, and I would advise every physician who has cast his lot in the country to visit some medical centre at least once in every two years, and spend six weeks brushing up his medicine, his pathology, and his laboratory knowledge. On his return home he should revise his little laboratory stock. The simplest solutions, the shortest and most effective formulæ, the best apparatus, will enable him to do the most thorough work at the minimum cost of tension and time. One course of instruction in laboratory methods will enable him to enlarge by himself on his fund of knowledge, and to give his patients the benefit of the simple urinary and blood tests in the majority of cases. Robert Koch was in active practice when he discovered the tubercle bacillus. The well rounded practitioner of medicine is the only man fully equipped to render and act upon a laboratory diagnosis.

Every examination should be charged on the books, and the patient should be made to understand that the careful physician cannot do himself or his client justice if scientific assistance is foregone. Moreover, the public is gradually learning that these tests cost money and time. It will not be long before the man who neglects the examination of urine and blood will appear criminal and crude and will be talked of as such among his clientele. This question of expense is of course to be considered, and there will be occasions on which charity must be exercised, even in the laboratory.

Moreover, you protest, we cannot all take even six weeks' time for the study of modern methods; nor can we learn them with the facility of recent graduates. My friends, if you do nothing more, buy a good microscope. Then ask your neighbor to show you how to stain a specimen of tuberculous sputum from a patient whose chest shows doubtful or indefinite physical signs. The first glimpse of the red, dotted lines, which one of my old teachers (and, by the way, one of the best physical diagnosticians under whom I have had the pleasure to learn) still persists in regarding as present "just as worms are in a dung heap, and with no greater causal relation"—these red bacilli, I say, will instill all the enthusiasm that will be required to institute the economy necessary to provide for the brief journey. You have then moved at a bound from the army of standstills into that of the leaders who do all for friend and foe that can possibly be accomplished.

Again, you say, we have no spare minutes of time! We are too tired at night when we get home! We need all the sleep we can get in the mornings! We have no leisure time! Why certainly! but you might just as well add that ambition died its death in you some years ago! These excuses had little weight when you slept off the previous night at 4 a. m. on the Fourth of July! You were the first boy in, and you were chagrined if your hand did not touch off the fuse! Boyish enthusiasm moved the young legs before daylight and long after they were weary! So your ambition and mine must soon

on to the best that is in us, whether we are in the limelight or folded away in a village in which the selfconsciousness of work well done is the only reward! After all life and health are at stake, and we must not lose!

A little shelf over the washstand, a gas jet, and a Bunsen burner, five bottles, and a few glass pipettes—one dollar's worth of apparatus and chemicals, are sufficient for the beginning. Buy the microscope as soon as possible, and transfer the burden of the diagnosis from the test tube to the eye. By degrees save toward a blood counter (haemocytometer), and a haemoglobinometer, and until you can afford these, remember that there is as much if not more to be learned by the experienced eye from a drop of fresh blood between a coverslip and a glass slide than with the help of the most expensive paraphernalia. These instruments will be essential later; the beginning need not wait on them.

Have you ever noted the scorn in a patient's voice as she says to her doctor regarding the medical attendant of her most intimate friend, "and you musn't repeat this—why, he didn't even examine her urine!" Do not let a similar scorn sear you and me! We have on graduation already reached the time signal that compels either a forward march or a retrograde. In country or city the physician has no longer the privilege of standing medically still. Progressive medicine can stand only upon an intimate relationship between the bedside and the laboratory. Look for a moment at the beginner in practice! He has a desk, a rug, and at least one well dusted chair that anxiously awaits the first patient. The old doctor nearby needs a report on the urine, and has either forgotten how to make the tests or, during a forgetfulness of some twenty years, has mislaid the reagents. He has learned that young Doctor X—, whose heels are wearing the varnish from the desk, is ready and eager to do laboratory work. A mutual advantage association is promulgated that at once puts the young practitioner financially on his feet without a practice, and at the same time renovates the attics and store-rooms of the older man. Just a word right here to the beginners in laboratory medicine, especially to those busy men who try to work all day long and are inclined to prosecute scientific methods betimes. A hurried urine examination requires twenty minutes, the blood picture can be approximated in less time. In my own work blood, urine, and sputum (if present) are studied as a routine, and the patient, no matter how wealthy nor how poor, is given to understand that the examinations are essential, and that either he or I must pay to have them made. They are itemized on the bill, and they are never protested, even when the other items provoke comment. Here is something tangible, something that has as definite a value as a sale over a counter, and something that appeals to the common sense of the patient, and through this channel to his pocket.

Let me advise you, moreover, if assisting an older man, to insist on sending in your own bills for laboratory work, as the surest means of preserving your identity. Send them as soon as the work is done, and charge enough to render the beneficiary of your scientific assistance conscious that you are actively interested in his case, and yet not enough

to deprive the older men of your services through extortion. In the cities there will be an abundance of laboratory work to do, the proper sentiment having already been created as to its justification and need. In the country it will be incumbent upon the cooperation of the older and younger men to introduce a similar régime, perhaps at a nominal cost, until its place be won. The oncoming generation of young men will in this way be supported by the patients of the old. The writer obtained almost his entire subsistence during the first two years of his medical experience by means of his laboratory, used as an ally and an adjunct to his own and other men's bedside study. When he found it necessary to relinquish the personal portion of the laboratory work to others who were making it a specialty, he experienced a keen regret because his individual control of the helm in a given case had to this extent passed from him. Far more important than the comfort of the medical fledgling will be the stimulus given to medical science in its entirety, in the accuracy newly possible in diagnosis, prognosis, and treatment. Pursue yourself with a laboratory assistant, and you will not dare to slip up at the bedside. Use infinite care in your methods of physical diagnosis and your assistant will not feel at liberty to become slovenly in the laboratory. Each should cheer and spur on the other—physical diagnosis and laboratory scrutiny—no room for jealousy between kith and kin.

III. And finally: Can laboratory methods be used by the well equipped physician as a means to dignity and selfsupport?

We have already suggested more than one indication that laboratory medicine has opened a new field for the young and poor man. Let him advertise his willingness and ability among his medical fathers and brethren as widely as he will. There are always many who cannot or will not discharge their own laboratory duties. These will welcome him, and use him, and bring him into contact with patients who may find him valuable and available in later years. Let a young man become known as a careful worker, and he will some day be compelled to make his charges prohibitive in order to preserve for himself sufficient time to finish the work of the day.

Nor need the older practitioner relinquish altogether the cunning of his laboratory days. What a comfort as a clinician to be able by first knowledge to control the work of the laboratory man! What a satisfaction to sit over the blood picture of an unusual and difficult case, and one's self determine the underlying cause of a surface condition, or to verify the findings of the specialist. I shall never forget the inspiring thrill that ran through me years ago when an old Florida doctor, hair as white as the fallen snow, eyes so dim at sixty-seven years that a magnifying lens had supplanted his watch crystal—when this old hero came to me with the demand for a course on microscopy. I can today see the tear steal down his cheek when he learned that this opportunity had passed before he knew of its existence, that it was now only for younger eyes and offered no access to him.

Have you heard the young graduate measure his older colleagues and instructors the one with the other? "This," with a wave of the hand, "is an

all round man; that is an old fellow, his methods are high and dry, and out of date; there is the brightest man I know, but you cannot depend on him! But look! look, friends! here comes the pride of his students and of the medical community, an oldish man, hair white, but a man erect and proud in moral and physical carriage, even in the twentieth century a physician abreast with the times, well trained, continually polished, never weary, ready for each innovation that has merit, instinctively discarding the useless without delay—this is the young man's and every man's ideal of the modern physician." The chest must be bare if he is to examine it. Percussion is not transacted through the clothes. Ear and stethoscope, hand and eye claim immediate contact with the skin, and every part examined. Only the ignorant and inexperienced can make a brilliant diagnosis through a shirt bosom or a pair of trousers. The patient, moreover, is to this physician still a person, never a case. The doctor may at one time be a valuable consultant and a large hearted man. For a moment at least he has a life in charge, and what implicit trust is at that moment in his keeping!

Moreover, the family doctor has not gone and never will go, whatever may be said to the contrary. The specialist is also here to stay. The laboratory over enthusiast is another fixture, perfectly harmless if you let him wind his own course. And in all these classes, except the last, you will occasionally find that *rara avis*, the sun crowned, ever gentlemanly physician, who scorns no method and flouts at no school, who executes his own work perfectly as long and as far as it is a possible thing, and then enlists the aid of the younger man, whose untempered science finds its complement in his senior's mellow judgment, his ripe experience, and in the fine balance of courtliness and charity that always marks the doctor of the old, yet ever new, school.

1708 LOCUST STREET.

AURAL VERTIGO AND MENIERE'S SYNDROME.*

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We are so generally accustomed, as aurists, to fasten our regard upon the symptom of deafness, of which all our aural patients complain, that it seldom occurs to us to consider that the internal ear, in addition to being an organ of hearing, has another function to perform of almost equal importance to the general organism.

From the name, it might be inferred that the *acoustic nerve* is the nerve of hearing only, but as we well know from our physiological studies the auditory nerve is in reality a double nerve, serving two totally distinct functions. One part, the cochlear, is distributed to the anterior part of the labyrinth and constitutes the nerve of auditory sensation. The other part, the vestibular, is distributed to the vestibule and the semicircular canals and is concerned principally with the function of equilibration and orientation.

In the vestibule and the labyrinth are two membranous sacs containing endolymph and known as

the saccule and the utricle. The saccule, the smaller, lies anteriorly in the fovea hemispherica. The utricle, much the larger, lies in the fovea hemielliptica and communicates posteriorly with the three ampullæ and two limbs of the membranous semicircular canals. On the upper surface of the utricle is a whitish oval spot, known as the *macula acustica utriculi*; and on the upper surface of the saccule there is a similar spot known as the *macula acustica sacculi*. Notwithstanding their names, these spots have probably nothing to do with audition. The utricle, at least, is supplied exclusively by the vestibular ramus, and receives no fibres whatever from acoustic division of the auditory nerve.

Near the maculæ are some flask shaped neuroepithelial cells, supplied with delicate cilia, and lying thereupon are masses of transparent semifluid substance containing hexagonal crystals of carbonate of lime and known as otoliths or otoconia.

The otoliths play an important part, it is thought, in the function of equilibration, in that changes in the position of the head operate to make these press upon and dislocate the delicate hairs which support them in a definite way, this stimulation giving rise to specific sensations in regard to the positions of the head.

In addition to these vestibular organs, we have just posteriorly, the three semicircular canals, concerned likewise in some manner with the function of equilibration. They are so placed that the plane of each semicircle is at right angles to the other two, the three thus forming together a solid angle. Each of these canals begins at the vestibule with an ellipsoidal dilatation, known as its ampulla; the superior and posterior canals unite shortly before returning to the vestibule into a single limb, the external canals open separately, so that in all there are five communicating openings with the vestibule. These canals, like the rest of the labyrinth, enclose a membranous counterpart containing a fluid known as the endolymph. The canals are supplied almost entirely by terminal filaments of the vestibular nerve (ampullar branches); only the posterior canal receiving a small offshoot from the cochlear division.

The geometrical arrangement of these canals is such as to correspond with three dimensions of space. With every movement of the head the endolymph is so displaced along the walls of the canal as to bend the fine hairs which constitute a part of the nerve apparatus of the ampullæ, this stimulation being conveyed to the centres as a definite characteristic sensation. It is said that the semicircular canals inform the centre as regards rotatory motions, while the macule cristine mentioned before inform with regard to rectilinear motions.

Our knowledge of the equilibrating function of the semicircular canals dates from the classical experiments made by Flourens in 1842 (*Recherches expérimentales sur les propriétés et les fonctions du système nerveux de l'homme et des animaux*, p. 179). Before that time, it was supposed that the semicircular canals served the purpose of locating the direction of sound. It is at present thought that the endolymph, which is set in motion only by bilateral stimulation, affected by an act of innervation, is responsible for the sound in the two times. Flourens experimentally demonstrated that, if the canals were removed, that different sound waves in the animals he used

* By the author of "The Acoustic Nerve," *Annals of the Otological Society*, April 19, 1907.

ments characteristic for each canal; thus, the section of the horizontal canal was followed by lateral movements and rotation of the body, with nystagmus and vomiting; section of the posterior canal was followed by a pendulous movement of the head, with a tendency of the body to fall forward; while section of the posterior canals had the effect of making the animal fall forward.

It was Goltz who, upon the basis of these experiments, since confirmed by others, formulated the hypothesis that the semicircular canals constituted the organ of equilibration. Breur and Mach, shortly afterward, made further studies, and in some measure increased our understanding of the functions of these canals by their explanation that it was done by ascertaining the position of the head. Cyon, an early experimenter, differed somewhat in his conclusions from his predecessors. The semicircular canals, according to him, are organs of the sense of the space.

Without recounting the various experiments and burdening you with the conflicting theories upon this subject, it should be mentioned that one of our own countrymen, Professor James, of Harvard, contributed much to the elucidation of the functions of the labyrinth by his studies upon the deaf mutes. It is estimated that at least 50 per cent. of deaf mutes have either diseased, defective, or absent labyrinths. James was one of the first to call attention to the fact that deaf mutes are generally not susceptible to sea sickness, and that they do not become dizzy as a result of rapid or continuous rotation in a vertical axis, as in dancing. He also discovered that with the body immersed in water, they lose in a great measure, the faculty of orientation. The explanation of the last mentioned peculiarity is to be sought in the fact that the water has the effect of obtunding the tactile sense, and thus abolishing whatever function it ordinarily serves in determining position.

Equilibration is probably regulated by three sets of afferent impulses, viz.: (1) Labyrinthine; (2) visual; (3) kinæsthetic.

The labyrinth we have already studied. That the eyes have much to do with equilibration, there can be no doubt. Some authors, as Mendel, assume that the equilibrium depends preeminently, if not exclusively, upon visual impulses. The vertigo, which is a constant accompaniment of spasm or paralysis of the ocular muscles, and relieved by their correction, is an evidence that it is certainly an important factor. Ferrier, it may be mentioned, found that pigeons lost their balance when prisms were placed before their eyes.

The third class of apparent impulse regulating equilibrium and orientation, are those included under the term kinæsthetic. That is to say, such as are afforded by tactile, muscular, and perhaps also to a certain extent visceral sensations.

It is the occlusion of these impulses that explains the slow, hesitating, uncertain movements of patients deprived of their labyrinth when, as in the experiments of James, their bodies are submerged in water. They lack the compensating assistance which they would derive from the tactile sensation, thus greatly embarrassing their efforts at orientation. It is the same with respect to vision. The alabyrinthine, compelled to walk with his eyes closed, will exhibit a disorientation that departs widely from the normal. He will mistrust himself, walk with his legs spread

to increase the base of sustentation, and manifest a decided staggering or titubation.

These facts may be very advantageously utilized in diagnosis. In distinguishing, for example, the visual from auditory vertigo, have the patient close his eyes. If his condition is made better, we infer an ocular origin; if no better or worse, a labyrinthine. Vertigo or dizziness should be clearly distinguished from disequilibrium and from incoordination. It is the latter which the tabetic exhibits, a phenomenon marked by the inharmonious action of muscles because of lack of the control ordinarily exercised by the coordinating centre in the cerebellum.

Vertigo should also be distinguished from disequilibrium, although it is often accompanied by it. Vertigo, properly speaking, is a purely psychological phenomenon. It is a subjective consciousness of disturbed spatial relations; disequilibrium is rather a physiological phenomenon, being an objective motor manifestation, occurring as a consequence of this deranged orientation.

It is possible to conceive of vertigo, as a sensation entirely apart from an actual disturbance of the body equilibrium, but it is doubtful if the latter can be conceived without presupposing some sensory illusions of orientation, giving rise to the disequilibrium. Pathologically, the two are frequently associated, and it is not strange that they should be confounded in common parlance, and that the term vertigo should be made to connote the disturbance of equilibrium as well as the vertiginous sensation.

To summarize, we should define vertigo as a subjective phenomenon of consciousness, in which the individual as the result of erroneous afferent impulses, acquires an illusive impression of disturbed spatial relations, which may be referred either to himself or to surrounding objects. The vertigo may be so mild as to constitute nothing more than a mere sensation of swimming in the head, but it is usually attended with a feeling of instability, and this may reach such a degree that the patient is unable, without support, to maintain his equilibrium.

From what has been said, it will be inferred that vertigo may arise from any cause which will interfere with the mechanism of orientation and equilibration, whether the lesion be situated in the peripheral receptive organs in the intermediary transmitting apparatus, or in the central organs of coordination and perception.

Here we are only concerned with vertigo arising from labyrinthine disturbance. It is a well known fact that vertigo may arise from any condition having the effect of increasing intralabyrinthine pressure. This is illustrated in the experience common to every aurist of witnessing this phenomenon, upon the injection of water into the external auditory meatus, or the sudden inflation of the Eustachian tubes, or the use of pneumocompression in the external canal. It is easy, then, to understand how this symptom may be attendant upon a number of widely divergent classes of aural lesions from a simple plug of wax to suppurative inflammation of the labyrinth. The vertigo, furthermore, is not a measure of the severity of the lesion, as we find, on the one hand, the gravest diseases unattended by it, and the other simple troubles accompanied by a severe form of the malady.

In many cases the aural vertigo is associated with

nausea and tinnitus, and in some instances it assumes an apoplectiform character, to which the name of Ménière is commonly attached.

Prosper Ménière, in 1865, described a case in which a patient was stricken down with intense vertigo, nausea, vomiting, and tinnitus, followed by complete loss of hearing, in which it was discovered on a post mortem examination, that a hæmorrhagic exudation had taken place in the semicircular canal. Since that time the eponymic term Ménière's disease has been used to apply to a group of symptoms, such as this patient presented.

The term, however, ought to be abandoned.

In nosology, we should elevate to the dignity of disease only such conditions as have a definite and constant pathological basis. The pathological basis claimed for Ménière's disease is, in the first place, a rare condition seldom capable of demonstration. In the second place, we know from clinical and post mortem studies, that it is not possible to distinguish the symptoms which occur in such a case from those observed in a variety of aural affections in which the mentioned lesion does not occur. It is, therefore, wise, it seems, to substitute for Ménière's disease, the term Ménière's syndrome—to refer to that group of symptoms—tinnitus, vertigo, deafness, occurring in the manner of an apoplectiform attack. The following are a few cases illustrating this type of aural vertigo:

CASE I.—W. M., a robust man, about forty-five years of age, was referred to me by Dr. Richards.

Family history: No deafness in family; father died of cancer, affecting one side of head; mother died, aged seventy-eight, of pneumonia.

Previous history: The patient had influenza, complicated with pneumonia about eleven years ago. Two years later he began to be conscious of some deafness, which in a short time was accompanied by attacks of severe neuralgic pains about the mastoid process, the temporal region, and the neck on the left side. About a year after the beginning of the aural trouble, he began to have a sort of apoplectic attack, attended with Ménière's symptoms. The attacks were preceded by a roaring or hissing sound in the left ear, and a sensation of stuffiness in the whole left side of the head. When this had continued a few days, he would be suddenly taken with attacks of nausea, vomiting, and dizziness, with a tendency to fall to the left side. The instability was such that the patient was forced at once either to lie down or sit down to keep from falling. This attack would last some hours, and was generally followed by a cessation or at least amelioration of the tinnitus and deafness.

The patient had four such attacks at intervals of two or three months; the first being the worse, the succeeding being each milder than the one anterior. After this, there was a long interval of freedom from the attacks and the deafness and tinnitus improved. With a cold, however, there would occasionally be a slight swimming of the head and the noise grew worse. The noises were likened to that made by spurling of a water hose, and there was often a throbbing synchronous with the pulse beat. About a year before I saw him he had had a repetition of the apoplectiform attack of the same character as those which he had had several years ago, but less severe. The vertigo persisted afterwards for about three days.

Upon examination the anterior nares were seen to be narrow, and the middle turbinals enlarged and pressing against the septum. The pharynx appeared normal. Secretions were not increased or disordered. On the

right side the membrana tympani appeared normal, with the exception of slight hyperæmia in its upper part; it was not retracted. On the left side the drum membrane appeared a little thin and atrophic in sections; otherwise normal.

Functional examination: Left ear; sound of watch heard when pressed against ear; Rinne, negative for C. 250 Schwabach shortened. Right ear; Rinne negative. Weber lateralized to right ear. The Eustachian tubes were found to be stenosed.

Treatment consisting especially in catheterization, brought about an improvement of the symptoms.

Remarks.—In this patient we have evidently a case of the apoplectiform type of aural vertigo (Ménière's syndrome) traceable to middle ear inflammation with secondary slight labyrinthine involvement. The features of the case were the occurrence of the prodromal symptoms, the fact that these symptoms were relieved by the paroxysm, and the occurrence of slight vertigo in the intervals on contracting cold. The existence of a precedent aural disturbance and the occurrence of prodroma would exclude it from the definition formally given to Ménière's disease.

CASE II.—L. J., a girl, about twenty-five years of age, had been treated by me about a year previous on account of nasal obstruction due to hypertrophy; but she never had had trouble with her ears before. She consulted me for her present troubles about the middle of November, 1906, complaining of a sensation of fullness and buzzing sound in both ears; the sensation being likened to that experienced after taking much quinine. She seemed to have no cold in the head.

When the condition had been present a day or so, she was suddenly seized one morning about 11 a. m. with marked vertigo, nausea, and a loud roaring in the right ear. The equilibrium was so disturbed that she could with difficulty maintain herself in an upright position, the tendency being to fall to the right side. She did not have chilly sensations, nor cold sweats, but was rather flushed and feverish. Vomiting occurred; but she never became unconscious. This attack lasted two or three hours, when all the symptoms subsided except a roaring in the ears, which was present in full force when seen by me the following day. There ensued also a decided sensitiveness to loud sounds which produced an unpleasant sensation. She remarked also a sensation of numbness in the right side.

Upon examination there were evidences of acute pharyngitis, but no acute inflammation of the nasal passages. The auricle was found by testing with a p. n. to be the seat of an anæsthesia involving its upper half; there was also some anæsthesia in front and behind. The tympanic membranes on both sides were retracted, but more on the right than the left. Neither showed any signs of hyperæmia.

Upon politization the left side was more easily inflated than the right. Hearing was not greatly reduced.

Watch $\frac{30}{40}$. Frictional tests gave a Rinne barely positive on left side, decidedly positive on right. Schwabach shortness on both sides, more pronounced on the right side. High tuning forks were well heard; and Galton whistle heard to upper limit.

Treatment: The symptoms were unaffected by local treatment of several days, consisting in catheterizing and irrigating the right tube. On the eighth day, however, there was a prompt and decided amelioration, and in the middle of a week or ten days all symptoms subsided.

Remarks.—This case, on the sudden paroxysmal character of the attack, the absence of prodromal symptoms, the negative history with regard to pre-

cident ear troubles, and the decided labyrinthine involvement, as evidenced by the functional tests, bears a very close resemblance to the original Ménière's disease. It is, however, peculiar in the fact that instead of chilly sensation and cold sweat being present during the attack, there was feverishness and flushing; an interesting feature also was the anesthesia of the auricle.

The case is one of Ménière's syndrome with predominant labyrinthine involvement, evidently due to a vasomotor disturbance.

CASE III.—Mr. A. B. H, police officer, referred to me by Dr. Richards on March 7, 1907. Patient had never had trouble with ears until about ten years ago, when he received a violent blow over the ear, which resulted in unconsciousness. There occurred at the time bleeding from the nose, mouth, and left ear. A few days following there was a bloody discharge from the left ear, and intense pain set in in the ear on that side, extending over the entire left side of head.

This condition eventually improved, but always since the accident he had been subject to attacks of severe pain located on the left side of the head, apparently emanating from the ear. He had also since then been subject to frequent attacks of vertigo, attended with noises in the ear, and nausea, and sometimes with vomiting. These vertiginous attacks were, according to the patient, more frequent in the summer than winter. They were generally precipitated by sudden movement on exertion of the body, as rising quickly from a sitting position, and especially by turning the head suddenly. He had never known the attacks to be produced by any overindulgence at the table; but remarked that he was very sensitive to the odor of cooking, and easily nauseated thereby. His bowels were generally regular, and patient had never observed the vertigo to be benefited by taking a laxative.

The attack of vertigo came on suddenly and without warning; the patient became actually unconscious, and had often fallen and injured himself. On coming to consciousness he found himself nauseated, and sometimes had to vomit; loud ringing noises were heard in the ear. The head felt stuffy, mouth was dry, and cold sweats would break out over the forehead. The aural sensations referred especially to the left side.

Upon examination the left drum membrane appeared normal, with the exception of some hyperæmia in the upper posterior quadrant, extending down along the hammer handle. The right drum likewise was practically normal. No evidence of former suppuration could be seen in either.

Audition: Right ear, watch 4 inches; acoameter, 2 feet; Rinne positive; Schwabach decidedly shortened. Left ear, absolute loss of hearing. Tuning forks, high and low, were made to vibrate both in front of ear and over mastoid without being perceived as sound. Weber not lateralized.

Remarks.—This case, in which the Ménière's syndrome occurred, presents a striking difference from the other recited, in that the attack was marked by loss of consciousness.

It is also peculiar in that the trouble evidently had a traumatic origin. Here, furthermore, the aural trouble seems wholly labyrinthine, and not a combination of middle and internal ear diseases, as in the other cases.

These are but a few instances which could be multiplied, of cases partaking of the general type described as Ménière's disease, and they tend to show the varied and complex picture which one is apt to encounter.

As stated, the term Ménière's disease should be

dropped, but it may be convenient to retain the appellation Ménière's symptoms or Ménière's syndrome, to apply to a well known group of symptoms occurring in connection with diseases of the ear. The pathological foundation is by no means characteristic, and the labyrinthine exudate described by Ménière must be of extremely rare occurrence.

In some cases the changes are chiefly in the middle ear; in others the functional tests indicate profound internal ear affection. In the latter, while the prognosis is of course grave, it is by no means hopeless. A nice discrimination of the cases and appreciation of the nature of the lesion is indispensable. Which being had, a judicious combination of proper systemic treatment, with the application of such local measures as are indicated by the state of the auditory organs, will, in a fair proportion of cases, yield highly gratifying results.

THE ROCHAMBEAU, 815 CONNECTICUT AVENUE.

MATERIALISM IN MEDICINE. A PLEA FOR THE PATIENT.*

By C. D. HILL, A. B., M. D.,
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Sometime ago a woman was referred to me with a tentative diagnosis of cholelithiasis. She too thought that she had gallstones, and as her mother had died from this disease, she was very much alarmed about her condition. After a very careful examination I told her she had a floating kidney but no gallstones. About two months later I learned, much to my surprise, that she had had no pain since my examination, although she had been a constant sufferer before that time.

While reading the notes of this case for introducing them in a paper which I was preparing on the diagnosis of gallstones, I became more impressed with the workings of the patient's mind than with the diagnosis of her disease. As this is the last meeting of the club for the year, and as we have had papers on various diseases, it seemed to me it would be only an act of justice to make a plea for the patient himself. In other words, we are becoming so materialistic in our treatment of disease, we are apt to lose sight of the patient. We are apt to forget the influence of the patient's mind in the cause and cure of disease. We are apt to forget that Mr. Brown, whom we treated six months ago for pneumonia, is still Mr. Brown, although he now has tonsillitis, and that six months hence, although we see him suffering from appendicitis, he will still be Mr. Brown, with all his sensibilities, feelings, fancies, emotions, vagaries, and lack of superabundance of faith. Is it not a fact that the patient's name and personality are often absolutely unknown to us, and we only remember him by the name of his disease? Especially is this the tendency with those of us connected with the surgical side of a hospital. To us Mr. White is the man who had an oblique fracture of the tibia; Mrs. Green, the woman upon whom we operated for a strangulated femoral hernia; Willie Blue, the boy whose nose was broken by a baseball. Is it any wonder that these patients think we are like the entomologists and look upon them as interesting specimens? But

* Read before the Physicians' and Surgeons' Club of Jersey City, May 21, 1907.

if this is our attitude toward them, they do not forget that a man is neither a bug, butterfly, nor worm.

Huxley himself warns us that, although we can only advance our knowledge by adhering to scientific formulæ and symbols, we may get beyond the limits of philosophical inquiry, and such "errors of systematic materialism may paralyze the energies and destroy the beauty of a life."

In our efforts to reduce medicine to an exact science, to see man only as a diseased animal, or as a machine to be repaired, we go so far afield, we may be in danger of neglecting the rich harvest that lies right at the gateway and all along the highway. We are apt to forget that a man is made up of something more than bones and muscles, tendons and nerves, blood vessels and lymphatics, or gray and white nervous matter, yes, even of suprarenal glands and pituitary bodies.

When we have learned the anatomy of man, the functions of all the organs and all the pathological accidents that may happen to him, we may still not know that greater inner man, and we may be handicapped when we try to administer to him. While we know the individual parts we may not know the individual.

There is so much to learn in the science and art of medicine, so much progress, so many things, new to-day, to-morrow superseded by something better, that we have necessarily developed into specialists, and in doing so we may change from the broad gauge road of general medicine on to the narrow gauge road of specialism. The specialist, even more than the general practitioner, is prone to magnify disease and to relegate the individual and his personality to a secondary place.

When we begin to recall cases illustrating the influence of the mind over disease we naturally think of chronic nervous diseases, and each one of us can call to mind many such cases. I will not weary you with case narrations, but try to show in a general way that we see this influence in our daily contact with diseases of other systems, and in acute as well as chronic diseases.

In stomach disorders we can recall many such cases. Just take the common symptom, vomiting, and note the great mental depression. If we fail to recognize this influence in the cause and treatment of diseases of this organ we may be disappointed when we use the digestive ferments. The living stomach in a heart throbbing, brain acting patient is a very different proposition from test tube experiments in the laboratory. This is one of the reasons why examinations of the stomach contents do not give such positive conclusions as the first proposers hoped for. After four years personal experience with such examinations I look upon them as of only secondary importance in diagnosis and treatment. In a patient suffering from stomach or intestinal disorders, acute or chronic, we must stimulate his spirits as well as his digestive juices; we must alter the flow of his ideas as well as the flow of his secretions.

While to-day the doctor does not often use such terms as "torpid liver" and "biliousness," yet, when we hear the patient use the terms, it gives us a clue to his treatment, for he is really more "bilious" in his mind than in his liver.

So responsive is the heart to the mind we have

only to note the effects of joy, sorrow, worry, or excitement on this organ, and then we can realize why the poets and romancers have enthroned the god of the emotions here. We often see the heart's beats increase over twenty to the minute from anxiety when we begin to examine a patient. Again we know how unwise it would be to tell a man in whom we had accidentally discovered a heart murmur that he had heart disease.

In these strenuous times we recognize the workings of the mind as one of the main factors in Bright's disease, when as a separate entity, or as a link in the chain of arteriosclerosis, that disease of the arteries in which a man grows old before his time. In floating kidney what a multitude of nervous phenomena are caused by its movements! In the case cited in the prelude to this paper I have no doubt the patient's mind would have dwelt much on the migrations of her kidney had she not been so overjoyed that there was no rattling of stones in her gallbladder.

Just examine a man to-day for life insurance and six months afterwards for a pension, and you will wonder that one small body could have become so sorely afflicted in that short time. At the first examination the man forgets that he was ever sick, and at the second examination does not remember when he was ever well; and this forgetfulness is not wholly with intent to deceive.

In damage suits the plaintiff and his lawyer recognize the mental as well as the bodily suffering, and in their bill of damages they estimate the agonies of mind at so many material dollars per agony. The doctor testifies in a few very brief words as to the amount of objective injuries, and he feels satisfied with his diagnosis and the result of his treatment, until he hears the plaintiff's tale of past agony, present suffering, and future woe. He is still more amazed after the jury has rendered a verdict for agonies, to see the poor suffering dotard metamorphosed into a gay and reckless roysterer. After this experience the doctor may feel that he does not know all the possibilities of that contused spine which supports the highly imaginative brain of a plaintiff who has for a lawyer a man with an elastic conscience.

It is a well known fact that many patients in a hospital after visiting day will have a rise of temperature, a restless night, or some other deleterious change. On the other hand we often appeal to a visitor to help us out with our depressed patient when we know that this visitor's presence will bring sunshine and happiness into the sick room.

Now I might continue to give illustrations of the influence of the mind over disease, but it would be only repeating what you see for yourselves every day. But if we admit this influence do we always act on this knowledge? Do we not get in the habit of looking upon such diseases as hysteria, hypochondria, neurasthenia, chronic alcoholism, etc., as not belonging in the list of morbid conditions? It very often irritates us to get a hurried call to "that old case of hysteria," that "disease in which morbid ideas rule the mind"—as defined by the late Dr. Paul Möbius. It is a very real disease to the sufferer and her friends, but we can as a rule very soon dissipate the anxiety of the friends, and cause the morbid cloud over hanging the patient to clear

away as quickly as an April shower before the sun shine.

You may say these illustrations apply only to a few nervous women, or to those who only imagine they are sick, or to those who exaggerate their suffering, but when you deal with sick children they have no weight. Our president intimated as much in his admirable paper last month. We admit that when a child is sick, he is sick all over, just like his little dog Rover, (to use a nursery rhyme). But it is for this very reason, and because he is a child, that we think we can leave out of the question his fads and fancies, and whether he likes our medicines, or our ways, we can make the diagnosis, write a prescription, and let his mother or grandmother do the rest.

Right vividly is it impressed on my mind a little serio comic performance, which came off on a certain Saturday night not long ago, in which one Harry O'R. played such a star part. Since he could open the baby gate at the head of the stairs Harry's mother has terrorized him with threats of calling the doctor. I went in, unsuspecting his dislike to doctors, the strength of his lungs, or the agility of his legs. His mother held fast to his head, his grandmother grappled his body, arms and legs "as in hooks of steel," while I pried open his teeth and pushed the spoon further and further down his throat, so eager was I to see its very bottom and sides. But alas! darling Harry squirmed and wriggled and screeched and howled, grandmother in terror relaxed her grip, the orangoutang's feet struck me in the lower ribs, and my eyes were blinded by the frothy explosion from Harry's spluttering mouth. (Luckily I had already discovered a bronchitis before the main act opened, but I had not forgotten that case in which I neglected to examine the throat, and the next day found a diphtheritic patch on the tonsil.) In prescribing that vile mixture of ammonium carbonate, ipecac, and compound licorice root, I may have been prompted by the desire to get revenge. You can rest assured that the grandmother did not renew the fight every two hours to carry out her part in the conspiracy. The next morning I drove through Grand Street, and as the bright sunshine dazzled my eyes, and the silver toned church bells soothed my ears, I was all in love with myself and mankind. Suddenly I heard Harry yell to his comrades, "here comes that old devil of a Doctor Ipecac." Those of you who have had your Harry O'R. can tell with what a thud I struck the earth. You will not wonder that Dr. Treacle was called in by this family, but he too was supplanted by a practitioner who first learned something about Harry, and secondarily treated his sickness.

But more on this branch of the subject would lead into a discussion of the personality of the doctor, and his many ups and downs. This I will leave to those who can speak by authority.

In our operative work we may forget the patient, so intense is our interest in the operation. In contemplated operations we give instructions to the nurse to sterilize the skin, to clear out the inner waste of the body, and forget that it is even more necessary to clear away the mists of the brain. Perhaps a few encouraging and sympathetic words from the surgeon might inspire such faith, hope, and courage in the patient as to aid us in preventing

shock, lessening suffering, and allaying anxiety after the operation. Possibly some of our unlooked for failures might have been turned into successes if we had prepared the patient's mind as well as his body. Again in our routine work we sometimes forget the attitude of patients toward operations, and that disease often saps the mind as well as the body of a patient. That woman who prides herself on the number of operations she has indulged in—not suffered from—will approach the operating table with a smile upon her face and a blessed satisfaction within. No need to cheer her up. But look at the picture of another woman as she is carried to the room. She has seen that tiny hard spot on her breast grow and grow, and eat and eat into her flesh, until now it seems to mock her with its hideous glare. From an occasional momentary twinge it has become a constant agony. She has spent anxious days and sleepless nights hoping against hope that her kind friend's salve would melt it away. She is afraid not to confide in the surgeon and still more afraid to tell him. Spartan like she has hugged the cancerous wolf closer and closer to her breast, until in sheer desperation she knows that nothing but the knife will sever the monster from her racking body. Can any one be more despairing than this poor creature on the night before she is to be operated upon? Prejudice, pain, fright, and weakness in body and mind will conspire together and hiss into her terrified ears, "he who enters this door leaves all hope behind."

In our advancement in the science of medicine we have learned that many diseases are self limited, and that we have but few specifics. We know that those diseases which doctors formerly "cured," we now only watch and assist Nature in curing. In realizing the limitations to our efforts we are apt to become nihilists not only as to drugs, but also as to the many other means at our command. But we need not be nihilists in either case, for it is a great satisfaction to the passengers in a ship to know that there is a watchful pilot at the wheel, and one who feels the slightest grating of the keel against an uncharted rock.

We do well then when we let our patient know that we see something more in him than some self limited disease; that, while we know the action of drugs and their great usefulness, we have something more in our armamentarium than spoonfuls of medicine; that we are ever on the lookout for ways and means of relieving the sick and suffering; that we are ever ready to recognize truth, even if it comes to us through unexpected channels and polluted by the waters from many sluggish rivulets.

In the United States there are probably five million people following self styled new schools of curing the sick, three million taking patent medicines, two million more following quacks, charlatans, and ghouls. These ten million people include the rich and the poor, some are wise and some are foolish, and, when not astride their hobby horses, seem about like the rest of mankind. If they wander into strange pastures, lie down by muddy streams, expose themselves to wolves in sheep's clothing, may it not partly be due to the lack of watchfulness of those who should be their medical shepherds? We, ourselves, with our trained minds, sometimes follow after strange gods. Now these ten million peo-

ple should be under the care of rational therapeutists, and many of them would be, if we studied the immaterial as well as the material part of man. Would it not appeal to them as a class if we told them of the time we spend, the struggles we make, and even the lives we give in our efforts to find the cause, cure, and prevention of disease? Surely they would believe that there are altruists in our profession if we told them the story of Dr. Walter Reed's life, of his great boon to mankind when he discovered the true carriers of yellow fever infection; of his proving conclusively that a certain species of mosquito, the *Stegomyia fasciata*, carried the poison from victim to victim. If any further proof were needed, a very tragical proof was supplied when these same pests gave their discoverer the deadly sting.

We can draw away the veil of mystery that for centuries has covered our profession, and follow the wise advice of ex-President Cleveland to be more frank with our patients and the public. From the many articles on medical subjects now appearing in the lay press there seems to be a desire on the part of the public to hear from us.

Our individual appeals will be as varied as the minds of men and women vary. To that man who associates all medicines with castor oil or sulphur and molasses, we can give assurance that we know how to prepare palatable and yet potent mixtures. If we have to give such a bitter drug as nuxvomica (a favorite of mine), we can assure him " 'tis bitter physics to sweet end."

With the patent medicine fiend we can sympathize, if we cannot reach with an appeal, when he takes fifty-seven bottles of bark to get fourteen bottles of alcohol. Just remember that *we* are sometimes hypnotized by the siren song of the manufacturing itinerant, who fills our desk with his beautiful samples and our waste basket with his glowing literature. The taker of mysterious nostrums at least has the courage of his delusions, for he fills his own stomach with the decoctions, while we—in the phrase of the wag—"try it on the dog first."

To those neglecting everything else and expecting cures for every ailment from mechanical or electrical therapeutics, we can show that we recognize their aids, use them when necessary, but know their very narrow limitations.

We can appeal to those in whom imagination has so much to do in keeping them well or in keeping them sick. A little less materialism on our part, a closer study of individuals, and perhaps a cultivation of our own imagination, may show us how to guide their wings of fancy. They may then soar, not like the owl that looks so wise, yet only sleeps by day and hoots by night, but like the dove that looks so innocent, yet flies straight away to the nearest land and returns with an olive leaf.

I trust this excursion from the main road into the bypaths of medicine will not give you the impression that I would have you turn away from scientific medicine and scientific methods, and thereby lag behind in the procession of medical progress. Furthermore, I hope there is not the slightest intimation on my part to persuade you to prey on the credulity of the sick man, and thereby degenerate into charlatans. But while we view our rich possessions in the valley below, we can extend our vision

as we stand on the shoulders of our predecessors, who have already climbed high up the mountain sides of medical achievement. From these heights we are not afraid to let the rays of the noon day sun pour down upon us, nor shall we close our eyes to the roseate beams of the rising sun, nor shall we turn our backs to the golden tints of the setting sun.

Seeing man as we do in affliction and unmasked, we can see into the very innermost recesses of his soul, and with Pope realize that "the noblest study of mankind is man."

With this greater equipment for allaying suffering, with this broader outlook on disease, with this deeper insight into our patient, we need never waver, nor grow weary, nor lack enthusiasm in our work, for every case will be new and interesting to us.

299 YORK STREET.

CHRONIC MYOCARDIAL DISEASE.

*A Clinical Study.**

By CHARLES SCHRAM, M. D.,
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Upon the heart devolves the function not only of supplying nourishment and oxygen for energizing every organ and tissue in the body, but of performing these offices for itself. Hence the vicious circle immediately created by any impairment in its functioning capacity. If its tissues are impaired by disease or injury, it receives less nourishment and less oxygen. Its parenchyma gradually degenerates and loses tone. Unless relief is afforded, its impairment is progressive. Its margin or reserve force gradually wanes, until finally its work no longer suffices for carrying on the vital functions of the unemployed body. In the last analysis, functional organic health depends on the heart. While it is true that it sends to the tissues the toxins which attack their integrity, it at the same time supplies them with the bulwarks of defence and the material for repair. Hence, while minor deviations from health may pass unnoticed in all other organs, the heart cannot vary much from its individual standard without giving rise to uncomfortable sensations or distressing symptoms. Has cardiac muscular insufficiency a characteristic symptomatology? At first sight it would appear so; and probably all of you can form a clear mental picture of the sufferer from impaired circulation. We require but a short experience with those so afflicted to know the cyanotic individual laboring under distress of dyspnoea. But are these prominent symptoms of impaired circulation pathognomonic? By no means. Pulmonary, arterial, nephritic, hepatic disease, and septic conditions will produce them. The more carefully we analyze the individual symptoms occurring in the course of myocarditic disease, the less dependence we will find that we can place on any one of them for diagnosis. Bertin, in his work on *Heart Diseases*, published in 1821, speaks of myocardial disease as "one of the maladies about which there is the most melancholy obscurity."

As myocardial and pericardial diseases, acute infections are etiologically potent. The fever in connection with them makes uranic demands on the body's ability. The heart must beat faster and has

*Read at the meeting of the Board of Medical Science, New York.

less time for diastolic recuperation. Toxines, especially those of streptococcic origin, as in scarlet fever, cause fibrillar degeneration. But in addition to these factors, as was shown experimentally by Romberg, the toxines, by a direct and paralyzing effect on the vasomotor centre, cause vital circulatory disturbances through the consequent diminution in blood pressure. The heart suffers from the lessened volume as well as the quality of the blood supplied to it for distribution. It is true, this condition is usually temporary and complete recuperation frequent. Yet often it is not taken sufficiently into account during convalescence. With the subsidence of acute symptoms and fever the patient is impelled to move about, to sit up, or even to get out of bed. Children, who are especially prone to these acute-degenerative changes, are most difficult to control. Before the muscular fibrillæ have had time to be restored to their normal condition, the heart is called upon to meet the strain of ill timed activity. Restoration, scarcely begun, is interrupted, and a chronic condition ensues. This cause of chronic myocarditis, often becoming manifest only months after the acute process, is so important that it is worth while to consider the effects of some of the infectious diseases severally. By bearing in mind the causes of the disease, we will be least likely to overlook it.

Myocarditis does not thrust itself upon the attention of the physician—even the most wary. He who runs reads not its faint inscription. With the patient in bed, relieved of the physical exertion attendant on his slightest wants, shielded from annoyance or worry, the work of the heart is at its minimum. The stethoscope may not show any material variation from normal heart sounds if no complicating endocardial or pericardial exudation develop. Though the systolic impulse and the arterial lateral pressure are within normal limits, yet the myocardium may be in a state of cloudy swelling and the reticular network of its cells prove to be strained or broken. You have all of you seen this condition of the heart muscle at autopsies on patients dead from acute infectious diseases. Weeks and even months are often necessary for a retrogression to normal conditions. In Nothnagel's *System of Pathology and Therapeutics*, Krehl says categorically: "The poison of diphtheria injures the heart muscle," and a parenchymatous degeneration most generally appears toward the end of the second week. It is remarkable, however, that the patient, a long time after the disease has run its course, perhaps many weeks, is not safe from the manifestation of its invasion. Its appearance may be ushered in by increased activity of the heart, or, per contra, by the slowing of the pulse, a symptom of grave prognostic import. When late in its manifestation, it has already assumed a chronic form. According to Schmalz, ten to twenty per cent. of diphtheria infections develop such myocarditis. Its course may extend over weeks and months, and, of course, affects children most. French investigators particularly assign to diphtheritic infection the chief rôle in the causation of chronic myocarditis. Between its manifestation and the diphtheritic process, weeks, months, and even years of comparative well being may have intervened. A case in point is the following:

A boy of twelve had had a morbidly mild, but true attack of diphtheria four months before I saw him in consultation. During ten days symptoms of impaired circulation had gradually developed. He was now in bed with slight edema of the hands and legs, cyanosis, sluggish capillary circulation, and respiratory distress. The urine was characteristic of passive renal congestion. The heart was dilated with a soft, blowing murmur at the base. I was informed that he had recovered completely after two months.

Acute rheumatic polyarthritis is the classic cause of heart disease. With its incidence the physician is as keenly awake to the development of cardiac complications as he is for appendicitis when the patient vomits and has abdominal pain. Unfortunately, endocardial and pericardial inflammations are so closely identified with rheumatism that myocardial disease often receives scant consideration. Yet the integrity of the myocardium is decisive. To its impairment alone incomplete closure of the mitral valve may be due, and the consequent physical signs of insufficiency. As pointed out by West, in the *Lancet* of January, 1886, extensive parenchymatous degeneration and intercellular infiltration may, and does, frequently complicate acute articular rheumatism. This inflammation, as pointed out by Romberg, often becomes chronic. It may develop without accompanying articular manifestations. The analogous development of rheumatic nodules in the skeletal muscles is striking. A gradual development and slow course is a characteristic of this form of infection. As it is rarely fatal during its acute beginning, we have, pathologically, little accurate knowledge of its first stages and subsequent course. Diphtheria and acute polyarthritis may serve as ætiological types of chronic myocardial disease to other acute infectious disease, namely, typhoid, scarlet fever, measles, lobar pneumonia, erysipelas, ordinary septic infection, and puerperal septicæmia. That gonorrhœa may bring in its train an endocarditis is now established. Its invasion of the myocardium is doubtful. All these infections vary greatly in the degree of their severity. They may be so mild as to escape the attention, not only of the patient, but of the physician as well. It is possible to explain in this way some of the so called primary or idiopathic myocardites. Why and how these toxines invade the cardiac parenchyma seems to be practically unknown, just as it is of other organs, as, for example, the kidneys.

I would dwell with special emphasis on influenza in relation to myocarditis. According to Krehl, "it has been definitely settled that the myocardium is anatomically injured by this infectious process." Our knowledge of grippe really extends over a period of only sixteen years. Post mortem findings in fatal cases usually could be referred to an admixture of other infections. However, prolonged invalidism after influenza has been so common an experience that both the profession and the laity accept it as one of its inevitable contingencies. With this precordial distress and pain, dyspnea, and arrhythmia on slight muscular or mental exertion, even anginal crises, have been observed. But whether these arise from the neurodepressive effects of the disease or myocardial impairment still remains a problem to be solved.

Thus far, I have briefly considered causes which,

at first operative in producing an acute myocarditis, still potentially retrogressive to the normal, often result in chronic disease. We come now to those which, insidious and slow in their development, determine a chronic, irreparable condition. Chief among these is arteriosclerosis, a disease the rapid increase of which has kept pace with the increase in luxury and self indulgence, and the unremitting strain of modern social and commercial conditions. It is a disease of the city and the strenuous life. Legitimately peculiar to old age, it now affects individuals in their youth and prime. Of its direct effect on the heart muscle and as it occurs in the aorta and coronary arteries, Osler says: "There is a form of aortitis met with not infrequently in men between the ages of thirty and forty, who have had syphilis, and who have worked hard and drank deep—devotees of Venus, Bacchus, and Vulcan—in which the intima is swollen, almost corrugated, with fresh translucent area of endarteritis." One of the consequences of this condition is a narrowing of the orifices of the coronary arteries. The general nutrition of the heart suffers, and a more or less rapid degenerative change in the myocardium results. Barring other deleterious influences its course is determined by the amount of work the heart is called upon to perform. In its initial stages, treatment can here still accomplish a great deal.

When the sclerotic process affects the coronaries themselves the nutrition of the heart suffers still more. Being practically terminal arteries, a diminution of their calibres leads to grave pathological changes, or even functional death of the muscular fibres they supply. Aside from such extreme consequences, it is evident that with an insufficient oxygen supply, with a hindrance in waste removal, with incomplete metabolism, the functional activity of the heart must soon become inadequate.

Syphilis.—Ricord, in 1856, pointed out that, while gummatous invasion of the heart may be rare, syphilitic disease of the myocardium is a frequent occurrence. The syphilitic poison has a predilection for the arteries. Its morbid processes are not distinctive. The vascular changes it produces resemble those of ordinary arteriosclerosis, and the parenchymatous sequence is practically indistinguishable from the various stages of fatty degeneration. It may be one of the developments of congenital syphilis, as found by Mracek, in autopsies on infants. In the acquired form its invasion is usually coincident with that of the nervous system. It goes without saying that for therapeutical reasons, its early recognition is of paramount importance.

Chronic Nephritis and Lithæmia.—So far as they relate to the trophic effects which they have on cardiac muscular fibrillæ, chronic nephritis and lithæmia may be classed together. They are closely interwoven with arteriosclerosis. They may exist independently, however, and through the blood current, vitiated by their products, exert their baneful influence on the myocardium.

George F. Shoemaker, in *American Medicine* of last December, discusses a special form of degeneration of the heart muscle in the presence of fibroid tumor of the uterus. "The degeneration is post-hypertrophic. Two such cases have come under my observation, one of which was operated on, the other not. The latter, a woman, now fifty-three

years old, past the climacteric, and under my observation for fourteen years, has well marked symptoms of chronic myocarditis without endocardial disease. It is interesting in this connection to note that the heart hypertrophies during pregnancy. After delivery, instead of involution to normal, depressing influences have been observed to produce morbid myocardial changes. Such cases have come within my observation."

Anæsthesia.—Chloroform and ether anæsthesia may cause myocarditis. In its immediate effects this is rarely noticeable. Remote effects if not ascribed to other causes are laid to the door of the disease requiring operation or the neurodepressive sequence of the latter. Prolonged invalidism, so commonly observed and pointed out by Dr. R. H. Fite, finds a ready explanation in impaired cardiac functions resulting from a degenerative change of the heart muscle. The subject was carefully studied by Dr. Bevan and Dr. Favill and reported in the *Journal of the American Medical Association* of September 20, 1905. I quote some of their conclusions: "Anæsthetics, especially chloroform (ether, to a very limited degree) can produce a destructive effect on the cells of the liver and kidneys, and on the muscle cells of the heart and other muscles, resulting in fatty degeneration and necrosis, very similar to phosphorus poisoning. The injury done is in direct proportion to the amount of the anæsthetic and the length of the anæsthesia. It is probable that milder degrees of this poisoning are recovered from. Post mortem reveals—fatty degeneration of the heart and other muscles."

These facts form a strong argument in favor of rapid operating and limiting in every way possible the length of the anæsthesia, and the dose.

I have devoted so much time to the consideration of the ætiology of myocarditis, because within it is embraced the prophylaxis, and in part, too, the treatment.

The symptoms of failing heart energy, of "air hunger," varying in degree from uncomfortable præcordial sensations, irregular heart action, and cough, to orthopnoea, passive congestion or anæmia of the vital organs and nerve centres, we need not dwell on. The former should incite thorough investigation; the latter tell their sad story.

Dyspnœa.—Of dyspnœa, however, I would say that to be of serious moment, it must be progressive. I have noticed in a number of instances that individuals with healthy hearts have experienced this symptom at the beginning of physical exertion, to disappear upon its continuance. To use a well known expression of athletes, they must get their "second wind."

Three phenomena, however, characteristic, though by no means pathognomonic, of chronic myocarditis, I wish to consider briefly. Cheyne-Stokes respiration, the Adams syndrome, and angina pectoris.

Cheyne-Stokes Respiration. W. usually associates Cheyne-Stokes respiration with cerebral disease. According to Krehl, not only does it indicate pathological changes in the medulla, but in the blood as well. Satterbwaite considers it as one of the symptoms of the last stages of fatty degeneration of the heart. When occurring alone, namely, without other signs of heart failure, it is not of such serious import. It may be noticed by the patient

himself as one of the first symptoms of his myocardial disease. Thus, the curious pause in his respiration, of which John Hunter spoke, was probably a period of apnoea in a paroxysm of Cheyne-Stokes breathing. It was first described by Cheyne in a case of fatty heart, and on the authority of Osler is more frequently associated with chronic myocarditis than with any other form of heart disease.

Adams-Stokes Syndrome.—This, described in many textbooks as a pseudoapoplexy in connection with fatty or fibrous myocarditis, is a condition in which, with a permanently slow pulse, the patient has transient vertigo or falls into deep coma. In the first case described by Adams, and in which the patient had no less than twenty so called "apoplectic" attacks, the heart was found to be excessively fatty.

R. W. Smith also noted a fatty heart post mortem. A sort of aura may precede the attack. It lasts from a few seconds to several minutes, rarely longer. During the attack respiration is slow and stertorous or of Cheyne-Stokes character. Patients awaken without paralysis to their former condition. Krehl observed a patient who, in the course of ten years, had several hundred of these attacks. The heart beats may be 30 to 15, and have been observed to be 4 to 5 a minute. Transient disturbances in the cerebral circulation are responsible for the attacks of vertigo and coma.

True angina pectoris is a symptom of coronary disease, and therefore, as already pointed out, of myocarditis. It would seem as though the last word regarding this frightful condition had been said by Osler in his classic lectures on the subject, published in 1897. In the second of these, on page 31, he says: "By far the most common heart disease with which angina is associated is chronic myocarditis, the signs of which are often dubious." Its salient features are: First, pain, agonizing and paroxysmal, tearing its path through the chest and radiating over the area of distribution of certain of the cervical and dorsal nerves. Morphine and chloroform only can assuage it. Secondly, a sense of imminent dissolution, of mental anguish, a feeling that life had reached its goal. This second feature may predominate almost to the exclusion of the first, constituting the *angina sine dolore* of some authors.

Treatment.—In the treatment of chronic myocarditis we must bear in mind the following points:

That we have to deal with a chronic disease capable of quiescence, possibly permanent, but ordinarily slowly progressive.

That the heart will never be capable of more work than the present state of its parenchyma warrants.

That while temporary weakness from overstrain may be amenable to treatment, any call for more work means further degeneration.

That it affects all the constituent tissues, the muscular fibrillae, the circulatory, nervous and ganglionic apparatus, the last perhaps least.

That it may be localized, as, for example, externally from a pericarditis, internally, from bacterial invasion, affecting perhaps the papillary muscles alone, or from an infarct or diffuse as from syphilis, lead or phosphorus poisoning.

That compensatory hypertrophy does not take place as when increased resistance is to be overcome

due to valvular defect within, or arteriosclerosis without.

That extraorganic and vascular complications usually exist.

It is essential, to prolong the patient's life and make it tolerable, that he must understand his physical limitations. Ordinarily he seeks advice and aid when the first symptoms of cardiac inadequacy manifest themselves. The heart no longer supplies the energy for his mode of life. Its work must be minimized temporarily. For the time being the patient requires rest, absolute rest, physical and mental, until the manifestations of failing heart energy, be they cerebral, respiratory, digestive, hepatic, or renal, have been relieved. At this time, any attempts prompted by the patient's pleadings to stimulate the heart activity by drugs, baths, or mechanical means, may invite the development of anginal attacks, sudden collapse, or "help him along in his progress to a watery grave." At this stage many a patient has been ill advisedly sent to Nauheim, subjected to all the strains and annoyances of a long journey, in the illusive hope that health will be restored through the magic of its waters. Comfortably propped up in bed or in a reclining chair in a well ventilated room or better still, in the open air, with cheerful surroundings, a diet adapted in quality and quantity to his digestive capacity, the patient may enjoy a feeling of contented well being, which he has not known in months. Sleep, his greatest necessity, may come naturally. If hypnotics are required, paraldehyde and trional should be preferred. Temporary resort to morphine or chlorodyne is occasionally expedient. A two to four weeks' course of such "rest cure" will in many cases restore the circulatory equilibrium. Then is the time to begin the Nauheim treatment for increasing the heart's efficiency. Schott, Besly Thorne, and Satterthwaite have described this in every detail. The exercises constitute its most valuable feature. But these must be administered by an operator not only well qualified to give them, but also to watch respiration, arterial and capillary circulation, and appreciate the symptoms of fatigue.

Of late Theodor Schott has stated that the carbonated brine baths can be given at the patients' home with equally good effect. Judicious medication is essential to the satisfactory management of chronic myocarditis. By means of drugs we can influence the circulation with the greatest facility. The blood pressure may be raised or lowered. The myocardial contractions can be hastened or slowed. The blood can be diverted to certain regions of the body or to particular organs. The volume of the blood can be increased or diminished at will. And finally, the quality of the blood is subject to change, determinable by diet or medication. The enforced quiet with which we begin the treatment of broken compensation is at the outset apt to cause irritation and restlessness. To allay this, monobromate of camphor in doses of 2 to 5 grains has given me most satisfaction.

A most valuable remedial agent is nitroglycerin. It contracts the heart, is a vasodilator, diminishes arterial resistance, and is, therefore, the appropriate remedy for a heart, which must be relieved and is incapable of responding to stimulation.

When syphilis is acknowledged or suspected,

mercury, by inunction, or hypodermically, and sodium iodide should be used conscientiously, the latter in small doses, frequently repeated.

To stimulate the nervous apparatus, strychnine may be employed, or the alcoholic tincture of cereus grandiflorus in minims 1 to 2; but it must be remembered that they act by contracting the arterioles as well as the heart. They can be guarded by aconite or nitroglycerin.

Complications, especially those of renal origin, may require the administration of one of the digitalis group. This latter drug, however, ought scarcely to find a place in the treatment of chronic myocarditis. With arteriosclerosis, which so often accompanies it, the danger of apoplexy arising from the administration of digitalis is great. I have found the theobromine sodium salicylate especially valuable for stimulating the action of the kidneys.

In neurotic types of myocarditis *Convallaria majalis* should be tried.

Anasarca, ascites, and hydrothorax may require surgical measures.

Beyond all things, let it be remembered that the patient's life must be so regulated that his activity, be it physical or intellectual, is well within the margin of the heart's capacity.

52 EAST EIGHTY-SECOND STREET.

ADYNAMIC ILEUS.

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By the term "dynamic" we mean "motion," "activity." Dynamic conditions of the intestine deals with motor activity. The term dynamic coupled with "ileus" (from Greek *εἶλεν*—to wind) means a motor obstruction, or an obstruction to the propulsive power of the intestine. Now as the two terms dynamic and ileus are diametrically opposed (one meaning movement and the other obstruction) we would suggest that the term "adynamic" be adopted universally, since it exactly describes the condition, and reserve the term dynamic to describe those opposite conditions—spasm of intestinal muscle.

Adynamic ileus is not a disease so much as a symptom complex; combining in all cases four prominent symptoms: (1) Stoppage of the fecal stream; (2) meteorism; (3) abdominal pain; and (4) vomiting.

To the average surgeon all obstructions are mechanical, and must be due to some one of the many flexions and torsions, tumors and hernias, impactions and intussusceptions, which go to make up the great bulk of cases. And yet I want to ask you a question, you surgeons and you practitioners: Has this ever occurred to you? After a definite diagnosis of intestinal obstruction, with all the classic symptoms, the abdomen is opened and the intestines come tumbling out of the cavity, enormously distended, and the distention absolute. You look for the site of the obstruction until you are compelled to seal the incision from one end to the other. You find that it all looks alike, all distended and *without a single anatomical cause*. There is no peritonitis present. You may force some of the gas down the bowel by your manipulations and some of

it may pass from the rectum. You close the abdomen and the case goes on just as if there had been no interference, purgation and rectal tube to the contrary notwithstanding. The picture is continuous until death relieves both the surgeon and the patient.

Few surgeons have not had this experience, and I wonder if it occurred to them that they were dealing with a simon pure case of adynamic ileus.

Again, you have an incarcerated hernia, almost strangulated, which you finally succeed in reducing. You think that all trouble is over and are surprised to find, in the course of six or twelve hours, all the signs of ileus, and you conclude that you have reduced *en masse* or that you have gangrene of the bowel. The picture of acute obstruction is typical, and you open the abdomen, only to find no mechanical obstruction, no anatomical lesion to account for the trouble.

A discouraging picture to the surgeon is to do a hysterectomy, where everything is beautifully done; your technique is perfect, the toilet of the peritoneum is fastidious, and there is no infection. Twelve hours later there is marked ileus. You resort to therapy frantically, but of no avail, and you say at once "adhesions." You conclude that adhesive bands have formed producing the obstruction. I say that is altogether possible. It is the case many times, but in this case you are fortunate enough to get a post mortem examination, and are astounded to find the offending adhesions absent, and the bowel patent, so far as demonstrable anatomical lesion is concerned.

Have you not seen a condition where there is compression of the small intestine high up, and all the contents of the lower bowel completely retained?

Again, how often have we seen the symptoms of complete occlusion occur during a severe attack of renal or biliary calculous colic!

Another series or type of cases is where there have been frequent attacks of ileus that have subsided, either spontaneously or as the result of treatment, until finally an attack reaches a degree of severity where the life of the patient is threatened, and you operate. You find one or more bands constricting an enormously distended intestine. You conclude at once that they are the cause of the trouble. You free these bands and place the patient in bed with a feeling of security, explaining to the family that you have found the cause of the trouble and relieved it. Contrary to the expected, in the course of twelve hours the patient dies of an unrelieved adynamic ileus.

Let us stop for a moment and consider these adhesions. They are not contractile, hence do not contract spasmodically to occlude the lumen of the intestine.

In an intestine, collapsed, there can be no peristalsis; likewise in an intestine over distended there will be, first, inhibited peristalsis, and, finally, complete paralysis, so it comes that there is a range within the normal limits of which peristalsis can occur. This presupposes a certain amount of gas in the bowel. It would be an interesting study to learn, by experiment, what the limitations of this normal distention range are, and just what degree of distention was conducive to the maximum vigor of peristalsis.

Now these adhesions that I have been talking about in this hypothetical case had a diameter beyond the normal range of distensibility; consequently, when the adynamic factors produced distention up to the adhesions, then the adhesions became stretched and the picture presented makes it appear that the bands are cause of the trouble, when they are secondary to the real causes of the adynamic conditions back of them.

I want to lay down a maxim: Adhesive bands should be assigned as the cause and prognosticated accordingly, *when and only when* it is apparent that they are confining or compressing the bowel below or within the normal range of distensibility. Let the normal range of distensibility be x ; let the diameter of the adhesive band loop be x ; and the chances are that the subject will never have ileus from the band.

Now let the adhesive band loop be $\times +$, and it should never be considered a primary causative agent. Should obstruction from adynamic causes occur the intestine range will be advanced to $\times +$. You now have obstruction without constriction.

Advance the intestine range to $\times 2$ and you have obstruction with constriction, but the constriction is secondary. On the other hand, let \times be the normal distention range, and let $\times -$ be the diameter of the loop. You may now have constriction without obstruction, but should ileus occur, that constriction then comes to be an important factor in the ætiology and should be considered accordingly. This maxim will help us in both prognosis and treatment, and will prevent us from assigning causes erroneously to the detriment of ourselves and often with death to the patient.

Now let me top out my foundation with brief mention of a few cases not hypothetical; though I believe that you will all agree that my hypothetical cases have so far been real to many of us.

Treves reports a case of a child with all the symptoms of strangulation of the intestine, viz., great prostration, incessant vomiting, constipation, and meteorism with abdominal pain. All of the ileus symptoms complex. A hard tender lump was found in the inguinal region, and a diagnosis of strangulated hernia was made. In his efforts at reduction it was discovered that there was only one testicle in the scrotum. He immediately changed the diagnosis to "inflamed undescended testicle," applied ice, and found the symptoms to all subside with perfect recovery. Here was a true, unmistakable, undeniable case of reflex adynamic ileus. Other cases of similar condition have been repeated from inflamed hydrocele, contusion of the testicle, operations on piles, inflammations and suppurations in the inguinal region, and even in the skin of the abdominal wall.

A case is reported by Nothnagel, in which a woman had a serious valvular lesion of the heart, with great abdominal distention from ascites. Paracentesis abdominis was performed and 6,400 c.c. of fluid was withdrawn. Soon afterward symptoms of ileus developed from paresis (true adynamic ileus).

Another case where there was a contused wound upon the abdominal wall, made by a blunt instrument without producing an open wound. All the symptoms of occlusion developed, and the patient

failed to reveal any anatomical lesion of the intestine.

Werth reports a case of true ileus paralyticus without anatomical lesion, and Nothnagel reports one which corresponds perfectly with it. Werth also reports seven cases of ileus paralyticus with contributing adhesive bands, but gives the bands their proper share of the honors, in that he does not mistake them for the cause. He makes a distinction between ileus with and without adhesion. I again quote Werth: "A patient is operated upon for a growth in the intestinal wall, obstructing the lumen. The bowel is resected and the patency is re-established. The patient makes a good recovery and then begins to have constipation, and then no actions pass at all. Tympany develops, and the patient dies of ileus. At the post mortem examination there is absolutely no anatomical lesion and the bowel is patent throughout, there being no obstruction to the passage of the fecal stream in any part of the bowel, while the peritoneum is perfectly normal."

Mannaberg reports a case of pneumonia and purulent pleurisy, where ileus developed and was operated on, but no trace whatever of mechanical obstruction was found. Finally, we are all familiar with ileus from peritonitis.

Now what must be the interpretation of all of this? That there is a form of intestinal obstruction, purely functional, purely nervous, purely reflex, independent of and dependent upon no anatomical or mechanical agency whatever. We must admit further that when there is a definite mechanical cause present, which is removable, that the adynamic element may persist and may terminate the life of our patient.

History.

Ileus was long known as iliac passion. The term "paralysis" of the intestine has been used, and the symptom of the disease described and explained as paralysis by many of the older writers; but few attempts have been made to make a group of symptoms indicative of a special condition.

Henrote was the first to enlarge the conception of the term. He called it pseudooclusion. Rosenbach deserves the main credit for establishing clearly the significance of intestinal insufficiency.

While no one doubts that intestinal paralysis may occur in peritonitis, and even in distention, it has not been generally conceded that it may occur as a purely functional disorder.

Nothnagel devotes about nine pages to the subject of "motor insufficiency," and cites many facts that can be interpreted as supporting the theory of adynamic ileus. Von Bergmann's *System of Surgery* devotes one page to the subject, and Douglas, of Nashville, in his *Abdominal Surgery*, devotes two pages. Outside of this I have failed to find the subject mentioned in a single American author.

In searching the periodical literature I have found only two articles. Murphy wrote something upon the subject in 1896, but I have been unable to get hold of it. The other article is by John M. T. Finney, in the *Annals of Surgery*, wherein he merely more than mentions the subject, dealing almost exclusively with the mechanical side of the question. Finney recognizes three forms: a, Mechanic-

al; b, septic; c, adynamic. We quote, "Just why inflammation of the peritonæum produces intestinal paresis, whether it is due to œdema or reflex action, vasomotor disturbances or local effect of the toxins upon the nerves of the intestines, it is not known; that all these factors are concerned is probable." Which voices the chaotic state of our knowledge upon this important subject.

Anatomy and Physiology.

The immediate nervous mechanism of the small intestines is made up of two plexuses, Auerbach's and Meissner's. Auerbach's plexus is situated between the two muscular coats of the bowel and has immediate control over muscular activity. Meissner's plexus is in the submucosa, from which it sends filaments to the gland structures, blood vessels, and lymphatics of the wall. These plexi are a part of the great sympathetic system. The innervation of the small intestine is from the supramesenteric plexus, and the large intestine is supplied from the inframesenteric plexus. The first one comes from the solar and the second from the aortic plexus, which is intimately connected with the solar.

The solar plexus, or the great abdominal brain, is the distributing centre for the department of abdominal interior, and is in connection with the brain through the splanchnic nerve and the vagus. This complex nervous arrangement is made up of both sensory and motor fibres and through the different ganglia is capable of many reflex actions. The chief inhibitory nerve of the intestine is the splanchnic, while the vagus promotes peristalsis. Irritation of the splanchnic inhibits peristalsis, and it has been shown also, by the experiments of Goltz, that irritation of the splanchnic nerve slows the action of the heart, exhibiting symptoms of collapse.

The peripheral motor neurones originate in the cells of the anterior cornua of the cord, pass out through the anterior roots, and reach the muscles through the peripheral roots. The central motor neurones are in the cortex of the brain, and may originate impulse for muscular activity, but can act only through the peripheral neurones. The central motor neurones act chiefly by controlling and inhibiting the peripheral neurones to prevent spasticity of muscle; hence it would seem that lesions cephalad to the peripheral motor neurones, would result in muscular spasm, by cutting off the control, while lesions caudad to the peripheral neurones would result in paralysis. Now, no one denies that certain lesions in the cord leads to paralysis of the corresponding groups of muscles. Why then is it not reasonable to suppose that the same thing may happen to the intestine and give us an adynamic ileus of central nervous origin. I maintain that it does occur and more often than we have supposed. This delicate mechanism of acceleration and control is what we know as muscle tone. When the are between the sensory and motor neurones is intact we get reflex activity by short circuiting the current at some point below the brain.

I believe firmly that this reflex arc occurs in the wall of the intestine, that is, the plexus of Meissner is capable of originating impulses which short circuit through the plexus of Auerbach, giving us an automatic control, which is subject to review by the centres.

Pflüger demonstrated that stimulation of the splanchnic nerve inhibited peristalsis, and since his experiments it has been shown that certain vasomotor filaments run in the splanchnic nerve, and that irritation of that nerve produced anæmia of the intestine; a very important fact in the ætiology of adynamic ileus. While it is generally accepted that the starting point for nervous stimuli is in the plexi of Auerbach and Meissner, it has been demonstrated that it may originate anywhere along the course of the splanchnic nerve. Since this is possible, isn't it also possible that an ileus may occur in this way and give us a variety of obstruction not ordinarily considered at present. Nothnagel says: "He is absolutely sure that it does occur; its infrequency being no argument against it."

Dunin and Bouveret call attention to the fact that constipation is a frequent concomitant symptom of the general neuroses and of neurasthenia; furthermore, they have shown that it is the result of, and not the cause of, the neurasthenia.

Physics.

The gases in the intestine are: N, CO₂, H, NH₃, H₂S and CH₄. The N gets in through swallowed air. CO₂ is given up to the intestines by the blood, while H, NH₃, H₂S, and CH₄ are the results of fermentation and decomposition. The gases of the intestine are disposed of in two ways: 1st, by absorption by the blood, and 2, by expulsion from the rectum. Regnault and Reiset proved that CH₄ leaves the system from the lungs and that it originates in the intestine. Tacke demonstrated that rabbits exhale from ten to twenty times as much gas as passes per anum.

We know that the amount of gas in the bowel is subject to constant change with the food, then it seems that an emergency apparatus is necessary, since we cannot be continually passing it per anum. We should remember that it is only the gas in the lower sigmoid and rectum that escapes. We are all familiar with the foetid breath of the constipated, and many of us have seen a tympanitic abdomen subside without expulsion of flatus.

It is evident, then, that absorption of gas is by far the most important means of regulating the amount of gas in the bowel. It is an exceedingly important thing for us to remember that the tendency is not for the gas to be expelled; that this means, commonly considered the usual way, is of secondary importance. With this fact in view, we should not be so surprised that a rectal or a colon tube inserted into a distended intestine will not draw off the gas. Gas will escape from a container only under compression, and when compression is interfered with and destroyed, the gas becomes static.

Example.—Fill a rubber bag or balloon with gas under pressure. Now open the valve and insert a tube into the interior of the bag. Gas will escape. Why? Because the walls of the bag are exerting compression. In a little while the bag will collapse to its normal capacity and the gas will then escape except through diffusibility through the air entering the tube. In order to get rid of the residual gas, it becomes necessary to exert extraneous pressure. Now consider the walls of the bag over distended for a long time. The bag loses its

elasticity or tone, and if you now open the bag it will remain distended, subject only to the law of diffusion, a very slow process. These facts are in accord with the law of equal tensions. Apply the same conditions to the intestine and you appreciate the fact that gas does not escape through the colon tube. Add to this the fact that absorption of the gas is interfered with, and you have the picture complete.

The most prominent symptom of the ileus symptom complex is meteorism. Zuntz has pointed out that the chief cause of meteorism is the failure of the blood to absorb the gas. He has shown that this absorption is interfered with whenever there are circulatory disturbances in the intestinal wall. When we remember that the splanchnic nerve contains vasomotor fibres and that stimulation results in anemia of the wall it will be readily understood why gas accumulates so rapidly. Inhibition of the splanchnic nerve leads to lessened peristalsis and anæmia of the intestine. The fecal stream now becomes sluggish, the absorption of gas lessened, meteorism develops rapidly, and we have the picture of adynamic ileus. A stimulus originating anywhere about the body, provided that stimulus is conveyed to the solar plexus or splanchnic nerve, may produce adynamic conditions of the bowel.

Circulation of the blood through the bowel is interfered with in the following conditions: Collapse, circulatory depression of the nervous diseases, peritonitis, puerperal conditions, and acute and chronic obstruction to the portal circulation, in all of which absorption of the bowel is interfered with; thus breaking up the balance of the compensating mechanism by means of which the distention of the intestine is kept within normal limits.

Nothnagel says: "It is probable that changes in the blood contents of the intestinal vessels are dependent upon changes in the nervous system." It is no great stretch of the imagination to picture a paralysis of the abdominal muscles. Now, Nothnagel says that "if the abdominal muscles are weak, only partial defecation can occur," so that this may be an ætiological factor. Partial defecation means partial retention; this means more fermentation; which interferes with circulation and absorption until the picture presented may be one of adynamic ileus.

In final support of the theory that there is a distinct form of adynamic ileus of central nervous origin and independent of demonstrable anatomic lesion in the intestine itself, I quote two cases reported by Emminghaus:

One of his patients was a woman who had suffered for years with an obstinate habitual constipation. At the autopsy, a dense mass of pleural adhesions was found in the thoracic cavity exactly over the origin of the right nervus splanchnicus major. This adhesion was of long standing and was strictly confined to this one area on the right side. It was very thick and tough in consistence, shiny and white in color. The right nerve was different from the left and contained a much smaller proportion of nerve fibres. On cross section the left nerve showed four large and fourteen small bundles of fibres, whereas the altered nerve showed four large, but only two small, fasciculi. In the other case, Emminghaus found an encapsulated pleuritic exudate involving the splanchnic. In this nerve sev-

eral bundles of fibres were again found to be in a state of atrophy.

Distinctive Diagnosis.

The four most prominent symptoms of this disease are common to all obstruction, and the distinctive diagnosis is difficult; still, there are certain features that give adynamic ileus an individuality.

The chief points of difference lie in the history of the case, although the physical findings throw some light.

The mode of onset is always gradual, and if not postoperative is the end of a long series of transitory attacks of ileus, superinduced upon a chronic obstinate constipation. This is seen in only one other form of obstruction, viz., stenosis, in which the constipation may be absent. There is usually some history which will give us a clew to stenosis also.

Adynamic ileus may be diagnosed with reasonable degree of certainty when it is concomitant with any one or more of the following conditions: When it occurs in persons of a high nervous tension, without apparent cause; when it occurs in the constipated owl (the midnight student); when it occurs under the stress of great mental strain and depression; when it occurs following the history of some long continued peritoneal irritation, such as cystic ovary, catarrhal appendicitis (due probably to the irritative presence of an enterolith, and preceding any inflammatory history), hydrosalpinx, and splanchnoptosis; when there is history of incarcerated testicle, inflamed hydrocele, severe contused wounds to the body, and profound shock; following operation upon piles, extensive operations on the mesentery, and following an operation where there has been extensive handling of the coils of the intestine, especially when the surgeon has not been careful to prevent the twisting of an intestinal loop, even temporarily, upon the axis of its mesentery; finally, when the surgeon has carelessly left a mass of small intestines in the pelvis instead of withdrawing them and carefully placing the sigmoid and rectum in the pelvis without tension. Any of these conditions associated with or preceding an ileus, without definite assignable cause, is strong presumptive evidence of adynamic ileus. A history of peritonitis, no matter how remote, should totally exclude a diagnosis of reflex adynamic ileus, on account of the frequency with which mechanical conditions follow septic processes.

So much for the distinctive history; now as to the physical findings. Pain is modified; that is, it is never so acute as in the mechanical forms. Meteorism develops relatively earlier than in other forms, while vomiting is late or not at all. On inspection and auscultation we find either diminished tormina or the dead calm of intestinal resignation. An educated ear, applied to the abdominal wall, can almost hear the silence; it is so intense. An important distinctive point is the cessation of vomiting without the subsidence of meteorism. At the operating table the surgeon must distinguish between those conditions which will and those which will not regain tone after the removal of mechanical causes. He will base his judgment upon the following conditions: (a) The degree of distention; (b) the length of time that it has existed; (c) the evidence of spastic return upon relief of mechanical

conditions; (d) the general state of the patient (shock) and his estimation of the patient's ability to stand superadded shock.

Treatment.

Treatment, in order to be of any avail, must be resorted to early. In the early stages the stimulant effect of judicious purgation may be of some benefit, but I think you will uniformly agree as to its uncertainty. Above all things, avoid frantic therapy. If you must rush do so deliberately. Efforts directed from below are better. Enemata of a stimulating or hygroscopic nature, such as salts, glycerin, and turpentine, may be tried, or the introduction into the colon of an ounce of powdered alum. Efforts at the internal administration of gas absorbents have been uniformly disappointing. Massage and faradization may be tried, and if combined with a judicious external pressure, such as uniform elastic or roller bandage compression, with a colon tube high up, it may be of considerable value. If the condition is not postoperative I would advise placing the patient in a full bath at a temperature of about 105° F., with friction to the abdominal wall, while a colon tube is left *in situ*. The stimulant effect of heat is not to be forgotten, and the old hot turpentine stupes are excellent. By far the most potent remedy we have at present is physostigmine salicylate hypodermically. Dilatation of the lower bowel with the largest Wales bougie is not to be forgotten.

In desperate cases it has been suggested to puncture the intestine, as the veterinarian does in the cow, and J. W. Ogle, in 1888, reported a large number of cases where the intestine had been punctured with a needle. The practice, however, is unscientific and dangerous, though the principle is correct.

There is a specific treatment for adynamic ileus when therapy fails. But before recommending it, I want to divide ileus into two great classes: (1) Those due to peritonitis and overdistention; and (2) those due to a central nervous origin, the existence of which, to my mind, is perfectly plain. The treatment is enterostomy.

Enterostomy should be resorted to under two combinations of circumstances only: (1) The surgeon performs laparotomy in order to determine with certainty the presence of mechanical causes; if any are found, he attempts to do the ideal thing by removing them, even though it requires resection. He then determines the amount and degree of the adynamic element present. If in his judgment the operation will not free the patient from the danger of meteorism he brings up a loop of intestine, stitches it in the wound, and, after closing the wall, incises the gut. If he has found a simple pure case of adynamic ileus, he does an enterostomy at once.

The other class of cases is where the condition of the patient will not permit of general anesthetic exploration. He then rapidly opens the abdomen under crease, picks up the first presenting loop of intestine, fixes and opens it. It is a peculiar thing that the first presenting loop of bowel is the proper one to open. It is a rule that nearly always holds good, and is easily explained when we stop to think that the loop which contains the most gas will rise

the highest. For the first few hours after opening the bowel, little will pass; but as the excess escapes slowly through diffusion the muscle is relieved and regains tone. Gathering power then at every moment, it soon empties itself of such an enormous quantity that it will tax the nurse to take care of it.

This procedure will save life, but I do not recommend it to the exclusion of exploration and removal of mechanical cause when found, for this condition (enterostomy) is in itself sometimes a menace to life.

It is, however, a valuable aid in saving life in the hands of a competent, conscientious, fearless, conservative surgeon.

In a given case, the surgeon should never lose sight of the question: *Is this intestine to be opened?*

Reflex Adynamic Ileus, Report of Case.

Mrs. E. B., aged forty, mother of several children, was admitted to the hospital on December 13, 1906, suffering from an acute attack of intestinal obstruction. There had been no actions for seven days, and nausea and vomiting was present; tympany was rapidly developing, and the suffering was extreme. She had, upon admission, been treated by Dr. Leukens for the fecal retention, but not getting prompt results, he transferred her to the female surgical ward. She had a subnormal temperature and a slow high tension pulse. She was taken at once to the operating room and a median laparotomy was performed. I found in the pelvis double cystic ovary which were at once removed. There seemed at first to be some obstruction in the left upper quadrant of the abdomen, but upon tracing the intestine it was found to be free. The gut was traced carefully from one end to the other, and not a single mechanical cause could be found to account for the trouble. The case was one of reflex adynamic ileus, and I believe undoubtedly reflex from the cystic ovary.

The abdomen was closed in the median line after the appendix was first found and brought through the abdominal wall by means of a stab wound the width of my knife blade. The appendicular artery was tied about three quarters of an inch from the base of the mesoappendix. This was done because the mesoappendix was too bulky to bring through a small opening. After tying the artery this was cut away. The appendix was now anchored to the skin, its end cut off, and the lumen dilated. I was very much surprised at the ease with which this could be done. A large catheter was now inserted through the appendix into the bowel and the patient put to bed. Gas and feces escaped through the night, but not as freely as I wished. In the morning I found that the vomiting had returned. Upon examination of the catheter I found that it was blocked, and after removal and cleansing, a reinsertion brought immediately an enormous quantity of gas. I then connected the tube with a bottle, which I laid alongside the patient, and found that all drainage was received into it without soiling the wall or dressings and without the troublesome irritation to the wall that usually follows an ordinary enterostomy. All vomiting now ceased and gas pains disappeared. On the second day peristalsis could be seen returning, as evidenced by the continued spurts of gas and feces into the bottle. At the end of fifty-two hours the bowels moved, and again at the end of fifty-eight hours. After sixty hours had elapsed the internist, Dr. Montgomery, succeeded in irrigating the entire length of the colon, the water passing in the appendix and out the rectum through a colon tube.

The catheter was now removed and the appendix ligatured in order to control leakage. This was un-

necessary, however, for the compression of the muscles of the abdominal wall was sufficient to control this, except when the gas pressure got beyond a certain point when it would force by and relieve itself. The appendix now began to slough, and by the fifth day was completely obliterated. There was a little leakage into the lower angle of the incision on the eighth day, but it gave no trouble. Barring the usual little setbacks that are liable to happen in any laparotomy, this patient made a perfect recovery. This patient gave a history of a number of attacks of obstruction, transitory in character, covering a period of several years and coincident with attacks of acute pain in the region of both ovaries.

BESTEN APARTMENTS.

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXVI.—How do you make an early diagnosis of pregnancy? (Closed September 16, 1907.)

LXVII.—How do you treat delirium tremens? (Answers due not later than October 15, 1907.)

LXVIII.—How do you treat the vomiting of pregnancy? (Answers due not later than November 15, 1907.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXV has been awarded to Dr. C. E. Montgomery, of Louisville, whose article appears below.

PRIZE QUESTION NO. LXV.

THE PREVENTION OF CONTRACTION OF THE SCARS OF BURNS.

By C. E. MONTGOMERY, M. D.,
Louisville,

Lecturer in Surgery and Gynecology, Kentucky School of Medicine.

Since the extent of scar tissue and contraction following burns depends largely upon the rapidity of the healing process, it becomes necessary to use every method available to promote rapid healing if we would avoid the extensive cicatrix and contraction. Many preparations have been lauded as the best, but from my experience there is no one best for all cases. The treatment must necessarily depend largely upon the patient's surroundings. If it is possible to have the patient in a well equipped hospital or a home with modern sanitary conveniences we can follow a more scientific plan of treatment, and as a rule secure better results. The continuous saline bath treatment, which gives such excellent results, can be successfully carried out.

By treating a patient with an extensive burn by the

saline bath method the slough is lessened and toxic irritating material is removed as rapidly as formed, so that it does not produce destruction of the adjacent uninjured tissue and in this way produce a larger surface to treat. The physiological saline bath also furnishes nutrition to the partially devitalized cells that cannot be reached by the blood current, owing to the thrombosis produced by the heat. It is essential to save the life of every cell, especially the epithelial cells, as they are the ones to regenerate the true skin. The patient can be placed on a hammock made of sterile sheets and hung in an ordinary bath tub. An opening beneath the hips is made so the bowels can be attended to without handling the patient or contaminating the bath by first drawing off the water.

Where it is not possible to use the continuous saline bath method some other dressing must be applied. Do not attempt by antiseptics to completely sterilize the exposed cells, for they will be devitalized and the slough made larger and deeper, and this is to be prevented if we do not expect contraction.

A one or two per cent. aqueous solution of picric acid dressing is excellent and promotes healthy granulations, but if the burned surface is very extensive there is danger of poisoning.

I think it best to thoroughly irrigate the burned area with a large quantity of boric acid, saline, sterile water, or a sodium bicarbonate solution, using some mild liquid soap when necessary, and then apply a sterile dressing as follows: Boil rolled gauze bandages in petrolatum until both are sterilized. The petrolatum will evenly penetrate the bandages and they may be used at once by removing them with forceps from the boiling mass and dropping them into a basin of cold sterile water. With these it is possible to form a dressing that is soothing and perfectly excludes the air from the exposed cells and nerve ends. This dressing can be rapidly applied and made to separate the fingers and toes and flexures of the body and prevent adhesions between adjacent surfaces.

To the petrolatum one or two per cent. of picric acid may be added and thus make use of the air excluding and soothing properties of the petrolatum and the antiseptic and healing property of the picric acid at the same time. If there is evidence of probable infection and the burned surface is not large I would add carbolic acid for its antiseptic effect. But if the area is large boric acid may be added without danger.

As I stated in the outset the contraction of the cicatrix will depend largely upon the way the burn is treated in the beginning. If it is so managed that there is a healthy granulating surface brought about with a minimum of destruction of healthy tissue there will be less cicatrix and consequently less contraction.

After a granulating surface is formed skin grafting offers by far the best method of healing with minimum contraction. The granulating surfaces must be thoroughly washed, preferably with saline solution, and then sponged with rough gauze. The skin grafts must be applied in numerous places and held in place by perforated rubber tissue or saline stipes. These grafts take hold very rapidly, and within a few days small islets of skin can be seen in the centre of the granulating area. These islets

rapidly increase in size, covering the surface with epithelial cells and doing away with the demand for fibrous tissue that is compelled to cover the surface if the epithelial cells do not.

The skin surfaces should be brought as near together as possible by adhesive strips, for the normal skin can accommodate itself to a great deal of stretching and the granulating surfaces are greatly narrowed, thus doing away with so much cicatrix. After a cicatrix has formed we then reverse the tension of the adhesive strips and stretch our cicatrix continually before it has become very strong. This may be done on a surface like the back by attaching our adhesive near the cicatrix on every side and drawing firmly away from the scar before fastening the adhesive at the other end. Much of the contractile power of the cicatrix can be overcome in this way, and to aid relaxation and lessen contraction we massage well the cicatrix with some oil or a witch hazel and bay rum mixture. This will cause a great deal of stretching, as even the layman knows when he massages the flanks of his favorite horse for hours so that he may take longer leaps without tension. Of course, not much can be done by massage until the cicatrix has formed, but afterward massage combined with tension by the adhesive will greatly aid.

If the burn is on a leg or arm near a joint the joint must be freely moved daily or ankylosis will take place. After moving it some kind of extension apparatus or splint is applied to prevent the deformity from the contraction.

If contractions have occurred and cause deformity large areas of the contracted tissue should be dissected out and in it skin grafts should be placed.

At times the contraction is due to tendons being shortened, while the skin area is fairly loose. In such a case a tenotomy should be done by cutting the tendon half in two and then splitting it lengthwise, the other half is then to be cut, and the approximated ends are sutured. The contraction may also be due to the subcuticular fibrous tissue, and in a case of this kind the contracting tissue should be severed in numerous places and the cicatrix kept stretched until it is united, and the space filled with skin grafts.

Dr. James P. White, of the United States Army, writes:

The treatment of burns to prevent contraction in their scars does not differ materially from that of any other large open wound. Since the contraction in all scars is due to the contraction of the new connective tissue fibres in them, which fibres are developed in great excess by the ordinary method of treatment, the chief effort in preventing this contraction must be to reduce the development of these connective tissue fibres to the minimum. If this can be done, if the wound can be filled up rapidly with granulations of the proper type, and if the epithelium can be induced to form over the wound quickly, the object sought has been attained.

That solutions of continuity in any tissue can be repaired with very little contraction is abundantly demonstrated in the healing of subcutaneous wounds. It is true that healing in this type of wound is generally by blood clot, but the healing substance must ultimately be largely connective tissue. Now the rea-

son that wounds of this type heal with so little contraction is not that connective tissue fails to develop, but because the amount of this tissue developed is only commensurate with the needs of the part. This result is due to the fact that the part is kept at rest and the granulations are not disturbed or irritated during the healing process.

The case with open wounds is entirely different. These are dressed with sterile gauze, plain or medicated, the dressings are changed one or more times daily, the gauze being porous and in contact with the surface of the wound permits the minute granulations to grow up into its meshes, and every time this dressing is changed these granulations are torn off, leaving a red bleeding surface, the so called "healthy granulations." Every time this process is repeated there is produced, so to speak, a new wound which acts as an additional and powerful stimulus to the production of connective tissue. The tissue cells proliferate, not only at the surface where the granulations are injured, but throughout the entire mass. In this way the scar tissue becomes very dense and the extent of the contraction is very considerable.

If we can produce conditions in an open wound which approximate those of the subcutaneous wound, if the continual irritation of the granulations can be avoided and the minimum amount of stimulation to the connective tissue cells obtained, then there will be but little increase in the production of scar tissue over the amount required, and as a result the contraction in the scar will be very slight.

To accomplish this an impervious dressing will be necessary. This will prevent the tearing or injuring of the granulations, it will keep the surface of the wound covered with lymph, and keep out irritating substances. As a result the wound will fill up and cicatrize rapidly. A very satisfactory dressing is made out of the ordinary rubber dam such as dentists use. The thinnest dam is the most preferable. In preparing it for use it is necessary, first, to scrub it thoroughly on both sides with soap and hot water, using a good, stiff brush in the process. After rinsing in sterile water place for five minutes in boiling water or live steam or for twenty-four hours in a five per cent. aqueous solution of phenol. Store in a two per cent. solution of phenol in ninety-five per cent. alcohol and cut off as needed. In applying the dressing a piece sufficiently large to extend at least an inch beyond the edges of the wound in all directions should be used. Apply directly to the wound without any medication. Cover with plenty of sterile gauze, and retain in place by a suitable bandage. There will be a profuse flow of lymph containing many leucocytes which will last for several days. During the time of this flow of lymph the dressings should be kept moist with a mild antiseptic solution such as a two per cent. aqueous solution of phenol, or a 1 to 3,000 aqueous solution of bichloride of mercury. This will materially aid the gauze in taking up the excess of secretion which will escape around the edges of the rubber dam over the wound. It will also prevent the development of bacteria in and around the wound. The dressing should be changed daily and the wound irrigated, not rubbed or sponged, with a very weak solution of hydrogen dioxide in sterile water, followed by normal salt solution. This will remove the excess of secretion with-

out disturbing the granulations. After cleansing the wound should be covered with the rubber dam and dressed as before. It is not necessary to throw away the pieces of dam after using them, for they can be cleaned, sterilized, and used over and over again.

If the burn is between the fingers or toes each one should be dressed separately. A rubber glove with the ends of the fingers cut off can be used to advantage. Provision must be made for drainage about the palmar and dorsal surfaces in this event. If a glove is not available strips of the dam of suitable width may be used instead. If the wound is extensive and the healing slow, skin grafting by any of the approved methods may be done when the granulations have reached the surface, although as a rule this will not be required.

By this method there is very little pain in the wound because there is no drying or sticking of the dressing, nor does air get to it. The wound fills up and the epithelium forms across it very quickly. There is comparatively little connective tissue formed, and as a result very little contraction occurs in the scar.

Therapeutical Notes

Treatment of Alopecia.—Sabouraud employs the following formula:

R Crystallized acetic acid, 5.0 grammes;
Formaldehyde solution, 6.0 grammes;
Pilocarpine hydrochloride, 1.0 gramme;
Alcohol (at 90%), 250.0 grammes.

To be applied, with friction, to the bald spots.

Le Progrès médical, August 24, 1907.

Ointment for Hæmorrhoids.—Vaquez recommends:

R Cocaine hydrochloride, 0.03 gramme;
Solution of adrenalin (1 to 1,000), gtt. xxx;
Petrolatum, 30.0 grammes.

M. To be made into an ointment.

S. To be applied several times daily.

Red Light Treatment of Skin Diseases.—Capilli Jader (*Il Morgagni*, through *Le Journal de médecine de Paris*, August 11, 1907) declares that the rays of red light (obtained by passing light through a screen, made of two sheets of glass containing between them a solution of eosine), have given good results, especially in superficial, suppurative lesions. Impetigo, especially (in various forms) has been very favorably and quickly influenced. In acute eczema, especially the weeping forms, the results were superior to those obtained by any other treatment. In sycosis, the red light only modified the superficial lesions without influencing the infiltration and the suppurating forms. In the treatment of wounds of various kinds, the red light exerts a stimulating and beneficial effect, as shown by the red color of the granulations and the rapidity of healing. Although exercising a very active biological influence, the red light is not very bactericidal.

A New Russian Treatment of Tuberculosis.—Kroukow, after a number of physiological experiments upon animals, asserts to have successfully treated tuberculosis of the lungs in the human subject, by inhalations of a mixture of equal parts of petroleum and of ether, to which he adds 0.50 centigramme of menthol to each 300.0 grammes. He

has also used ether hypodermically in the following formula:

R Sulphuric ether, 5.0 c.c.;
Castor oil, 95.0 c.c.

Mix and then add:

Menthol, 3.0 grammes;
Petroleum-ether (equal parts), (exactly), 550 drops.

M. Used for injection under the skin.

He has given to some patients as many as 150 injections, 2 grammes at a dose. In about 60 per cent. of the patients treated by one or the other of these methods, amelioration was noted. All the symptoms rapidly disappeared, there was increase of bodily fat, and the bacilli disappeared from the sputum.—*Journal de médecine de Paris*, July 28, 1907.

Bromoform for Seasickness.—Desesquelle recommends a saturated bromoform water, in tablespoonful doses, to overcome nausea. The dose for an adult is a tablespoonful, to be taken when the first symptoms of seasickness are felt. The entire amount used during the day may aggregate 250 grammes, at the beginning. To a child, five years of age, 40 grammes may be given for every years of the age, in divided doses during the day. From five to ten years, 200 grammes may be given during the day, in teaspoonful or dessertspoonful doses. Under three months of age, 10 grammes daily; from three to six months, 24; six to nine months, 30; and from nine months to one year, 40 grammes, daily.—*Gazette médicale de Paris*, July 15, 1907.

The Effects of the Introduction of Air and of Oxygen Into the Veins.—Pierre Delbet, in a communication to the Association française pour l'avancement des sciences, at its recent congress at Rheims (May, 1907), reported the results of a number of experiments made upon dogs to determine the effects of the entrance of air into the veins (*Le Progrès médical*, August 24, 1907). He found that the air exerts no poisonous action upon the blood; but its action is purely mechanical; it only produces accidents by reason of the manner in which it is introduced. It is absorbed by the blood with facility, and is carried from the heart into the lung, which becomes, from this point of view, an organ of excretion. The important part to consider is the rapidity with which it is introduced into the veins. We may, in fact, inject as much air as we wish, providing it is not introduced too rapidly. In the dog, the limit is 5 c.c. of air, per minute, to each five kilogrammes of body weight. It is the air that remains unabsorbed and free in the blood, which becomes dangerous, and it is not the distention of the right chambers of the heart, which is the mechanism of death. The respiration stops before the heart ceases to beat. Artificial respiration is of no avail. It is incapable, in case of death, to resuscitate the animal. He was able to introduce 80 c.c. of air, in eight minutes, in a dog weighing 8 kilogrammes. The lung acts as a regulator. The respiration, instead of becoming slower, increases in rapidity. It occurred to Delbet to substitute, for the air, oxygen mingled with the vapor or chloroform; but he found that it was impossible, even using three litres of oxygen and chloroform vapor, to cause anaesthesia or produce sleep. He suggests that the introduction of oxygen into the veins might be useful in the treatment of cases of

death from chloroform. Perhaps it might also be beneficial to study its rôle, when introduced into the veins, in the treatment of various infections.

Treatment of Acne of the Face.—Jessner (*Journal de médecine de Paris*, August 11, 1907) advises the following treatment of acne: After having emptied the follicles, the skin should be washed with hot water, at night, and the following ointment applied:

B Washed sulphur, 3.0 grammes;
White resin, 1.50 grammes;
Petrolatum, 30c grammes

M.

Or use more active preparation:

B Sublimed sulphur,) āā 2.0 grammes;
Salicylic acid,
White resin,
Green soap, 2.50 grammes;
Petrolatum, 20.0 grammes.

M.

In the morning this ointment is to be removed, with absorbent cotton, which is first dipped in a little sweet oil. When the skin commences to desquamate, the zinc oxide ointment is substituted for the preceding.

Thymol Camphor.—Risacher (*Journal de médecine de Paris*, August 18, 1907) describes thymol camphor as a liquid, which is greasy to the touch, and has a density of 0.957. It is insoluble in water, but is soluble in the oils, in alcohol, ether, and in chloroform. If left exposed to the air it turns a light yellow; but is not decomposed, like naphthol camphor. It is prepared by direct combination in the following proportions: Camphor, 300.0 grammes; thymol, 160.0 grammes. By placing this mixture in a flask and agitating it from time to time, we obtain a liquid. The solution is more rapid and clear, if the flask is gently warmed. It should be filtered and the liquid kept in bottles of yellow glass. One cubic centimetre will contain of camphor 0.938 gramme; and of thymol, 0.310 gramme. It is possible also to make a liquid by combining these substances in different proportions (thus thymol 100.0 grammes and camphor 40.0 grammes) so as to form a clear solution, especially with the aid of heat. It is employed—specially to reduce fungosities of a tuberculous character. Thus, in a cold abscess, or one connected with caries of bone, softening of a gumma, or degeneration of a gland, the interior may be filled by large granulations, too large to escape through the trocar. Thymol camphor injected in such a collection produces better results than any other agent. It has two special actions: (1) An immediate action, permitting the rapid evacuation of a fungous abscess, or at least, it relieves its tension and avoids formation of a fistulous tract; (2) a moderate action, which it exercises upon the contents of the abscess at the end of a few days, three to six days generally, aspiration, at this time, brings away a viscid, flocculent colored fluid, of distinct camphoraceous odor. This transformation of the fungosities into a pasty liquid also takes place *in vitro*, when we note that the fungosities swell up, the foci become crystallized, and finally all form a viscid liquid which does not adhere to the wall of the tube. It has been noted that the aspiration of thymol camphor is not followed by a fistula; the tract closes up in a few days and leaves no induration. After aspirating an abscess, the needle is left in

position; and from two to four cubic centimetres of thymol camphor are injected into the interior of the sac, part of which is allowed to escape. A second aspiration may be practiced in a few days. It is advised that a syringe of glass, of the Luer type, should be used for the injections. In withdrawing the needle it should be stopped by the thumb, so that the last drops of the pus shall be drawn into the track of the needle. Finally, the little wound is sealed with gauze and collodion. In the case of a tuberculous lymph gland, a few drops of the solution are to be injected into the interior. After two or three injections, the gland becomes soft and fluctuates, and can be treated then like the preceding. In this way, it is possible to remove strumous glands without producing a cicatrix, which the patient so much dreads, and which may become affected with keloid. No unpleasant symptoms follow these injections, unless the liquid should be accidentally thrown into a vein. Nervous symptoms may follow, but the observer states that he has used this combination for nine years, and has made more than 1,500 injections without seeing a single case of intoxication produced by them. Its toxicity is estimated at one half that of naphthol camphor (Beta naphthol, 100; camphor, 300 parts) from experiments made in animals.

Poisonous Mussels and Fish.—A special result of eating mussels collected from the mud of the Port of Calais, France, thirteen persons were made ill, within three or four hours, and two of them died. The special symptoms observed by Netter and Ribadeau-Dumas affected the muscular system agitation, abnormal mobility were followed by paralysis. A cat, and some chickens, who also ate the same mussels (cooked), likewise rapidly succumbed. Experiments upon animals have demonstrated that in the edible mussel, *Mytilus edulis*, there is at times a poison, which in its action upon rabbits, guinea pigs, frogs, and mice, produces similar toxic effects to those which follow the administration of curare. This poison, which is not affected by cooking, exists in the liver of the mussel; which organ is large, very dark, and very friable. It was found that the mussels obtained from other places in the port were not toxic. Those taken from the affected "basin" which were found to be toxic on May 20th and June 11th, were free from it, later, in fact, the toxicity had disappeared by July 8th. Other animals taken from the same basin, the fish, eels, and sea urchins, were found to be not toxic. The star fish, however, showed the same toxicity as the mussels had, and this toxicity likewise had become much diminished by the 8th of July. Similar observations have appeared in the literature of England, Scotland, Ireland, Germany, Norway, and America. In all some seventy-eight cases had previously been reported with twenty-one deaths, with the same symptoms and under the same circumstances as those at Calais. The cause of the toxicity remains still unexplained. It may be that the mussels and star fish derived it from feeding on a contaminated basin. It might also be caused by a disease of the mussels, in the course of which the liver of these animals became toxic. The symptoms of these cases recalls the poisoning resulting from eating certain vegetables, fish, and particularly the turnip. (Part of the *Journal*.)

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SHIP DISINFECTION AT HAMBURG.

It will be of interest, especially at present when our own chief port on the Pacific coast, San Francisco, is threatened with an outbreak of plague, to note the precautions the German republic of Hamburg takes to defend itself and the *Hinterland* against infectious diseases brought to its port from over the sea.

Hamburg, next to London the greatest place of marine trade in Europe, belongs as an independent republic to the German empire, and has as such certain state rights over its own domain. Hamburg has suffered severely from attacks of epidemic disease brought to it by ships entering its harbor. We only have to think of the latest outbreak of cholera, which even threatened New York at one time. The republic has therefore created a well equipped department of quarantine. The latest acquisition to this department is the ship *Desinfektor*, which has been described by W. Holthusen in *Schiffbau*, 1906, Nos. 20 to 23. An abstract of his description is given in the *Archiv für Schiffs- und Tropen-Hygiene* for July.

It is well known that rats and their parasites, rat fleas, are one of the principal means of spreading plague. To destroy these bacteria carriers infesting loaded ships only one remedy can be used which does not injure the ship's freight, and that is carbon monoxide gas. Nocht and Giemsa are to be credited with having first used the gas for the purpose and with having invented a cheap method of producing it in large amounts. After many practical trials and

experiments, even going so far as to erect a large building in which to conduct these researches, the State of Hamburg has constructed a vessel for this purpose only. The distance between the perpendiculars is about 110 feet, the greatest width is about 115 feet, the depth is 8 feet, and it draws $4\frac{1}{2}$ feet of water. The crew consists of six men, and the ship is equipped with a generator of carbon monoxide gas, another apparatus for generating formaldehyde-carbon monoxide gas, and a third for supplying steam. The carbon monoxide gas apparatus is to be used for the killing of rats, and the formaldehyde-monoxide gas apparatus for disinfecting cabins, empty holds of ships, and such merchandise as is not spoiled by the formaldehyde gas; while the steam apparatus is used to disinfect bedding, linen, clothing, etc. The expense of thus disinfecting a vessel is very moderate, a quarter of a cent (1 Pf.) for each cubic metre.

FAT EMBOLISM.

Although a comparatively rare condition, fat embolism has an important place in traumatic pathology. It is not at all unlikely that many deaths after injuries of varying intensity have been due to this complication, which has remained undiscovered either because there was no necropsy or by reason of failure to understand the signs of its existence. With the addition of Scharlach R to the list of stains employed in pathological histology a means has been found for the characteristic staining of fatty emboli.

Graham (*Journal of Medical Research*, July) reports the case of a youth, aged eighteen years, who had been knocked down by a double runner while coasting, and who sustained a fracture of the right tibia. For twenty-four hours the patient showed no symptoms; but from the thirtieth hour onward he presented evidences of cerebral disturbance and pulmonary and cardiac disorder from which he died eighty-four hours after the injury was received. Histological study showed fat embolism in the smaller arteries and the capillaries of the heart, the lungs, the brain, the spleen, the kidneys, and the pancreas, as well as in the other organs. In the heart and the brain there was also degeneration of the cytoplasm of the parenchymatous elements, with the deposition of fat droplets.

Apparently in fat embolism there are two modes of death. Patients who succumb a few hours after the receipt of the injury suffer from a massive embolism of the pulmonary vessels, usually accompanied by oedema of greater or less extent. The clinical symptoms are those of shock or asphyxiation. Patients who survive for twenty-four hours or longer, while they suffer from pulmonary em-

bolism, have also widely distributed fat emboli in the other organs, particularly in the brain and in the heart. In these cases the symptoms do not appear until the second day or later, and the clinical manifestations are those of lesion of the central nervous system. The case reported by Graham belongs to the second class.

Experiments seem to show that the fatality of fat embolism is determined by the amount of fat absorbed and the time required for its absorption. An amount of fat which would be fatal if suddenly gaining entrance into the blood stream produces no unfavorable symptoms if it enters the circulation in divided doses separated by intervals of several days. Such fat is gradually eliminated through the kidneys and by the phagocytic action of the leucocytes. In fatal cases it is found that fatty degeneration of the heart is often accompanied by similar changes in the diaphragm. These changes may account, in part, for the respiratory disturbance which is always observed. There is no fatty change in the skeletal muscles.

KERATIN.

Dr. P. G. Unna and Dr. Lazar Golodetz, of Hamburg, have made interesting researches referring to the horny substances, and published an account of their results in the *Monatshfte für praktische Dermatologie* for April and May. They come to the conclusion that the horny substances are chemically and anatomically not identical; they contain elements which react differently to digestion, solution, and stains. The elementary analyses which have so far been made have been conducted with materials which contained elements not belonging to keratin. This explains the peculiarly great discrepancy of data received; it is therefore the opinion of our investigators that researches should in future be made on such horny material as does not contain foreign matter. We have in fuming nitric acid the best chemical to distinguish the elements of the horny substance microscopically when used only for a short time, and when for a longer period to produce pure keratin. There are three kinds of keratin which can thus be isolated, and which the authors designate as keratin A, B, and C. All three are characterized by indigestibility in pepsin and hydrochloric acid. Keratin A is, furthermore, characterized by indigestibility in fuming nitric acid and by the nonappearance of the xanthoprotein alkali reaction (yellow staining). It is therefore the purest keratin. Keratin B is characterized by digestibility in fuming nitric acid and the appearance of xanthoprotein alkali reaction, while keratin C is unsoluble in fuming nitric acid, but shows the xanthoprotein alkali reaction. By these distinctions

the authors find that nails, claws, hoofs, and horns contain keratin A and B; hairs, keratin A and C; feathers, sometimes A, sometimes A and C; whalebone and tortoise shell, sometimes A and B, sometimes C. All horny substances form, under the influence of fuming nitric acid, gases, among them carbonic acid and possibly sulphur dioxide, originating from keratin B and C, as the acid does not dissolve keratin A. The hyalin of the hair (trichohyalin of Vörner) is very resistant to alkalis, but can be dissolved under heat by strong mineral acids; it is a protein substance, as it produces, when isolated, a good xanthoprotein alkali reaction.

DECEPTIVE ELEVATIONS OF TEMPERATURE.

Probably there are but few experienced physicians who have not observed cases in which an abnormally high temperature was unaccompanied, from first to last, by any other recognized sign of illness or in which the rise of temperature persisted long after all other manifestations of disease had ceased. Often has it been felt that it would be well for an overanxious mother if she did not possess a clinical thermometer of her own. In an exceedingly instructive article by Dr. Charles Gilmore Kerley, entitled *Observations on Temperature in Children*, published in the September number of *Pædiatrics*, we find recorded a number of facts that go far in justification of occasional disregard of the thermometric record.

A striking instance given by Dr. Kerley as having occurred under his own observation was that of a boy, eight years old, whose mother, habitually anxious, had unfortunately learned to use the clinical thermometer. She took the boy's temperature one afternoon, with no apparent reason, and found it to be 100.5° F. For six weeks it ranged from 100° to 101.2° without the slightest other indication that the boy was not in perfect health. He "maintained that he felt well, did not need a doctor, and wished to be let alone to study his lessons." Nevertheless, he was taken from school and put to bed, and at various times he was examined by as many as six consultants, not one of whom could shed any light on the case. Finally the boy was taken to a neighboring winter resort. As the family were about to start Dr. Kerley "suggested to the father that before leaving town he should 'accidentally' drop the thermometer on the hard wood floor and then refuse to have another in the house." The hint was acted upon and the result proved its wisdom.

Dr. Kerley gives other examples of unexplained rise of temperature in children, also a case in which a daily elevation occurring at about midday seemed to be the tripartite symptom of pyrexia in pyæmia.

In another instance a boy, four years old, had for six weeks had a daily rise of temperature to from 100° to 102.5° . "The child was thriving," says Dr. Kerley. "and otherwise perfectly well. No cause of the fever could be discovered in his physical condition. He had a noisy, excitable nurse who was inclined to exciting games and rough play with the boy. With a dismissal of the nurse the fever ceased." Dr. Kerley thinks that in nervous children active exercise is not infrequently the cause of a rise of temperature, and says that he has seen several cases of this nature.

When there is present some disease to account for the existence of fever, the author remarks, the degree of fever is not necessarily an index of the gravity of the disease. In certain slight affections the temperature may range from 103° to 105° , but in typhoid fever, pneumonia, scarlet fever, and diphtheria a temperature above 104° is a symptom of considerable value as indicating the severity of the infection. In pneumonia a temperature of 104° is well borne as a rule, but such a degree of fever in the acute intestinal affections of summer is very badly borne and, if continued, is of grave significance. When it is necessary to reduce fever, Dr. Kerley does not fear to use the coal tar antipyretics, though he urges that they be employed only in small doses and not at all if hydratic measures are available.

THE TRYPANOSOMA GAMBIENSE.

Bentmann and Günther, both at one time members of the institution for diseases on board ships and in the tropics at Hamburg (Institut für Schiffs-und Tropenkrankheiten), publish very interesting results of researches and experiments with *Trypanosoma gambiense* and *Trypanosoma ugandense* (*Beihfte zum Archiv für Schiffs-und Tropenhygiene*, July).

The authors remind us that Dutton, Todd, and Manson demonstrated in 1902 that the trypanosomata were really the causative factors of the trypanosome (Gambian) fever and of the sleeping sickness. It was further known that *Trypanosoma gambiense* (Dutton) caused trypanosome (Gambian) fever and that *Trypanosoma ugandense* (Castellani) was the germ of the sleeping sickness, but both trypanosomata were taken as different organisms. Our investigators now prove conclusively that these two trypanosomata are identical. They are supported in this opinion by the investigations of English, French, and German scientists, Thomas and Linton, Thomas and Breinl, Laveran and Mesnil, Brumpt, and Wurtz; although Plimmer and Castellani make a distinction between *Trypanosoma gambiense* and *Trypanosoma ugandense*, and between Gambian fever and sleeping sickness.

Bentmann and Günther therefore propose to use only the name of *Trypanosoma gambiense* (Dutton) and to drop the term *Trypanosoma ugandense* (Castellani). The trypanosomata vary not only in the two former classes, but also in each class. The length is given by Dutton as from 18 to 25 micra, the width as from 2 to 2.5; by Castellani as from 16 to 24, and from 2 to 2.5; by Bentmann and Günther as from 16 to 28, and from 1.8 to 2.5.

Our authors made extended experiments with mice (198), rats (282), rabbits (39), cats (5), guinea pigs (27), monkeys (17)—macacoe and cercopithecides—and one goose (unsuccessful), using in all 569 animals. The culture produced in all animals, with the exception of the guinea pigs, a chronic, nearly always fatal disease. The post mortem sections demonstrated uniformly morbid changes, especially in the blood supplying organs, the spleen, marrow, and lymphatics. The monkeys also showed, a few days before death occurred, a typical somnolence, the sections showing enlargements of the ventricles and increase of the ventricular fluid. The authors therefore conclude from the experiments on monkeys that the somnolence is not caused by hypothermia, but by a change in the cerebrum.

The general course of the disease and the pathological effect of the cultures differed entirely in rabbits and guinea pigs from those in the other animals. In rabbits the skin and mucous membranes were especially attacked, and the spleen was not so much the seat of infection as the marrow. The guinea pigs showed a specific resistance, as demonstrated by a very vivid phagocytosis.

A natural transmission of the trypanosomata by lice on rats was not found, and hereditary immunity was not observed. The method of repulsing the attack of trypanosoma adopted by the animal body was very similar to the general defense against bacterial infection.

PET BIRDS AND TUBERCULOUS INFECTION.

In the *Quinzaine thérapeutique* for August 25th Dr. Tucker Wisc, of Montreux, gives it as his decided impression that the tuberculous affections of birds are transmissible to the human subject, and he fortifies his opinion by brief accounts of cases in which thirty-three persons appeared to have derived their tuberculous infection from birds and by adducing Friedberger and Frohner's citations of the recent researches of Cadiot, Gilbert, Roger, Fischl, Courmont, and others.

Caged birds, says M. Wisc, such as canaries, pigeons, and parrots, lead a life calculated to render them an easy prey to tuberculous infection, and the way in which they are managed in the household conduces powerfully to their spreading the infection

to members of the family. The birds' excrement is disseminated by the fluttering of their wings, and particles of it are carried by flies to articles of food. How widespread is the danger of the conveyance of disease from birds to man may be judged of by the fact that in England 400,000 canary birds are sold annually.

Obituary.

JOEL WILBUR HYDE, M. D.,

OF BROOKLYN.

Dr. Hyde died on Sunday, September 22nd, at the age of sixty-seven. He was a native of Connecticut and a graduate of the Yale Medical School, in the class of 1861. He at once entered the medical service of the Federal army and served with distinction through the civil war. He then began practice in Brooklyn and soon achieved prominence. In his early life he was the chief medical officer of several life insurance companies. At the time of his death he was consulting obstetrician to the Long Island College Hospital and consulting gynecologist to the Bushwick Central Hospital. He was an energetic and attractive man, popular with the profession and the community.

PETER M. WISE, M. D.,

OF NEW YORK.

This eminent alienist died in the J. Hood Wright Hospital on Sunday, September 22nd, at the age of fifty-six. He was born in Erie County and took his medical degree from the University of Buffalo in 1872. Early in his career he became a specialist in mental disease. He served in several of the asylums of the State of New York, and eventually became president of the State Commission in Lunacy. For several years before his death he had been in poor health and had withdrawn from public service.

News Items.

A Bequest to the Paris Pasteur Institute.—By the will of M. Osmé, a wealthy Hebrew banker, of Bordeaux, this institute will receive the sum of 40,000,000 francs (\$8,000,000.)

The Medical Association of the Southwest, consisting of members of the medical societies of Arizona, Missouri, Arkansas, Texas, Louisiana, and Oklahoma, will hold its annual meeting at the Stevens Hotel, Chicago, Oct. 8 to 10, 1907.

The American Roentgen Ray Society will hold its eighth annual meeting at Cincinnati, on Wednesday, Thursday, and Friday, Oct. 2, 3, and 4, 1907.

Compulsory Vaccination in Puerto Rico.—The executive committee of Puerto Rico has decided to make vaccination compulsory on the island. The work will be started in the Guayama district, where varioloid is prevalent.

The Bubonic Plague in San Francisco.—According to press despatches of September 25th, an additional case of plague was discovered on that day, making a total of forty-three cases, twenty-seven of which were fatal.

An Alumni Association of the New York Skin and Cancer Hospital.

The New York Skin and Cancer Hospital, which was recently organized by the physicians of Washington, N. J.

The Richmond, Va., Academy of Medicine and Surgery.

this academy, held on Tuesday evening, September 24: Office Treatment of Gynecological Cases, Dr. Greer Baughman; Normal Functions of the Spleen: Indications for Its Removal, Dr. M. E. Nuckols.

Masonic Orphanage in Philadelphia.—By the will of Thomas R. Patton, \$2,000,000 is left to the Grand Lodge of Masons of Pennsylvania, for the establishment of a Home for the Orphans of Master Masons. The will also contained a bequest of \$5,000 to the Masonic Home of Philadelphia.

The Medical Society of the State of New York.—Members of the Medical Society of the State of New York who are desirous of reading papers at the coming meeting of the society, in January, 1908, are requested to send the titles of their papers to the chairman of the committee, Dr. Leo H. Neuman, 194 State Street, Albany, N. Y.

The Vermont State Medical Society.—The ninety-fourth annual meeting of this society will be held at St. Johnsbury, on October 10 and 11, 1907. It is expected that Dr. H. L. Burrell, of Boston, president elect of the American Medical Association, will be present and will read a paper on The Control of Surgical Infection of the Extremities.

The Sanitary Officers of the New York State Board of Health will hold their annual convention at Buffalo, on October 16, 17, and 18, 1907. Among the subjects to be discussed are those of Pure Milk; Tuberculosis: Its Dissemination and Control; Early Diagnosis and Treatment of Tuberculosis; The Duty of the Municipality Toward Tuberculosis, etc.

The Long Island Society of Anæsthetists will hold its next meeting at the Jewish Hospital, Classon and St. Mark's avenues, at 8.30 p. m., on Wednesday, October 2nd. The following programme will be presented: Mixed Narcosis, Dr. J. T. Gwathmey; The Details of Straight Ether Administration, Dr. J. F. Todd; Report on the practice at the Jewish Hospital: Exhibition of instruments.

The Section in Pædiatrics of the Medical Society of the County of Kings held a meeting on Friday evening, September 27th, with the following programme: Dysentery in Infancy and Childhood: Ætiology and Pathology, by Dr. W. B. Meister; Symptoms, Diagnosis, and Prognosis, by Dr. William M. Hutchinson; Treatment, by Dr. Henry N. Read.

A New Hospital Building for the Woman's Medical College of Pennsylvania.—Plans have been filed in the Philadelphia Bureau of Building Inspection for a six story brick, stone, and terracotta hospital building, to be erected on the north side of North College Avenue, near Twenty-second Street, for the Woman's Medical College of Pennsylvania.

The Health of Pittsburgh.—During the week ending September 7, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chickenpox, 1 case, 0 deaths; typhoid fever, 86 cases, 6 deaths; scarlet fever, 11 cases, 3 deaths; diphtheria, 20 cases, 1 death; measles, 16 cases, 0 deaths; whooping cough, 8 cases, 1 death; pulmonary tuberculosis, 15 cases, 7 deaths.

The Medical Society of the Missouri Valley.—At the annual meeting of this society, held at Council Bluffs, Iowa, on September 5 and 6, 1907, the election of officers resulted as follows: President, Dr. W. F. Milroy, Omaha; first vice-president, Dr. C. B. Hardin, Kansas City; second vice-president, Dr. A. E. King, Blockton, Iowa; treasurer, Dr. H. B. Jennings, Council Bluffs; secretary, Dr. Charles Wood Fassett, St. Joseph, Mo.

The Hartford, Conn., Medical Society has been notified that she intended to give her late husband's entire library to the society. The gift has been accepted and will be placed in the library of the society in the Hunt Memorial building on Prospect Street. It is understood that many valuable works will come into the possession of the society through this donation.

The New Jersey Academy of Medicine, New Jersey, recently organized by the physicians of Washington, N. J.

The Medical Society of the County of Ulster, N. Y.—A regular meeting of this society will be held at Kingston, on Tuesday, October 1, 1907. The programme arranged for the occasion includes the following titles: Diphtheria, by Dr. Frederick W. Loughran, New York; Report of a case of Double Empyema, by Dr. Albert H. Palmer, Marlborough; Malnutrition, by Dr. George H. Van Gaasbeek, Kingston.

The American Association of Obstetricians and Gynecologists held its annual meeting at Detroit, on September 17th and 18th, under the presidency of Dr. Robert T. Morris, of New York. Officers for the ensuing year were elected as follows: President, Dr. E. Gustav Zinke, Cincinnati; first vice-president, Dr. John W. Keefe, Providence, R. I.; second vice-president, Dr. W. A. B. Sellman, Baltimore, Md.; secretary, Dr. William Warren Potter, Buffalo; treasurer, Dr. X. O. Werder.

The Barbour-Randolph-Tucker Counties, West Virginia, Medical Society.—At the annual meeting of this society, held at Elkins, on September 20th, the following officers were elected: Dr. Charles B. Williams, of Philippi, president; Dr. H. K. Owens, of Elkins, and Dr. C. H. Hardwick, of Davis, vice-presidents; Dr. A. P. Rutt, of Albert, secretary and treasurer. The meeting was addressed by Dr. J. N. McCormack, of Bowling Green, Ky., who delivered a public address on Things About the Doctor Which the Doctor and Other People Ought to Know.

The International Congress of Hygiene and Demography was officially opened at Berlin, on September 23rd. Prince von Schönach-Carolath presided at the opening and addresses were given by Dr. von Bethmann-Hollweg, Minister of the Interior, and Dr. Ludwig Holle, Minister of Public Instruction and Medical Affairs. Among the American physicians attending the congress were: Dr. Harvey W. Wiley, of Washington; Dr. Simon Baruch, Dr. R. G. Freeman, and Dr. Hermann M. Biggs, of New York; and Dr. William C. Gorgas, of the medical corps of the army.

Scientific Society Meetings in Philadelphia for the Week Ending October 5, 1907.—*Tuesday, October 1st*, Academy of Natural Sciences. *Wednesday, October 2nd*, College of Physicians; Association of Clinical Assistants of Wills Hospital. *Thursday, October 3rd*, Obstetrical Society; Medical Society of the Southern Dispensary; Section Meeting, Franklin Institute; Northwest Branch, Philadelphia County Medical Society. *Friday, October 4th*, American Philosophical Society; Kensington Branch, Philadelphia County Medical Society.

Medical Meetings in the Month of October, 1907:

Association of Military Surgeons of the United States, Jamestown, Va., October 11.

Delaware State Medical Society, Wilmington, October 8.

Idaho State Medical Society, Boise, October 3 and 4.

Kentucky State Medical Society, Louisville, October 15, 16, and 17.

Nevada State Medical Society, Reno, October 8 and 9.

Vermont State Medical Society, St. Johnsbury, October 10 and 11.

The Mary Kingsley Medal, instituted by the Liverpool School for the Study of Tropical Diseases to commemorate Miss Mary Kingsley, the African traveler, has been awarded to Dr. Carlos Finley, chief sanitary officer of Cuba, who originated the theory of the mosquito transmission of yellow fever; to Dr. W. C. Gorgas, chief sanitary officer of the Canal Zone, who was chief sanitary officer at Havana in 1902, when the disease was first conquered in Cuba; and to Dr. Theobald Smith, professor of comparative pathology in Harvard University, who discovered the parasite of Texas cattle fever.

Charitable Bequests.—Wilmer E. Pennypacker, of West Chester, Pa., executor of the estate of Joseph Anderson, presented the Phoenixville (Pa.) Hospital with \$12,000. Mr. Anderson's fortune of \$130,000 was left to Mr. Pennypacker with directions to give it away as pleased him.

By the will of Bridget McStrain, of Philadelphia, the following institutions receive \$300 each: St. Vincent's Home, St. Joseph's Home, The Little Sisters of the Poor, St. Joseph's House for Homeless Boys, and St. Joseph's Orphan Asylum. The same institutions participate equally in the residuary estate.

For the Protection of Railroad Passengers.—Dr. Samuel C. Thomas, State Health Commissioner, issued an order on September 20th, directing that sheets in the berths of sleep-

ing cars of trains running through Pennsylvania must hereafter be long enough to turn over at the upper end of the blanket at least two feet, so as to prevent the blanket from coming in contact with the face of the occupant of the berth. The same order also directs that porters on parlor cars must not brush the clothing of passengers in the aisles of cars, but only at the end of the coach. This order is designed to protect travellers from communicable diseases.

The American Electrotherapeutic Association.—At the seventeenth annual meeting of this association, held at Boston, on September 18-20, 1907, officers for the ensuing year were elected as follows: President, Dr. Herbert F. Pitcher, of Haverhill, Mass.; first vice-president, Dr. E. C. Titus, of New York; second vice-president, Dr. J. D. Gibson, of Denver, Col.; secretary, Dr. A. C. Geyer, of New York; treasurer, Dr. R. J. Nunn, of Savannah, Ga. Two of the membership were on the executive council for a term of three years, Dr. M. W. Brinkmann, of New York, the retiring president, and Dr. C. R. Dixon, of Toronto, Can.

The Mortality of Chicago.—According to the report of the department of health for the week ending September 14, 1907, there were during the week 570 deaths from all causes, as compared with 548 for the corresponding week in 1906. The annual death rate in one thousand of population was 14.10. The principal causes of death were: Apoplexy, 12; Bright's disease, 39; bronchitis, 6; consumption, 48; cancer, 39; convulsions, 10; diphtheria, 8; heart diseases, 37; influenza, 2; intestinal diseases (acute), 132; measles, 1; nervous diseases, 18; pneumonia, 37; scarlet fever, 7; suicide, 5; typhoid fever, 11; violence (other than suicide), 38; whooping cough, 2; all other causes, 118. There were 150 deaths of children under one year of age; 59 between one and five years of age; 36 of persons between five and twenty years of age; 232 between twenty and sixty years of age; and 93 over sixty years of age.

The Mortality of Baltimore.—The health report for the week ending September 21st, showed that 103 cases of typhoid fever had developed in the city during the past seven days. This was an increase of 52 cases over the corresponding week of last year. There were 14 deaths from the disease. The week's health report showed that causes of death other than typhoid were: Consumption, 25; cancer, 15; organic heart diseases, 6; pneumonia, 4; bronchitis, 3; diarrhoea, under two years of age, 34; Bright's disease, 11; congenital debility, 9; old age, 3; and accidents, etc., 11. The total number of deaths was 202, as compared with 212 for the corresponding week of last year: 196 in 1905, and 181 in 1904. The annual death rate in 1,000 of population was: Whole, 17.30; white, 14.67; colored, 31.20. The nativity of those who died was: United States, 105; foreign, 34; colored, 54; unknown, 9.

Personals.—Governor Hughes, on September 23rd, appointed Dr. Albert Warren Ferris, of New York, as president of the State Commission in Lunacy. He succeeds Dr. Charles W. Pilgrim, resigned.

Arthur L. Tatum, of the Ohio State University, has been appointed instructor in chemistry in the University of Colorado.

Dr. J. W. Guest has been appointed Assistant Health Officer of Louisville, Ky., by the Board of Public Safety. He succeeds Dr. Albert Deig, who was appointed in 1901.

Dr. Herbert B. Howard, of Boston, has been appointed by the governor a member of the State board of insanity.

Dr. Walter Benschel, who last July accepted the position of commissioner of street cleaning, of New York, with the understanding that at the end of three months he should return to his former office as sanitary superintendent in the board of health, has been requested by the mayor to continue in office, and it is expected that he will remain until he has the department fully reorganized.

Tuberculosis Committee's Fifth Lecture Season Opens.

The fifth season of popular lectures on tuberculosis has been begun by the Committee on the Prevention of Tuberculosis of the Charity Organization Society, which has just sent out notices to all the churches in Manhattan and the Bronx as well as to all the settlements, trade unions, fraternal organizations, and women's clubs, that it is prepared again to give free illustrative lectures in any one of half a dozen languages whenever an audience of at least fifty persons is guaranteed. Last year's lectures were given before fifty-nine unions, fifty-four churches, clubs, and lodges, but it is proposed to more than double the number this

year. The Catholic churches of this city are expected this season to take up the subject with their large parishes, and this alone will mean the placing of important facts and convincing pictures before many thousands of New Yorkers. The aid of women's clubs is also to be enlisted and that of many large fraternal organizations. Renewed efforts will be made to secure the continued cooperation of trade unions, and a strong appeal is also being made to German, Bohemian, Italian, Swedish, and other foreign groups to work with the committee among their countrymen in this city. As the lectures are short and untechnical and are given by doctors who contribute their time to the work and who are daily treating tuberculosis, the committee's lecture programme offers to all who apply for dates an opportunity to hear through a reliable source important facts about consumption and how it is prevented and cured.

A Course of Free Lectures to the Public is to be given in Brooklyn under the auspices of the Medical Society of the County of Kings and the Brooklyn Institute of Arts and Sciences. The dates, subjects, and lecturers are as follows: *Saturday, October 5th, 1907, at 8.30 p. m.*—Typhoid Fever and Other Infectious Diseases: How They are Spread, by Dr. Thomas Darlington, Commissioner of Health, City of New York; *Sunday, October 13th, at 4.30 p. m.*—The Care of the Sick Room, by Dr. Florence Leigh Jones, formerly supervisor Training School, M. E. Hospital; *Saturday, October 19th, at 8.30 p. m.*—The Milk Supply and the Certification of Milk, by Dr. Harris Moak, bacteriologist to the Milk Commission; *Sunday, October 27th, at 4.30 p. m.*—The Relation of Bacteria to Disease, by Dr. J. M. Van Cott, professor, L. I. College Hospital; *Saturday, November 2nd, at 8.30 p. m.*—What Surgery Can and Cannot Do, by Dr. William Francis Campbell, professor, L. I. College Hospital; *Sunday, November 10th, at 4.30 p. m.*—Tuberculosis: Its Modern Treatment, by Dr. John A. McCorkle, professor, L. I. College Hospital; *Saturday, November 16th, at 8.30 p. m.*—Quacks and Quackery, by Champe S. Andrews, counsel to the Medical Society of the County of Kings; *Sunday, November 24th, at 4.30 p. m.*—The Physical and Mental Development of Children, by Dr. Elias H. Bartley, professor, L. I. College Hospital; *Saturday, November 30th, at 8.30 p. m.*—Adulteration of Food and Drugs, by Dr. H. W. Wiley, chemist, United States Department of Agriculture. These lectures are free to the general public and no cards of admission are required.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the week ending September 21, 1907:

	September 21— Cases. Deaths.
Typhoid fever	181 27
Shingles	15 1
Varicella	15 1
Measles	114 5
Scarlet fever	108 9
Whooping cough	104 4
Diphtheria	212 25
Tuberculous pneumonias	345 143
Cerebrospinal meningitis	23 11
Total	1,001 224

Society Meetings for the Coming Week:

THURSDAY, October 24.—New York Academy of Medicine (Society in Formal Session); New York Association of Surgeons; Buffalo Association of Physicians; Section in Surgery, Philadelphia; N. Y. Medical Association, Syracuse, N. Y.; Academy of Medicine; Hudson, N. J.; County Medical Association (Jersey City); Medical Association of Troy and Vicinity; Hornellsville, N. Y.; Medical and Surgical Association; Long Island, N. Y.; Medical Society; Bridgeport, Conn., Medical Association.

Western Psychiatric Institute and Society of Alumni of Bellevue Hospital; Harlem Medical Association, New York; Elmira, N. Y., Academy of Medicine; Psychiatric Society of New York.

Turner, George and New York Association of Medicine; Danville, N. Y., Medical Association.

January, 1906, 4th. New York Academy of Medicine (Section in Surgery), New York; Microscopical Society; Gynecological Society, Brooklyn, N. Y.; Manhattan General Society, New York; Pathological Society of New York.

Pith of Current Literature

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

September 19, 1907.

1. A Suppurating Supernumerary Ureter Opening Into the Prostatic Urethra, By ARTHUR L. CHUTE.
2. Recent Advances in the Knowledge of Tuberculosis in Early Life, By CHARLES HUNTER DUNN.
3. The Report of an Unusual Case of Ulcer of the Stomach.

By I. M. T. FINNEY and JULIUS FRIEDENWALD.

1. **A Suppurating Supernumerary Ureter Opening Into the Prostatic Urethra.**—Chute performed an oper-

ation upon a patient who had suffered for eleven years from a severe urethritis. A left sided extraperitoneal incision was made in order to explore the lower portion of the ureter and the region behind and to the left of the bladder. A normal looking ureter was found in its usual position; this was followed to the bladder and showed no abnormality. The region to the left of the bladder showed nothing more than brittle, friable fat, that had evidently suffered inflammatory attacks. Behind the bladder, to the inside of the normal ureter, and very closely bound to it by adhesions at the point where the normal ureter joined the bladder, there was a thick walled tube which was nearly the size and appearance of a bit of small intestine that was without a peritoneal coat. This tube extended to the right along the back of the bladder a short distance, then becoming much convoluted it rose out of the pelvis and extended upward parallel to the normal ureter and to the inside of it. It was found to lose itself above in a big flabby sac, evidently a dilated kidney pelvis. After freeing this tube it was tapped and found to contain very foul pus. The patient's condition was too poor to allow of a nephrectomy or kidney resection, so the abnormal ureter was cut close behind the bladder and a large drainage tube sewed into its stump. After removing a section of the tortuous ureter, and passing a tube through it into the dilated kidney pelvis, its upper end was brought out at the superior angle of the incision and attached to the skin. The muscles and skin were sutured between the two tubes. The left kidney was removed through a lumbar incision four weeks after this operation. It was adherent everywhere and had an artery entering both the upper and the lower pole. The ureter that emptied into the bladder arose from the lower pole and was cut a few inches below the kidney. The pyoureter was dissected out with a small margin where it had adhered to the skin. The wound was closed in layers with drainage. The patient's convalescence was interrupted on the fifth day by an attack that seemed like a thrombosis somewhere in his left loin. Otherwise his convalescence was normal and the patient left the hospital about the middle of December with all his wounds solidly healed and passing a nearly transparent urine, the first portion of which contained a few shreds presumably from the stump of the abnormal ureter.

3. Report of an Unusual Case of Ulcer of the Stom-

sch. Tinnely and Friedman¹¹ consider a condition which is interesting from the fact that, notwithstanding the existence of a genetically determined form of the disease, the symptoms which were present were by no means distinctive of this condition and that even more direct inspection of the single eye could not be distinguished from normality. The authors observe that it is evident that it is possible to identify those cases included in the group as being caused by an abnormality as small as it is in the middle of the eye at the time of the birth, when the symptoms by which it is distinguished are not sufficient to be certain positive of the cause. A further point is that the disease may be transmitted from an individual to his or her offspring.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

September 21, 1907.

1. The Status of the Fight Against Cancer of the Uterus.
By J. WESLEY BOVÉE.
2. How Can We Lessen the Mortality of Uterine Cancer?
By E. E. MONTGOMERY.
3. Prevention of Peritoneal Adhesions by Adrenal Salt Solution, with Special Reference to the Pelvis.
By EMERY MARVEL.
4. Practical Points of Economy in Hospital Construction.
By A. J. OCHSNER.
5. Modern Hospital Construction.
By W. GILMAN THOMPSON.
6. An Inhaler for the Ordinary Sequences and Mixtures of Anesthetics. On the Principle of Unobstructed Respiration.
By VICTOR C. PEDERSEN.
7. An Experimental Study of Intestinal Obstruction.
By R. D. McCLURE.
8. Postoperative Ileus.
By FRANK MARTIN.
9. Report of Two Thousand Operations for the Radical Cure of Hernia.
By WILLIAM T. BULL and WILLIAM B. COLEY.
10. Cactus Grandiflorus and Cactus or Cactina.
By R. A. HATCHER.
11. Salpingitis Caused by Appendicitis.
By I. S. STONE.

1. **The Status of the Fight Against Cancer of the Uterus.**—Bovée summarizes the treatment of cancer of the uterus as follows: (1) We are rightly ignoring the aphorism of Hippocrates to the effect that "it is better not to apply any treatment to deeply seated cancer, for, if treated, the patients die quickly; but if not treated they hold out for a long time." We are striving to educate women and the general physician to the necessity of adopting means to arrive at the earliest diagnosis possible and that followed by prompt operation of a very radical kind; (2) special care in classification of the varieties of uterine cancer is essential to greater enlightenment concerning the history of that disease; (3) the employment of x rays and radium are of little use and should not be employed in cases that are diagnosed sufficiently early to offer hope of eradication by surgical means; (4) the cautery in any form should not be employed as an alternative for radical surgery, but be limited to those cases that have passed the stage in which eradication by operation seems probable; (5) trypsin has not been tried sufficiently to establish its proper position and as it has not been proved to be superior to radical operation valuable time should not be employed in using this remedy in cases curable by surgery; (6) much is being done to alleviate the suffering and to postpone the fatal termination of those cases no longer amenable to radical surgical operation; (7) the experimental work on animals thus far done offers hope of some means, opsonic or otherwise, for a more successful and less dangerous and less difficult plan of treatment for this disease than radical surgery; (8) radical surgery affords the best results at present; (9) the vaginal route does not afford the greatest possibility for eradication; (10) we have reason to believe that this disease can be controlled; (11) rooms which individuals suffering from cancer have occupied should be fumigated before non-cancerous occupy the same and in the light of the authentic reported cases of immediate and mediate inoculation those caring for such patients should regard it as a contagious disease.

3. **Prevention of Peritoneal Adhesions by Adrenal Salt Solution.**—Marvel remarks that to prevent peritoneal adhesions the exudate should be removed. The exudate necessarily left on the surface of the peritoneum is best cared for by absorption, because of its active absorbing nature, the peritoneum can take care of it. It is more easily absorbed when in solution, and normal salt solution is most efficient for this purpose. Subsequent exudation should be prevented. By its action on the vasoconstrictors, adrenalin chloride

covering should be kept separate. By its bulk and gravity the solution is utilized for this result.

8. **Postoperative Ileus.**—Martin states that postoperative ileus is by no means a rare condition. The proportion of cases following laparotomies of all kinds ranges anywhere from one tenth of 1 per cent. to 2 per cent. The distinctive diagnosis between the pseudo-postoperative ileus and the true mechanical ileus in the early stages is exceptionally difficult. Prognosis in true mechanical ileus is far better than adynamic ileus. In the absence of infection the prognosis is generally good. The chief factor in the causation of ileus is adhesions, and the only rational method of dealing with such cases is prompt operative interference.

9. **Report of Two Thousand Operations for the Radical Cure of Hernia.**—Bull and Coley say in their report that from May, 1890, until July 1, 1907, 2,032 operations for the radical cure of hernia were performed at the Hospital for Ruptured and Crippled: Fifteen hundred and twenty-eight were for inguinal hernia in the male; 374 were for inguinal hernia in the female; total number of inguinal hernia, 1,902. Twenty were for femoral hernia in the male; 56 were for femoral hernia in the female; total number of femoral hernia, 76. Twenty-nine were for umbilical hernia. Eighteen were for ventral hernia. Six were for epigastric hernia. One was for lumbar hernia. There were a total of 137 cases of hernia in adults, of which 86 of the inguinal hernia were in the female, 30 of femoral hernia, 15 of umbilical hernia, 5 of ventral hernia, 1 of epigastric hernia. In 24 cases the operation was for strangulated hernia; of these 17 were in children, 7 in adults. There were no deaths among the children, and only one in the adults, which was a strangulated umbilical hernia in a very stout woman. Of the children 10 were under the age of two years; 6 under one year of age. The youngest was an infant thirteen days old, with a hernia of fourteen hours strangulated. An operation for its radical cure was performed. The patient left the hospital in three days, and when last seen, five years after the operation, there was no recurrence. In every case, with one exception, strangulation was due to the tight external ring, and not to the neck of the sac, which has long been regarded by most writers on hernia as the frequent cause of strangulation. In one case, a strangulated sigmoid hernia in a child, three years of age, strangulation was apparently due to a fecal occlusion, the gut being markedly distended by some semisolid feces of about the consistence of putty. The authors think that, although there is a growing tendency at present, especially among English and French surgeons, to extend the indication for operations for the radical cure of hernia, to very young children and even infants, they still believe that a considerable number of children under the age of four years are cured by a properly applied truss. There is little risk from strangulation during this trial period of truss treatment. Their own statistics at the Hospital for Ruptured and Crippled do not show a single death from strangulation in infants or young children. On the other hand, the risk of operation during infancy is decidedly greater than in older children, as is shown by the statistics of Stiles and Carmichael. If a child has reached the age of from three to four years and still has a hernia, they advise operation. In all children over the age of four years, they no longer advise preliminary truss treatment, for the reason that the chances of a cure are smaller and the possibility of a relapse after a supposed cure from truss treatment greater. In cases of hernia complicated with irreducible hydrocele, or adherent omentum, both of which conditions are comparatively rare in children, mechanical treatment is of no avail, and immediate operation is advised. Likewise, they never advocate truss treatment in femoral hernia, inasmuch as there is no possibility of

curing the condition by mechanical means and there is nothing to be gained by delay. The authors have had a mortality of five patients in 1,078 cases of inguinal and femoral hernia, one fourth per cent.

MEDICAL RECORD.

September 21, 1907.

1. The Operative Treatment of Fractures Involving the Elbow Joint. By CARLETON P. PUNING.
2. The Administration of Proteids in Tuberculosis. By GEORGE HAYNE KRAHL.
3. Advantages and Disadvantages of Simple Extraction of Cataract. By EDWARD B. COLEMAN.
4. The Hepatic Functions, their Pathology and Treatment. By H. RICHARDSON.
5. A Case of Very Large Protrusion of the Cecum. By THOMAS W. HARVEY.

2. The Administration of Proteids in Tuberculosis.

—Krahl observes that, while we should fully realize the absolute necessity and great value of the proteid content of the daily ration of our tuberculous patient, we should endeavor to keep this amount within the bounds of purely physiological demands and not administer a single gramme over this quantity, as determined by the most careful study of the patient's nutritional equilibrium; for every particle of excessive proteid matter given will unquestionably not only interfere with the favorable termination of the disease, but will be productive of pathological conditions which we have been prone heretofore to charge to the account of the tubercle bacilli. It is not beyond reason to believe that there are some tuberculous patients who have died of renal involvement, cardiac insufficiency, toxæmia, and other pathological conditions whose life might have been prolonged through the proper equilibrium of proteid metabolism.

4. The Hepatic Functions, Their Pathology and Treatment.

—Richardson states that the liver acts as a depurator to the system of soluble and insoluble substances, endogenous and exogenous toxins, it is also granulopexic, cytopexic, and bacteriopexic by virtue of the action of the hepatic cells, of oxydases and reductases, and by a special chemiotaxis of the endothelial cells of the hepatic capillaries, producing chemical changes, rendering the substances nontoxic and capable of elimination by the bile or other eliminators. Upon these functions of the liver depend the whole theory of autointoxication as an ætiological factor in disease. Strictly speaking, experimental proof of autointoxication is wanting except in a very few instances, viz., when the toxine is found in the intestine and in the urine, and when injection of the isolated toxine produces the same symptoms in a healthy subject; but such a proof can be obtained only under almost impossible conditions of similarity and with toxins of very marked symptomatic effect. If we admit that the liver has antitoxic functions, we must also admit that if it ceases to functionate these toxins will enter the general circulation and produce pathological conditions. So evident does it seem that autointoxication is possible that the *onus probandi* as to its nonexistence must rest in this case on the negationists, the old harbor of refuge—reflex action—drawn from the abdominal nervous system, can no longer be considered conclusive, for to have a reflex action there must be stimulation; if there is stimulation there must be a stimulant; if the stimulation is not physical it must be chemical, and if chemical it must be toxic if it gives pathological results. In acute cases through the long out of the alimentary tract with calomel and magnesium sulphate is usually sufficient, but in those cases of neurasthenia, nervous breakdown, nervous dyspepsia, etc., more is required in long, careful dietetic and medicinal treatment. Attention to the biliary secretion is of the utmost importance. The so-called cholegogues of the Pharmacopœia have both proved a number of objections and

to increase the formation of bile, and the only cholagogue is Nature's, the bile salts, sodium glycocholate, and tauroglycocholate. The administration of sodium glycocholate mass, which contains sodium taurocholate, by the mouth, it being absorbed from the intestine, increases the flow of bile, at the same time stimulating the liver cells. The diet in hepatic disease, and especially in autointoxication, is of great importance. In the first place the quantity of food taken should be small; secondly, it should be easily digested, and must, therefore, as far as possible, correspond with the patient's tastes or the psychological stomach juice will not secrete; thirdly, it must contain no substance which is itself toxic or which will produce a toxic substance during metabolism; fourthly, it should be a bad culture medium or contain some inhibiting substance for the growth of bacteria. Rest is the best medicine for any deranged physiological function, and starvation is rest for the liver. The food should therefore be reduced to the minimum quantity required for physiological needs, about three ounces of proteid per diem; no soup should be allowed, as it contains the extractives and but little nutriment, and the former throw extra work both upon the liver and upon the kidney; carbohydrates in any form, well cooked, preferably using lactose, instead of cane sugar, should be the principal diet. So far intestinal antiseptics have proved inefficient. In very acute diarrhœa the author has had good results with the administration of iodoform in full doses as long as the diarrhœa lasted. He gives it with calomel in typhoid fever, but it has to be carefully watched, owing to its toxic properties if absorbed; if the bowels are kept moving freely very little is absorbed. Aristol is not so objectionable, nor is it so efficient. Salicylic acid, salol, bismuth, and all the drugs of the Pharmacopœia recommended for these cases have been tried and found wanting. Probably the use of metallic colloids, owing to their ferment like action, may be found valuable when better understood; brewers' yeast is decidedly effective; it can be administered as cheese or as weissbeer. The lactic acid bacillus has also a powerful antiseptic action in the intestine; it is for this reason that milk diet is antiseptic, the lactose not being a good culture medium for bacteria; for the same reason lactose as a sugar is a good antiseptic, reducing the amount of ethereal sulphates in the urine. Chemical antidotes have not been found for the organic toxins, which are an ever present menace to health.

LEVADITI MEDICAL

October 3, 1907.

1. The Oponins. By C. LEVADITI.
2. Congenital Thyreohyoid Fistula. By A. BROCA.
3. Recto-Vaginal Prolapse or Seropne. By G. RAJESOFF and P. RAYMOND.

1. The Oponins.—Levaditi discusses this interesting subject at a considerable length and presents the following conclusion: The normal and the immune serums enjoy opsonic properties in virtue of which these sera act upon phagocytosis and sensibly augment its intensity. The opsonic qualities of new sera are due to the presence of the complement. The opsonic power of the immune sera is attributable to the existence of a specific ambceptor in the serum.

2. Congenital Thyreohyoid Fistula.—Broca discusses this condition on the basis of ten cases in his service.

October

Management of the Immature Female Genitalia and the Treatment of the Menstrual Function. By G. RAJESOFF.

The Test Rube. By C. LEVADITI.

1. Recto-Vaginal Prolapse or Seropne. By G. RAJESOFF and P. RAYMOND.

2. Congenital Thyreohyoid Fistula. By A. BROCA.

1. **Modifications and Improvements in the Technique and Instrumentation of Bronchoscopy.**—Guisez gives a general description of these modifications which is admirably illustrated, and gives also a cut which represents ten foreign bodies, including three pieces of money, which have been removed from the bronchi with the assistance of this method.

BERLINER KLINISCHE WOCHENSCHRIFT.

August 20, 1907.

1. Concerning Sporadic Epidemic Cerebrospinal Meningitis and Its Diagnostic Distinction from Other Meningeal Diseases, By HÖLKER.
2. Concerning a Chronic Disease of the Blood Associated with Icterus, By E. BENJAMIN and E. SLUKA.
3. Concerning the Use of Guaiacol Preparations in Anæmic Conditions (Sorisin Ferroarsenate and Iron Sorisin), By FELIX PROSKAUER.
4. Concerning the Starting Place of the Ventricular Contraction, By E. REBFISCH.
5. Concerning the Behavior of the Complements in Dialysis, By E. BRAND.
6. The Dorsal Reflex of the Foot, By O. B. MEYER.
7. Congestive Conditions in the Female Sexual Apparatus and Appendicitis, By G. GLÜCKSMANN.
8. Concerning Functional Vocal Disturbances and their Treatment, By E. BARTH.
9. Modern Views Concerning the Manner of Action of Hydrotherapy, By A. LAQUEUR.

1. **Sporadic Cerebrospinal Meningitis.**—Hölker states that of fifteen meningeal cases treated by him a positive diagnosis from the bacteriological condition during the first week of treatment was made in only six, and that two of these were cases of epidemic cerebrospinal meningitis. In two other cases the diagnosis of cerebrospinal meningitis was confirmed bacteriologically later in the course of the disease. In the remaining seven cases the examination of the lumbar fluid gave no information as to the kind of meningeal disease. Among the four cases of true cerebrospinal meningitis was one in which the meningococcus intracellularis was found first in the fifth week and in this the complement union test gave a positive result. In a syphilitic case this test gave a negative result, and he suggests that here we may have, at least in positive cases, a means for distinguishing doubtful cases of cerebrospinal meningitis. He also calls attention to the fact that in many cases the specific coccus makes its first appearance so late, particularly in sporadic cases of cerebrospinal meningitis.

2. **Chronic Disease of the Blood Associated with Icterus.**—Benjamin and Sluka describe what they call a chronic acholuric icterus with and without swelling of the spleen, met with in three generations of one family, grandfather, father, and son. The examination of the blood revealed a condition somewhat like that of pernicious anemia. The swelling of the liver was very slight in the grandfather and the child.

4. **The Starting Place of the Ventricular Contractions.**—Rebfisch believes that the starting place of the ventricular contractions is to be sought not at the base, but at the apex of the heart.

5. **The Complements in Dialysis.**—Brand says that: 1. In the dialysis of guinea pig serum the complement is separated into two components, as has been shown by Ferrata, one of which is contained in the sediment, the other in the decanted fluid. 2. When the isolated influence of one of these two components on blood cells loaded with amboceptors is studied the one in the sediment alone is found to be effective. Therefore he suggests that the component found in the sediment be denominated middle piece, *Mittelstück*, and that in the fluid end piece, *Endstück*. 3. When the sediment is placed in physiological salt solution the middle piece quickly loses its ability to work together with the end piece as a complement. In water, on the contrary, the sediment remains active. 4. The middle piece which

has become unfit for direct combined action with the end piece through remaining in physiological salt solution is still bound by the amboceptor laden blood cells and then proves itself active with the supplementary addition of the end piece. 5. Contrary to Ferrata's views the middle piece and the end piece are equally decomposable by a heat of 55° C.

7. **Congestive Conditions of the Female Sexual Apparatus and Appendicitis.**—Glücksman reports two cases in which the onset of acute appendicitis was coincident with the first day of physiological menstruation.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

August 27, 1907.

1. The Increase of the Red and White Blood Corpuscles and of the Hæmoglobin by Means of the Lung Suction Mask and Its Relation to Great Altitudes, By KUHN.
2. Concerning Experimentally Produced Retrogression of Mouse Carcinoma Into the Histological Type of Adenoma, By APOLANT.
3. The Cultivation of Typhoid Bacilli from the Blood on Gallenagar, By SCHÜFFNER.
4. The Internal Friction of the Blood Serum in Morphinised Animals, By SEGALÉ.
5. Lipolysis, Agglutination, and Hæmolysis, By NEUBERG and REICHER.
6. Diseases of the Stomach in Chronic Lead Poisoning, By WALKO.
7. The Treatment of Dysmenorrhœa, By POLANO.
8. Empyema of the Ethmoid Cells, By KÖHLER.
9. The Pressure Bandage in the Treatment of Detachment of the Retina, By FREYTAG.
10. Serious Brain Disturbance After Ligation of the Common Carotid Artery and Internal Jugular Vein, with Complete Recovery, By EMIN.
11. Concerning the Use of Tissue Paper in the Care of Patients with Contagious Diseases, By HILLENBERG.
12. Casuistic Contribution to the Luxations of the Femur, By KAREHNKE.
13. The Deep Action of the Light of the Quartz Lamp, By HESSE.
14. A New Milk Pump, By KAUPÉ.
15. Obituary of Theobald Kerner, By KÖHLER.

1. **Increase of the Red and White Blood Corpuscles and of the Hæmoglobin by Means of the Lung Suction Mask.**—Kuhn says that, in low altitudes as in great, a real, permanent, and often rapid increase of the red and white blood corpuscles follows the use of the lung suction mask, together with a somewhat slower, but likewise permanent increase of the hæmoglobin. He believes that he has demonstrated from his experience that when in anæmic patients no increase of the blood elements can be obtained through the proper use of the suction mask a betterment by simple means cannot be obtained, and that the anemia is dependent on a complicated cause.

2. **Experimentally Produced Retrogression of Carcinoma in a Mouse Into Adenoma.**—Apolant relates that the following cases occurred during his experiments. A mouse was inoculated with virulent carcinoma on October 10th. On the following day and on October 24th it received an immunizing injection of an avirulent spontaneous tumor. The primarily inoculated tumor grew to a considerable size, was extirpated November 1st, and showed no acinous construction. A small local recurrence slowly developed and was noticed on November 20th. On the same day a second inoculation with virulent material was made which produced a slowly growing tumor. Both this and the local recurrence distinctly exhibited the construction of an adenoma. Another mouse was inoculated with virulent carcinomatous material and received immunizing injections on the same days as the first. A small tumor developed very slowly and had a distinctly acinous construction. A third mouse received the inoculation of virulent material and the immunizing injections on

the same days as the other mice: On November 10th a tumor of medium size showed no trace of an acinous construction. On November 20th the mouse was re-inoculated with virulent material and it died on December 27th. The second tumor, which was of medium size, was distinctly adenomatous.

6. Diseases of the Stomach in Chronic Lead Poisoning.—Walko says that in chronic lead poisoning there are at the commencement of the disease functional disturbances of the stomach which are caused by a decrease or total absence of the hydrochloric acid and of the ferment secretion, together with a primary increase, followed by a decrease of the motility. The gastric diseases follow a very protracted course and are in part functional, more rarely caused by parenchymatous changes of the mucous membrane, in part caused by the obstipation and the disease of the gastrointestinal nervous plexus.

8. Empyema of the Ethmoid Cells.—Köhler reports three cases of empyema of the ethmoid cells which were cured by intranasal intervention.

9. The Pressure Bandage in the Treatment of Detachment of the Retina.—Freytag thinks that the use of the pressure bandage should be dropped from the treatment of detachment of the retina because the theoretical and practical indications for its application are wanting and it is not to be used without danger.

12. Luxations of the Femur.—Karehneke reports a case of ischiadic dislocation of the hip joint which he met with in a boy, thirteen years of age, who fell from a tree in which he was picking cherries. The joint was reduced by manipulation in the usual manner.

THE SCOTTISH MEDICAL AND SURGICAL JOURNAL.

September, 1907.

1. Mucomembranous Colitis. A Study of Some Points in Its Pathogenesis and Treatment, By D. BARTY KING.

2. Digestion and Feeding in Infants.

By A. DINGWALL FORDYCE.

3. A Case of Repeated Abortion Due to Syphilis; Treatment by Potassium Iodide; Birth of Child with Congenital Goitre.

By B. P. WATSON.

4. Six Cases of Vaginal Cesarean Section.

By N. T. BREWSTER.

5. School Hygiene.

By W. B. DRUMMOND.

3. Repeated Abortion Due to Syphilis.—The two chief points of interest in Dr. Watson's case are: First, the action of potassium iodide in preventing intrauterine death; and, second, the enlargement of the thyroid gland of the last child after the administration of potassium iodide to the mother during pregnancy. 1. That the potassium iodide did have an influence in enabling the patient to carry her children to full time, and that this was not merely due to the gradual elimination of the syphilitic poison from her system with the lapse of time, is clearly shown by the history of the second pregnancy, during which she had the drug administered. In the first and third pregnancies under treatment she took 30 grns. of iodide daily, right up to the onset of labor, and in both cases full time living children were born. In the second pregnancy the stoppage of the drug for a fortnight at the eighth month was followed by the death of the child, and the author thinks we are justified in concluding that the one was a direct result of the other. It is to be noted, however, that while potassium iodide seemed to enable the patient to have living children, it did not prevent the subsequent development of well marked signs of congenital syphilis in these children. For this reason, in cases of a similar kind, mercury should be combined with iodine as a substitute as is usually recommended. 2. The enlargement of the thyroid was due to a general parenchymatous overgrowth of the gland. There was a large quantity of colloid present, the vesicles being widely distended with it, and very little intervesicular substance was left. The cells lining the vesicles were low and compressed looking. In rare, the appearances were exactly those

met with in parenchymatous goitres occurring in the adult. The author is inclined to think that the hypertrophy was just as likely to be due to the condition of the mother's blood as to the action of the drug given.

THE JOURNAL OF OBSTETRICS AND GYNÆCOLOGY OF THE BRITISH EMPIRE.

September, 1907.

1. The "Byrth of Mankynde." (Its contents), By J. W. BALLANTYNE.

2. Extrauterine Pregnancy in Madagascar.

By C. F. A. MOSS.

3. On the Treatment of Occipitoposterior Presentations.

By DAVID HARRIE.

2. Extrauterine Pregnancy in Madagascar.—Moss says that very soon after commencing practice in Madagascar, eighteen years ago, the question of extrauterine pregnancy forced itself on his attention by the fact of his having missed the diagnosis in an advanced case. Having been ever since especially alive to the possibility of meeting with this condition, he has recognized that it is of comparatively frequent occurrence. The Malagasy belong to the Malay family, and their women are for the most part short in stature and delicate in frame. They commence to menstruate about the age of twelve and frequently marry between twelve and fourteen. It often happens that in respectable families a girl is allowed to marry immediately after the onset of puberty, in order to obviate, if possible, the risk of moral lapses likely to cause disease and sterility. There is, however, a very great amount of sexual immorality in both men and women, which is one factor explaining the great frequency of diseases of the reproductive organs. In women, endometritis, chronic pelvic peritonitis, and inflammatory affections of the tubes and ovaries with adhesions, are all very common; carcinoma is occasionally seen, and fibromyoma is frequent, the latter having been diagnosed in as many as 16 of all the patients seen in one year. Pelvic cysts are also not uncommon. Many cases tend to induce inflammation in the genital tract, such as gonorrhoeal infection, sexual excess (even sometimes during menstruation and the puerperium) and want of care after abortion and labor. Two or three days' rest after an abortion is often thought sufficient. There is therefore a great sphere for the inculcation of proper hygienic principles. The author does not state the total of his obstetrical cases, but concludes that he has had sixty-seven cases which have occurred almost entirely in the practice of one medical man during fifteen years and among a small population. Tananarive itself, where probably three quarters of the cases originated, being a town of only about 60,000 inhabitants. Other physicians in the district have noted cases, though not to an equal number.

THE JOURNAL OF NERVOUS AND MENTAL DISEASE.

September, 1907.

Have the Forms of General Paresis Altered?

By F. PIERCE CLARK and CLAUDE H. ATWOOD.

Symptoms, Signs and Course of the Disease, with Some Observations on the Pathology of Paresis.

By CLAUDE H. ATWOOD and F. PIERCE CLARK.

1. Have the Forms of General Paresis Altered? Clark and Atwood observe that three types are needed for analysis of paresis, and variations between types of late years are less great than formerly held. The type of paresis is determined by the number of abnormal and normal findings. Types of paresis may be said to be of two orders of severity, and a grouping of cases into three types from the number and location of abnormal findings. The first type is the most severe, and is characterized by a large number of abnormal findings and earlier diagnosis. Moreover, the specific treatment of paresis in this type has largely been discarded for more rational principles of hydrotherapy, dietetics, and general management, both in and out

side of asylums. The more prompt detection of the disease has made paresis a disease of younger people; more cases occur between twenty and thirty than formerly, and fewer occur over the age of fifty. In whatever light paresis is viewed we can hope for but little variation in the disease, inasmuch as the fixed and definite causes of paresis are syphilis, alcohol, sexual excesses, and mental stress. We believe the relative percentage of the various types should be more generally expressed in textbooks, in order that readier comparisons and deductions may be made. The whole subject under study, the authors remark, is far from being merely academic. The different types of paresis have a widely dissimilar prognosis. The determination of the true syndrome of the disease and its atypical forms is, therefore, a very practical and timely issue. From their study of 3,000 cases they deduce that paresis is essentially a disease in which the grandiose type predominates in about 70 per cent. of all cases, the dementing form occurs next in frequency of 20 per cent., while the depressive form is found in but about 10 per cent.

ANNALS OF SURGERY.

September, 1907.

1. The Technique of Direct Transfusion of Blood, By G. CRILE.
2. Arteriovenous Anastomosis, By G. TORRANCE.
3. Ligation of the Ductus Arteriosus, By J. C. MUNRO.
4. Arteriotomy for Thrombosis and Embolism, By F. T. STEWART.
5. Technique of Bloodvessel Suture, By J. E. SWEET.
6. Endoaneurysmorrhaphy (Matas), By C. H. FRAZIER.
7. Endoaneurysmorrhaphy (Matas), By J. H. GIBBON.
8. The Suture of Bloodvessels, Implantation, and Transplantation of Bloodvessels and Organs, An Historical and Experimental Study, By S. H. WATTS.
9. The Operative Treatment of Acute Abscess of the Lung, By B. T. TILTON.
10. Concerning a Distinct Type of Hypernephroma of the Kidney which Simulates Various Cystic Conditions of that Organ, By R. WEIL.
11. The Extension of the Field of Treatment of Certain Renal and Vesical Conditions that is Made Available by a New Contrivance for Long Continued or Permanent Drainage of the Kidneys Through Renal Fistula in the Loins, By F. S. WATSON.
12. Upon Certain Aspects of Calculous Anuria with Especial Reference to the Performance of Bilateral Nephrolithotomy Simultaneously in Some Cases of this Condition, By F. S. WATSON.
13. A New Combined Lithotrite with Cystoscope, By G. WALKER.
14. A Telephonic Searcher for Use in the Bladder, By A. C. JACOBSON.
15. Gauge Ether, or a Modified Drop Method, with Its Effect on Acetonuria, By W. E. LADD and G. OSGOOD.

1. **The Technique of Direct Transfusion of Blood.**—Crile states that from clinical and experimental research into technique he has reached the following conclusions: That the vascular systems of two individuals may be united so that intima comes in contact only with intima; that this may be accomplished with the Carrel suture or by a special anastomosis tube, which is the method of choice; that blood may be transfused without clotting; that the use of the radial artery of the donor, and any superficial vein of the recipient yields the best results; that the operation may be done painlessly; that the blood lost by the donor is regained in from four to five days; that the amount transferred is under the immediate control of the operator; and that the rate of transference should be carefully gauged because of the risk of overcharging the pulmonary circulation.

5. **Technique of Bloodvessel Suture.**—Sweet considers the technique of the repair of wounds which completely divide bloodvessels, by end to end anastomosis, the question involving accident cases, the treatment of aneurysms, the transfusion of blood, and possibly the

transplantation of organs. The ends of a bloodvessel may be reunited in four ways: (1) They may be brought as nearly as possible to their original position, the various coats being attached to each other; (2) the edges may be coated, turning the cut edges outward; (3) one end may be invaginated into the other; (4) a mechanical aid may be employed. End to end approximation, the method of Carrel and Watts restores the tissues as nearly as possible to their original position, and is theoretically correct. Silk should be used, and very fine needles, straight or curved, the stitches including all the coats of the vessel. The technique is as follows: The vessel is gently clamped, the loose connective tissue of the external coat dissected away, and all injury to the vessel wall avoided. Injured and bruised edges may be resected with a sharp knife. Three tension sutures of fine silk covered with vaseline are passed equidistantly around each divided end. Traction is then applied to two of these in turn, thus making a straight line and preventing narrowing of the lumen. The third tension suture is then weighted with an artery forceps, the circumference of the vessel then forming a triangle. An overhand continuous suture through all the coats is then passed, but only tightly enough to cause approximation. If hemorrhage follows superficial sutures must be added. Secondary hemorrhage or aneurysm rarely follows. Absolute asepsis must be maintained. If immediate thrombosis results it is equivalent to ligation, if gradual thrombosis there would be a resultant favorable collateral circulation.

7. **Endoaneurysmorrhaphy (Matas).**—Gibson states that the Matas operation approaches nearer the ideal for the cure of aneurysm than any other, and is more generally applicable. It can be employed in every accessible variety in which the circulation can be temporarily controlled, and it interferes less than any other with the blood supply beyond the aneurysm. The experimental work of various surgeons shows the possibilities of vascular surgery, suture, anastomosis, transplantation, substitution of vein for artery, arteriotomy for embolism having all been found practicable. The operation of Matas was based upon the fact that when intima is approximated to intima union occurs, and hence that an aneurysm could be cured by closing the mouths of the vessels entering it and obliterating the sac by approximating its walls. He also showed that the artery in saciform aneurysm could be repaired, and that in fusiform aneurysm it could be reconstructed when the openings of the vessels were on the same line and not too far apart. The operation consists in controlling the flow of blood in the diseased vessel by compression, free incision of the sac, from end to end removal of its contents, closure by suture of the arterial openings, and obliteration of the sac by plication and infolding of the skin. With reference to permanent-cure the operations are divided by Matas into obliterative in which the arterial openings are closed and the sac obliterated, restorative in which the arterial opening is closed without affecting the circulation, and reconstructive in which a new vessel is constructed from the arterial sac.

8. **The Suture of Bloodvessels.**—Watts observes that inasmuch as the ligature of large vessels has frequently caused gangrene and even loss of life, better methods of treating injured vessels have been sought. The lateral ligature in partial wounds of veins without interruption of continuity of lumen was first tried, and came into general use after the introduction of antiseptics. This form of ligature can only be used for small wounds, hence clamps were devised to approximate the edges of venous wounds, but this again prevented primary union of the cutaneous wound. Then followed the lateral suture of veins and arteries. In order that this may be successful there must be (1) perfect aseptic technique, (2) clean cut wound edges, closable with-

out too much tension, (3) careful handling of the vessel. Silk is preferable for suture material, and the needles must be very fine. Temporary pressure may be made with the fingers, clamps, or strips of gauze. Circular suture has also been successfully practised, the methods including those in which a simple suture is used, and those which make use of mechanical aids, such as a small tube within the vessel. There may also be uniterminal and biterminal arteriovenous anastomoses, complete and incomplete transplantation of arteries and veins, and replantation and transplantation of organs and limbs.

THE PRACTITIONER

September, 1907.

1. Notes on the Removal of Thyroid Tumors, By A. E. BARKER.
2. The Diagnosis of Chronic Valvular Disease of the Heart, By J. W. CARR.
3. On Displacement of the Internal Semilunar Cartilage of the Knee Joint, By L. B. RAWLING.
4. Some Remarks on Inguinal Hernia in Children, Based on an Experience of One Hundred and Twenty-six Cases Submitted to Operation, By H. S. CLOGG.
5. Some Recent Contributions to the Study of Anæsthetics, By J. BLUMFELD.
6. C. E.—Ethyl Chloride—Chloroform Sequence, By G. A. H. BARTON.
7. Extrauterine Gestation, By G. DE B. TUTTLE.
8. Disinfection and Disinfectants, By J. T. C. NASH.
9. Case of Hour Glass Stomach, By R. H. C. GOMPERTZ.

1. **Notes on the Removal of Thyroid Tumors.**—Barker thinks the first point to be settled is the form of anæsthesia. The danger of general anæsthesia, whether with ether or chloroform, is so great that Kocher and other surgeons of large experience with these tumors have avoided their use for years and employ only local anæsthetics, even though they may not entirely eliminate the sensation of pain. The author's plan is to render the entire field of operation, including the deeper structures, entirely analgesic. For this purpose he uses the following solution: Beta eucaine, 0.2 gramme; sodium chloride, 0.9 gramme; adrenalin solution, 0.5 gramme; and distilled water to 100 c.c. The injection is preceded by a hypodermic injection of a quarter of a grain of morphine, and is made half an hour or an hour before the operation. The entire area of operation is injected within the skin, the resulting œdema soon disappearing. The incision is the collar incision of Kocher, the tumor being enucleated from its capsule. Drainage is seldom used, bleeding is slight, and union by first intention has been the rule. Sterilized linen thread is used for ligatures and sutures.

2. **The Diagnosis of Chronic Valvular Disease of the Heart.**—Carr includes in his study only lesions of the aortic and mitral valves. The first step is to recognize obstruction or incompetence or both at one or more of the orifices. Next one must see which valve or valves are affected, the murmur, the time in the cardiac cycle, the place where best heard, the lines of conduction. Next the cause must be investigated, whether it be rheumatic or degenerative, and in aortic cases whether it is of syphilitic origin. Next one must determine the extent to which the affected valve is damaged, this being mainly determined by the amount of enlargement to which the valvular lesion has given rise. Next one must find out whether the lesion is properly compensated, only precautionary measures being necessary as long as compensation is satisfactory. Accuracy in diagnosis is chiefly necessary for purposes of prognosis and treatment, and only when the foregoing data have been determined can the latter be satisfactorily carried out.

3. **On Displacement of the Internal Semilunar Cartilage of the Knee Joint.**—Rawling observes that the peculiar formation of the knee joint and the strain to which it is subjected render it more liable to displace-

ment than any other joint, the internal semilunar cartilage being more prone to injury than any other constituent element, and especially its anterior portion, which may be torn from its tibial attachment or from the transverse ligament. Having been detached, it is liable at any time to be nipped between femur and tibia. The detachment is usually the result of violence, causes acute pain, and the limb remains slightly flexed until the cartilage slips back into place. Subsequent displacements may occur from comparatively slight causes, and with them may come attacks of acute or subacute synovitis which render the joint susceptible to osteoarthritic changes. Treatment consists in careful reduction of the cartilage under anæsthesia if necessary, and if this is not successful, the cartilage must be removed by incision. Removal of the cartilage does not interfere with the utility of the joint. Successful operation depends upon absolute cleanliness, avoidance of hemorrhage into the joint, and early massage with passive movements.

4. **Inguinal Hernia in Children.**—Clogg has not observed a case of direct hernia in children. The indirect he divides broadly into the congenital and the acquired according to the ætiology of the sac. The repeated investigations of the interior of sac have led the author to believe that the cause of hernia is an attempt on the part of Nature to obliterate a congenital processus vaginalis, that is, the sac in hernia is of congenital origin, in children, quite apart from the age of the child. The author's classification of herniæ in children includes (1) sacs which consist of the whole of the processus vaginalis, total funicular sacs, (2) partial funicular sacs. If these conditions are due to a congenital sac, they can only be cured by the removal of the sac. A truss is unlikely to produce any change in the sac. The only cure of a hernia which has been seen after the first few weeks of life is by operation, and the earlier the operation is performed, the better, after a child has been weaned. Indications for operating earlier than this are (1) strangulation, (2) two or three attempts at strangulation with difficult reduction, (3) large herniæ, especially caecal herniæ, which are not retained by a truss, (4) any hernia which cannot be prevented by a truss from descending.

5. **Recent Contributions to the Study of Anæsthetics.**—Blumfeld reports that anæsthetics have recently been used as a means of exploring plant sensitiveness, the impulse traveling along a leaf stalk, which has been anæsthetized with chloroform. By graduating the dose of chloroform the perception time may be increased from the normal to several hours. Preliminary excitation from anæsthetics is probably an universal effect as deduced from their action on protoplasmic streaming in vegetable cells. Positive chemiotaxis has also been observed as the effect of ether upon certain bacteria. Ether likewise hastens the development of flowers. As to chloroform, Casper is quoted as authority that it may produce chronic poisoning which may be fatal days or weeks after inhalation. Attention is also called to the varying degree of nausea after inhalation of anæsthetics. Preliminary fatty liver is thought to be responsible for at least a portion of such disturbances, while a certain degree of acid intoxication may occur after every general anæsthesia. The passage of an anæsthetic from a mother to her foetus is noted as well as from mother to child during parturition.

6. **Ethyl Chloride—Chloroform Sequence.**—Barton gives an analysis of two hundred cases in which the alternating use of anæsthetics was resorted to in three stages securing increased comfort for the patient, saving of time, and increased safety and perfection. In the first stage the chloroform ether mixture was inhaled from a mask, the quantity varying from one to three drachms according to size and pressure. After had a measure of a mixture of equal parts of ether and

cubic centimetres of ethyl chloride was sprayed upon the mask, a towel being applied over the mask. This constituted the second stage, ended with the loss of the corneal reflex, and lasted from a quarter of a minute to two minutes. The towel was then removed and the anaesthesia sustained by the chloroform ether mixture, constituting the third stage. The operation was begun at the end of the second stage and the results were considered exceedingly satisfactory.

7. **Extrauterine Gestation.**—Tuttle accepts the idea of ovarian foetation, and notes particularly the case of Kelly and McIlroy. He believes that no great enlargement in this variety can occur, rupture occurring early on account of the imperfect stretching power of the ovarian tissue. Primary abdominal foetation is also possible, though very rare. The tubal variety is by far the most common pregnancy occurring at the fimbriated extremity, in the isthmic portion, or at the junction of the tube and uterus. A subvariety of the last mentioned may occur in the rudimentary horn of a bicornate uterus. The causes of tubal gestation may be hypertrophy of the tubal mucous membrane, diverticula in the tube, exaggerated convulsions and cicatricial contractions, obstruction by bands of adhesions, and pressure from tumors in the uterus or the tube. The treatment for this condition is operation and removal of the tube as soon as possible, preferably by abdominal incision.

8. **Disinfection and Disinfectants.**—Nash speaks of disinfectants as physical or chemical, the former including (1) actual combustion, (2) moist heat, either boiling or steam, (3) dry heat, (4) filtration. Chemical disinfectants include many substances which are germicidal in certain solutions, and merely antiseptic in others. In testing disinfectants it is essential (1) to see that all tests are comparative; (2) to make control experiments; (3) to remember that repeated cultivation of an organism, in the presence of an antiseptic often results in changes in its biological properties; (4) to remember that the same organism has variable resistance, according as it is sporing or vegetative; (5) to remember that the virulence of an organism is influenced by the medium or other environment of its existence.

AMERICAN JOURNAL OF OBSTETRICS.

September, 1907.

1. Treatment of Tuberculous and Nontuberculous Cystitis in the Female, By E. GARCEAU.
2. The Abdominal Wound, Its Immediate and After Care, By C. P. NOBLE.
3. Postoperative Complications Involving the Alimentary Tract, By F. F. SIMPSON.
4. Postoperative Thrombosis and Embolism, By G. B. MILLER.
5. Complications Arising in the Kidneys and Ureters Following Abdominal Operations, By S. E. TRACY.
6. The Use of Iodine Catgut in Abdominal Surgery, By J. W. BOVÉE.

1. **Treatment of Tuberculous and Nontuberculous Cystitis in the Female.**—Garceau thinks the existence of primary tuberculosis of the bladder doubtful. Secondary tuberculosis, in which the infection descends from the kidney to the bladder, is not infrequent. Clinically tuberculous lesion of the bladder may be the only one of importance and in that sense primary. Bladder tuberculosis may be miliary or ulcerative. In the primary stage of the miliary form, general hygienic treatment is important and internal use of creosote, sandal wood oil, and antipyrin. Local treatment should be instituted only when the tubercles have broken down with resulting ulceration. Daily instillations of weak solutions of bichloride of mercury combined with cocaine or eucaine have proved very effective with the author. If the ulcer is large silver nitrate crystals with cocaine may promote healing. If this fails vaginal

cystotomy may be tried. In secondary vesical tuberculosis the author considers those cases in which nephrectomy is inadvisable and those in which nephrectomy has been performed. In the former the treatment with corrosive sublimate or silver nitrate will be applicable and possibly the injection of Koch's new tuberculin. In the latter the same treatment may be tried with possible use of morphine by rectum. A vesico-vaginal fistula may be necessary if the local applications are ineffective. Resection of the bladder will be indicated in from three to five per cent. of cases.

2. **The Abdominal Wound, Its Immediate and After Care.**—Noble thinks the principle should be followed of injuring the muscles and nerves as little as possible in the incision, the outer or inner border of the right rectus being incised when possible. The incision should be large enough for free manipulation, especially when pus is present. In suturing, homologous structures should always be united, tier suturing used when feasible, tight suturing being avoided. The overlapping of the aponeuroses has served the author well. Pfannenstiel's transverse incision of skin fat and aponeurosis is at times an useful procedure. Through and through suturing if carefully done will seldom result in hernia except in very fat women, hence tier suturing is preferable for the latter. Catgut is preferred for buried suturing, wormgut for through and through suturing. The essential thing in the care of the wound is that the dressing shall protect it from infection. If patients are allowed to get up early after operation the possibility of thrombosis and phlebitis must be considered, and also the greater risk of hernia. The subsequent use of the abdominal bandage should be governed by individual conditions.

3. **Postoperative Complications Involving the Alimentary Tract.**—Simpson affirms that these complications, like other affections of the alimentary tract, give definite evidence of their existence and nature by deviations from normal functions alone, or in association with functional disturbances of other structures. Three types of affections modifying the functions of the digestive tract may be diagnosed: 1. Functional disturbances of the alimentary tract itself due to the anaesthetic, to slight traumatism from handling the intestines, or packing them out of the way, to decomposition of the intestinal contents, to the absorption of poisons from the alimentary tract, etc. 2. Functional or organic affections of other structures of the body, such as local or general peritonitis and postoperative acute toxic hyperæmia of the kidneys, each having a definite and characteristic series of alimentary symptoms. 3. Organic lesions of the alimentary tract itself, such as intestinal adhesions, faecal fistula, intestinal obstruction, thrombosis of mesenteric veins, actual dilatation of the stomach, etc.

6. The Use of Iodine Catgut in Abdominal Surgery.

Bovee thinks catgut less desirable as a suture material than kangaroo tendon, but accepts it on account of the greater expense of the latter. Chronic acid delays its absorption, but the effect of this acid varies in different specimens of catgut, and hence its use is subject to inaccuracy. Strong iodine catgut has the same objection. Many of the processes for preparing catgut weaken it and thus make it unduly expensive as well as unreliable. In the author's opinion the use of iodine and alcohol has proved the most satisfactory for the preparation of catgut, the formula being tincture of iodine, 1 per cent.; potassium iodide, 1.5 per cent.; absolute alcohol, 97.5 per cent. A small quantity of sterile water, sufficient to make a clear solution, dissolves the potassium iodide. The raw catgut is placed in tightly closed jars containing this solution, and allowed to stand fourteen days, when it is ready for use. Such catgut is sterile, germicidal, has the greatest possible tensile strength, is economical, and easily prepared.

Proceedings of Societies.

AMERICAN PÆDIATRIC SOCIETY.

Nineteenth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. B. K. RACHFORD, of Cincinnati, in the Chair.

(Continued from page 568.)

Three Cases Illustrating Typhoid Fever in the First Year of Life reported by Dr. J. P. CROZER GRIFFITH, of Philadelphia, who said that the disease was more frequent in infants than had been thought. In a Philadelphia hospital recently, of ten beds in a babies' ward, five had been occupied by typhoid patients.

A Case of Articular Rheumatism in an Infant was reported by Dr. GRIFFITH. A baby, five months old, had rheumatism in the hands and feet. The joints were stiff and it held its hands and feet in a cramplike position. Under the use of the salicylates in proper doses the condition had been relieved.

Atresia of the Common Bile Duct.—Dr. GRIFFITH spoke of the case of a child of five months which had had jaundice from birth. The weight increased and then decreased. The child was much emaciated. It had purpuric spots on its head. It digested its food, but did not gain in weight. It occasionally passed by the bowels what appeared to be portions of decomposed blood. The child gradually got worse and died. At the autopsy the liver was seen to be pale and enlarged. So far as could be ascertained, the common bile duct was obliterated.

Dr. PUTNAM wanted to know if there was any case on record where the bile ducts were present in cases of congenital hypertrophic cirrhosis.

Dr. GRIFFITH stated that it was his impression that such a case had been reported.

Hæmothorax.—Dr. W. P. NORTHRUP, of New York, reported the case of a young child seen about a year before. It had been under the care of a general practitioner and had previously been seen by specialists in children's diseases. The case had been pronounced one of bronchitis. When he saw the child it was poorly nourished and its respirations were 80 a minute. When it was on its back it appeared to be comfortable, but as soon as it was moved about it had a bad attack of dyspnoea, which was the immediate cause for alarm. The case was studied carefully and an examination with the x rays was made with some difficulty. Several days after the first visit the child was aspirated, as further examination by physical methods had revealed the presence of fluid in the chest. Two ounces of amber colored fluid were obtained. Upon examination this fluid was seen to contain blood cells. No tubercle bacilli were found. A few weeks later the patient was aspirated again and all the fluid was removed. The x ray picture had thrown some light on the subject, although it still left grounds for uncertainty as to the diagnosis. It was almost impossible to say whether the fluid was in the pleura or in the pericardium. At present the child appeared to be in good condition, except for rapid breathing. There was nothing to indicate the cause of the hæmothorax. It might have been due to a previous attack of bronchial pneumonia.

Chylothorax.—Dr. C. G. JENNINGS, of Detroit, reported a case in a child of nine months. The patient had a marked catarrhal affection of the respiratory tract accompanied with dyspnoea and a persistent rise of temperature. Physical examination placed the affection in the right pleural region, and indicated an exudate. From the temperature it was judged to be empyema resulting from a preexisting pneumonia. Aspiration was performed, resulting in the withdrawal of the colour of a milky fluid. The peritoneal cavity

was also aspirated at this time and 23 ounces of fluid were withdrawn. The fluid was drawn off in both regions at intervals of three weeks. The fluid would collect and manifest its presence suddenly, not gradually, as happened in most cases. No symptoms were noticed when the fluid was not present. The temperature ranged from 99.5° to 100.5°. Five months later a milligramme of tuberculin was given.

On chemical examination of the aspirated fluid the following was noted. Appearance, that of milk; specific gravity, 1.008 to 1.020; alkaline in reaction; fat, 3 to 4 per cent.; proteids, 5 to 8 per cent.; no sugar. Microscopically it gave an excellent picture of an emulsion of exquisite fineness. The treatment consisted in the administration of iron iodide. The child showed great progress in nutrition, and at present was much improved in health.

The Relation of Bacilli of the Dysentery Group to Infantile Diarrhoea.—Dr. J. H. MASON KNOX, of Baltimore, said in this paper that many of the organisms of the dysentery group belonged to those of the Flexner group. Many are the questions to be solved in regard to the study and clinical significance of this group of bacteria. More than twenty years ago the relation of the colon bacillus to certain intestinal conditions had been pointed out.

Shiga, some time ago, showed how certain bacteria were not killed by imperfect sterilization, and showed also the necessity of completely killing every germ in order to obtain sure prevention of attacks. Some bacteria, for instance, the lactic acid bacteria, were of use in that they acted in an antagonistic manner to numerous other bacteria in the intestinal tract which were the cause of much fermentation.

Dr. PARK, of New York, said that infection by the Shiga bacillus was more severe than that by the Flexner type. From a number of investigations made on adults and children it had been determined that the Shiga bacillus produced a well defined toxine. The use of antidyseric serum had done much to decrease the progress of the disease and much to reduce the mortality. It had been used by the Japanese in their late war with Russia and also in the Moscow hospitals.

In the hands of French workers the serum had been of much service and of great benefit in many cases. The dose given was from 20 to 100 c.c., according to the infection. After the use of the serum it was noticed that there was a considerable decrease of blood in the stools, and it was further noticed that when the serum was used the patients as a rule made a speedy recovery. It had been thought by many that the Shiga bacillus generated an antitoxine to the dysentery bacillus.

The Need of Greater Accuracy in Prescribing Starch in Infant Feeding.—Dr. MAYNARD LADD, of Boston, said in this paper that one of the questions to be given close attention was that of feeding infants with starch, and in what quantity and how to prepare a suitable means of introducing the same. While it was known that starch in the form of barley water was used for this purpose, it was conceded that there was no accurate way of determining the amount of starch given by this method. In our dilution mixtures for percentage feeding we used sugar solutions, and it seems to the writer that we might well use solutions of starch of known strength.

The Caloric Value of Modified Milk in Its Relation to Infant Feeding.—Dr. LADD said in this paper that infant percentage feeding had been criticised by many on the ground that it was not a scientific method. In infant feeding the value of the food from a caloric value had been given more attention by the Germans than by any others. The calories necessary to the infant's welfare could be supplied by several foods either singly or in combination with others. The average value of breast milk from a healthy standpoint was two calories

to the litre. A mixture of milk containing two per cent. of fat, eight per cent. of sugar, and 3.50 per cent. of proteid would supply a food of 650 caloric value.

The proportion of water to solids in infant feeding was important, and depended on the weight and age. He had been impressed with the power of individual infants to digest and assimilate food. We must seek out the individual needs of the infant. If infant feeding could be reduced to the percentage of caloric value as regarded weight, much would be accomplished.

His conclusions were that the calories necessary to the infant economy could not be supplied alone in the fats, sugars, and proteids; that the caloric value of the food should increase in each quarter of a year; that a given number of calories did not cause the same rate of growth in different individuals; and that the nutrition of the infant depended on its ability to digest and assimilate, and not upon the amount of food given.

Dr. JOHN LOVETT MORSE, of Boston, could not understand how men would say that everything was wrong with the American method and that the German method was the only correct one. We should take advantage of both methods and regulate the food to the individual case. He wished to call special attention to the importance of considering the caloric value of the food in connection with the surface area of the infant rather than its weight. We must also remember the nitrogen need of the infant.

Dr. KOPLIK, of New York, thought that the caloric question was hard to solve. It had been the contention of many men that with a given surface area and weight and with a food of certain caloric value a baby would come up to a certain caloric coefficient. Dr. Ladd, in his opinion, had given only one side of the question. He had not considered at all the waste in the intestines. This waste was the cause of the failure to gain above a certain point, however great the amount of food given. Percentage feeding was not the only way to feed successfully. There were other methods to be considered as well. Buttermilk was efficient, because it contained such a high proportion of soluble albumins, easily assimilated, and there was less waste in the intestines on this food. Although the percentage of calories in buttermilk was less than in an equal quantity of percentage feeding food, the rate of gain was greater on the buttermilk on account of the low amount of waste.

Dr. FREEMAN, of New York, thought that our tendency in modified milk feeding was to give too little. If we paid more attention to the German method we should get better results.

Dr. L. E. LAFETRA, of New York, said that in our use of the caloric method it would be of immense value if we could determine the lowest limits of the proteids that we could allow. The upper limit was to be determined gradually and by experiment.

Dr. THOMAS MORGAN ROTCH, of Boston, said that the reader of an individual paper must not be understood as giving an ideal method of feeding. The experts did not agree at all that percentage feeding was the perfect method. The caloric method was not thoroughly established at all. We must use all methods if necessary. The Germans ignored what we had done in this line of medicine. We had made infant feeding more simple. We did not say when we established percentage feeding that we had solved the problem. He hoped the society would soon recognize that there was no one method and use the good points in the German method and the good points in our own.

Dr. LADD said that his paper had been cut short on account of the time limit or he might have supplied more data on the points in question. The cases in his series had been studied with the idea of seeing whether the foods as expressed in calories compared with the German conclusions. The amount of calories of the

foods used necessary to obtain a given gain in weight was much in excess of the standards of the Germans.

(To be concluded.)

Letters to the Editors.

QUININE SNUFFED UP THE NOSE IN ACUTE RHINITIS.

LA FAYETTE, ALA., September 12, 1907.

To the Editors: For several years I have used quinine, snuffed up the nose, to relieve the congestion in acute rhinitis. It relieves this disagreeable condition in a few moments. It also relieves the "stopped up" feeling in the ears at the same time. The perfect function of hearing is dependent upon equal atmospheric pressure existing upon both sides of the tympanic membrane. In acute rhinitis the orifice of the Eustachian tube is congested and partially or completely closed; consequently there is too much atmospheric pressure upon the exterior of the tympanic membrane, which produces a "stopped up" feeling in one or both ears. In my own case it is invariably the left ear which is stopped up. Quinine snuffed up into the nose always relieves this condition almost immediately. The quinine removes hardened clots in the posterior nares which were not suspected; opens up the nose so that one can breathe freely and easily; also opens up the congested Eustachian tubes and relieves the "stopped up" ears. The only objection is the bitter taste, as the quinine goes into the mouth by being snuffed up the nose.

B. F. REA, JR.

Book Notices.

Manual of Diseases of the Ear, Nose, and Throat. By JOHN JOHNSON KYLE, B. S., M. D., Professor of Clinical Otolaryngology, Rhinology, and Laryngology in the Medical College of Indiana, etc. Second Edition, Revised and Enlarged. With 169 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. xxxi-627. (Price, \$3.)

The favorable recognition of the many good qualities of this work accorded in these columns on its original appearance has received practical confirmation in the call, in little more than a year, for a second edition. Certain sections of the work have been revised and new subject matter has been added. The chapter on bronchoscopy and laryngoscopy has been made more complete, and the medical and surgical treatment of the lower air passages considered in detail. Attention may be drawn again to the completeness of the presentation, the stamp of practical capability animating the style and scope of the work, and the succinctness of the diction.

The Standard Family Physician. A Practical International Encyclopedia of Medicine and Hygiene Especially Prepared for the Household. By Professor CARL REISSIG, M. D., of Hamburg, Germany, and SMITH ELY JELLIFFE, A. M., M. D., Ph. D., Professor of Pharmacognosy, Columbia University, etc. With the Assistance of Many American and German Specialists in the Treatment of Diseases and Experts in Medicine and Surgery. In Two Volumes. New York and London: Funk & Wagnalls Company, 1907. Pp. 1061.

This book fills a long felt need. It should be found in every home, and will, without doubt, do a great deal of good if properly used. But even such a scientific book may become very harmful in unscrupulous hands or in a family the presiding parent of which imagines that with the possession of the book a call for the physician may be dispensed with. Popularization of every

science is dangerous. It should be remembered that such a book is prepared only to educate the general reader as to hygiene and disease, not to displace the physician; to assist the layman in first help and accidents, not to assume the function of the surgeon.

The book is published in two handy volumes (pages i to 530, and 531 to 1061). The second volume gives a table of doses, a glossary, a description of poisons with their effects and antidotes, and an index. The main body of the book is alphabetically arranged. The entire arrangement makes it a very convenient book of reference and instruction. As examples of the scientific and common sense character of the work may be cited the articles on Cancer of the Breast, Epilepsy, Gymnastics, Hæmorrhage, Insane Asylum, Marriage, Meat, Nursing, Pain, Sanitation, Sleep, etc. Why are there included in tropical diseases such maladies as Mediterranean fever, lacquer poisoning in Japan, etc.?

The Practice of Obstetrics. By American Authors. Edited by CHARLES JEWETT, M. D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, New York. Third Edition, Revised and Enlarged. Illustrated with 484 Engravings, 46 of Which Are in Colors, and 36 Colored Plates. New York and Philadelphia: Lea Brothers & Co., 1907. Pp. xiii-820.

The present enlarged edition of this well known work answers most of the requirements of a work of this character. There are objections to a treatise on a subject of limited scope by a variety of authors, and this is especially true of obstetrics.

However well the work may be done by author and editor, it is difficult to give such a work the necessary symmetry and consecutiveness. Evidently the quality of the contributions to this volume is acceptable, however, or a third edition would not have been offered by the publishers. It would have been well if each article had been headed by the name of its contributor.

This work is distinctly a modern one; modern views of embryology and bacteriology, the modern doctrine in regard to infection, and modern ideas as to surgical midwifery are clearly and forcibly enunciated. We would especially commend those chapters which deal with pelvic anatomy. We are not acquainted with any work in which this important subject is more carefully and thoroughly treated.

The illustrations are selected with good judgment, most of them from recent French and German works.

It is interesting to note in the chapters on surgical midwifery that the authors are advocating and following the present tendency of practice, which is favorable to the more frequent performance of Cæsarean section (in competent, not in inexperienced, hands, of course, the latter, which is of occasional occurrence, being greatly to be deprecated) in preference to difficult version and high forceps operations. The publishers' work is well done, as is customary in books from this source.

Morris's Human Anatomy. A Complete Systematic Treatise by English and American Authors. Edited by HENRY MORRIS, M. A. and M. B., Lond., F. R. C. S., President of the Royal College of Surgeons of England, and J. PLAYFAIR McMURRICH, A. M., Ph. D., Professor of Anatomy, University of Michigan. Ten Hundred and Twenty-five Illustrations. Three Hundred and Nineteen Printed in Colors. Fourth Edition, Revised and Enlarged. In Five Parts. Part I: General Morphogeny, Osteology, Articulations. Part II: The Musculature, Organs of Circulation, Lymphatics. Part III: The Nervous System and Organs of Special Sense. Part IV: Organs of Digestion, Respiratory Organs, Urinary and Reproductive Organs, Ductless Glands, Skin, and

Mammary Glands. Part V: Surgical and Topographical Anatomy. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 1413. (Price, Parts i, iii, and iv, \$1.50 each; Part ii, \$2; Part v, \$1.)

The aim of the editor, as set forth in the preface to the first edition of this work, was to produce "a complete and systematic description of every part and organ of the human body so far as it is studied in the dissecting room." In the present form of the book this has been accomplished in an admirable manner, which reflects credit alike on contributors, editors, and publishers. Probably the most striking feature of the work is the number, excellence, and value of the illustrations and the freedom with which colored plates have been used in the body of the text. A valuable feature of the illustrations is the manner in which the accompanying descriptive matter is given. This matter is inserted at the end of pointers, and in type the character of which varies in accordance with the character of the object described—lining gothic capitals for the names of bones, old style antique lower case for ligaments, muscles, and fascia; lower case italics for veins, arteries, and lymphatics, and capital italics for nerve structures. This arrangement, together with the free use of colors to distinguish different classes of tissue or organs, will undoubtedly prove of much value to the student and materially aid him in systematizing his knowledge.

The nomenclature of the German Anatomical Society has been adopted throughout. The Basle nomenclature, as it is known, will undoubtedly be accepted throughout the scientific world sooner or later, and the recent publication of a book by Dr. Lewellys F. Barker, in which the terms used in this system are explained, shows the headway that it is making in this country.

BOOKS, PAMPHLETS, ETC., RECEIVED.

A Manual of Surgery for Students and Physicians. By Francis T. Stewart, M. D., Professor of Surgery, Philadelphia Polyclinic, etc. With 504 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 778 (Price, \$3.50.)

Dr. Jessner's dermatologische Vorträge für Praktiker. Heft 10. Bartflechten und Flechten im Barte. Zweite Auflage. Würzburg: A. Stuber, 1907. Pp. 39.

A Practical Treatise on Fractures and Dislocations. By Lewis A. Stimson, B. A., M. D., LL. D. (Yale), Professor of Surgery in Cornell University Medical College, New York, etc. Fifth Edition, Revised and Enlarged. With 352 Illustrations and 52 Plates. New York and Philadelphia: Lea Brothers & Co., 1907. Pp. xx-19 to 854.

A Textbook of Clinical Anatomy. For Students and Practitioners. By Daniel N. Eisendrath, A. B., M. D., Adjunct Professor of Surgery in the Medical Department of the University of Illinois, etc. Second Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 535. (Price, \$5.)

Pharmacology and Therapeutics. By Reynold Webb Wilcox, M. A., M. D., LL. D., Professor of Medicine at the New York Postgraduate Medical School and Hospital, etc. Seventh Edition, Revised, with Index of Symptoms and Diseases. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. ix-885.

Third Annual Report of the Henry Phipps Institute. For the Study, Treatment, and Prevention of Tuberculosis. February 1, 1905, to February 1, 1906. Edited by Joseph Walsh, A. M., M. D. Published by the Henry Phipps Institute, Philadelphia, 1907.

A Manual of Hygiene and Sanitation. By Samuel Herbert, A. M., M. D., Professor of Hygiene and Dietetics at the Medical-Chemical College of Philadelphia, and Fourth Edition, Enlarged and Thoroughly Revised. Illustrated with Ninety-three Engravings. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. 488. (Price, \$2.50.)

The Complete Treatise on Colic. By Frederick L. Wackerham, M. D., Chief of Clinic, Colorado Department of Agriculture, and Professor of Therapeutics, Department of Medical State University, New York. New York: New York: Remond Company, 1907. Pp. 444. (Price, \$2.50.)

The Causes and Prevention of Broodiness. By W. Leonard Buddie, M. B., B. S., F. R. C. S. Stoke Newington, Surrey.

Sembilan, Federated Malay States. London: Rebmam Limited; New York: Rebmam Company, 1907. Pp. xiii-544. (Price, \$6.)

The Principles and Practice of Modern Surgery. By Roswell Park, A. M., M. D., LL. D. (Yale), Professor of the Principles and Practice of Surgery and of Clinical Surgery in the Medical Department of the University of Buffalo, etc. With 722 Engravings and 60 Full Page Plates in Colors and Monochrome. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. ix-1074. (Price, \$7.)

Merck's 1907 Index. An Encyclopedia for the Chemist, Pharmacist, and Physician, Stating the Names and Synonyms, Source or Origin, Chemical Nature and Formulas, etc., of the Chemicals and Drugs Used in Chemistry, Medicine, and the Arts. Third Edition. New York: Merck & Co., 1907. Pp. 472.

Insanity and Allied Neuroses. A Practical and Clinical Manual. By George H. Savage, M. D., F. R. C. P., Late Physician and Superintendent of Bethlem Royal Hospital, Lecturer on Mental Diseases at Guy's Hospital, etc., with the assistance of Edwin Goodall, M. D. (Lond.), B. S., F. R. C. P., Medical Superintendent of the Cardiff City Hospital for Mental Diseases, etc. With Six Colored Plates and Forty-five Illustrations in the Text. New and Enlarged Edition. Chicago: W. T. Keener & Co., 1907. Pp. xiv-624. (Price, \$2.75.)

Tracheobronchoscopy, Esophagoscopy, and Gastroscopy. By Chevalier Jackson, M. D., Laryngologist to the Western Pennsylvania Hospital, etc. With Five Colored Plates and Many Illustrations. St. Louis: The Laryngoscope Company, 1907. Pp. 199. (Price, \$4.)

Miscellany.

A New Mosquito Bar Which Can Be Used with the Shelter Tent.—Vedder has devised a new mosquito bar to be used by the army. He found that it is utterly impossible to use the present quartermaster bar in a shelter tent for two men. The new mosquito bar consists of a triangular apron at the front as well as the rear of the tent. This enables either to be used as front or rear, and no matter which end is used as the front there is sufficient slack so that it can be easily raised, or lowered, when entering the tent. At the bottom the bar is a foot longer than the tent. This permits the free border to be laid upon the ground with the blanket spread on top of it, thus making it absolutely mosquito tight as well as protection against centipedes and other vermin. The ridge of the bar is two inches longer than the ridge of the tent. This allows of enough slack to prevent undue stretching of the bar. The tent poles fit through two button holes in the tape that binds the ridge, which are so constructed as to be self closing when the bar is used on the bunk. The ridge and six angles of the tent are bound with tape, leaving free ends one foot from the bottom of the bar. These bottom tapes are tied to the shelter tent pins at the four corners and rear, leaving the front flap free. Tapes are attached to the front and rear ends of the ridge of the mosquito bar, which may be tied to the front and rear guy ropes, thus affording additional support. Fifteen inches from the ridge of the bar, on each side, is a longitudinal tape with free ends. These are used when the bar is slung on a mosquito bar support of the quartermaster bunk. In pitching the tent, the two halves are buttoned as usual. The left half is then turned so that it lies over the right half, and the ridge of the mosquito bar is approximated to the buttoned halves. The tent poles are then introduced through the bar, inserting the ends through the slits of the bar and then through the rings of the tent halves. When this is accomplished, the left half is turned back to its proper position and the whole tent is raised by lifting the two tent poles until upright, when the tent is pegged down. After this has been completed the tapes at the two ends of the ridge of the bar are tied to the front and rear guy ropes and the bottom tapes at the corners are tied to their respective pegs.

The free border at the bottom is then smoothed out upon the ground and the blankets spread upon it. During the day the front end of the bar may be lifted out of the way by tying the tape of this end to the front guy ropes or the entire bar may be suspended from the ridge of the tent by untying the bottom tapes and rolling it up tightly, pushing it up along the tent poles, as it is rolled, when the whole may be secured in position by three tapes which are fastened at regular intervals along the ridge of the mosquito bar; this is shown in the third illustration, where half of the shelter tent is again removed in order to better demonstrate this position of the bar. On the quartermaster bunk, in the post, the bar is secured exactly like the old quartermaster bar by tying the tapes at the four upper corners to the uprights of the bunk, and tucking the free folds at the bottom under the mattress. This bar is superior to the present quartermaster bar, in that it can be used in all ways that the latter bar can be used, and in addition it works perfectly in the shelter tent where the latter cannot be used at all. It has twenty square feet less of surface than the present quartermaster bar, and therefore is bound to be lighter when made of the same material; a fact every company commander will appreciate. The model bar constructed weighs seventeen ounces, while a new quartermaster bar weighs about nineteen ounces. It is made of bobbinet netting similar to that of the mosquito bars furnished by the medical department. It is recommended that the bar be made of this material which is much more durable than that at present used, and the meshes do not become distorted, so as to admit mosquitoes. While the first cost would be greater in the long run it would probably prove cheaper, as the bobbinet stands washing better.—From *The Military Surgeon*, September, 1907.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending September 20, 1907:

Smallpox—United States.

Places.	Date.	Cases.	Deaths.
California—Sah Francisco.....	Aug. 25-31.....	2	
Colorado—12 counties.....	July 1-31.....	65	
Indiana—12 counties.....	July 1-31.....	74	
Kansas—21 counties.....	July 1-31.....	76	
Minnesota—St. Paul.....	July 1-31.....	19	
New York—Homer.....	Aug. 5-Sept. 6.....	1	
New York—Syracuse.....	Aug. 7-Sept. 6.....	1	
North Carolina—Greensboro.....	Sept. 1-7.....	1	
Pennsylvania—Spring City.....	Aug. 19-Sept. 6.....	1	
Vermont—Marshallfield.....	July 15-Sept. 4.....	6	
Wisconsin—30 counties.....	Apr. 1-June 30.....	426	2
Wisconsin—Milwaukee.....	Sept. 1-7.....	2	

Smallpox—Foreign.

Austria—Vienna.....	Aug. 18-24.....	28	
Brazil—Para.....	Aug. 18-31.....	25	19
France—Paris.....	July 1-31.....	14	225
Brazil—Sao Paulo.....	July 28-Aug. 4.....	1	
China—Shanghai.....	Aug. 1-3.....	1	

Case U. S. S. *Pennsylvanian* from Chefoo. Present.

Colombia—Cartagena.....	To Aug. 27.....	1	
Canada—Halifax.....	Sept. 1-7.....	1	
Canada—Quebec.....	Aug. 18-24.....	1	
General.....	Aug. 3-14.....	14	13
Greece—Athens.....	Aug. 18-24.....	1	
Java—Batavia.....	Sept. 28-Aug. 10.....	8	
India—Bombay.....	Aug. 13.....	1	
India—Calcutta.....	July 27-Aug. 3.....	9	
India—Madras.....	Aug. 2-9.....	1	
Italy—General.....	Aug. 12-20.....	24	
Madras—Funchal.....	Aug. 26-Sept. 1.....	6	1
Mexico—Agua Calientes.....	Aug. 24-31.....	4	
Mexico—Mexico City.....	Aug. 1-10.....	4	
Mexico—Montevideo.....	Aug. 26-Sept. 1.....	1	
Russia—Moscow.....	Aug. 11-17.....	1	2
Russia—Rural.....	Aug. 1-31.....	1	
Russia—St. Petersburg.....	Aug. 11-17.....	1	
Portugal—Lisbon.....	Aug. 18-24.....	1	
Argentina—La Plata.....	Aug. 26-31.....	1	

Present.

Cholera—Foreign.

India—Bombay	Aug. 7-13	35	
India—Calcutta	July 21-Aug. 3	401	
India—Cochin	July 21-Aug. 1	8	
India—Madras	Aug. 3-9	8	
India—Rangoon	July 28-Aug. 3	1	
Japan—Moj	Aug. 15-21	1	Epidemic.
Japan—Nagasaki	Aug. 4-10	3	
Japan—Shimonoseki	Aug. 4-10	1	
Japan—Shimonoseki	Aug. 10-21	1	From S.S. <i>Bakani Nara</i> Epidemic.
Japan—Yokohama	Aug. 1-7	1	
Philippine Islands—Manila	July 26-Aug. 1	1	
Russia—Astrakhan	Aug. 19	1	Present.
Russia—Astrakhan	Aug. 14	1	Present.
Russia—Vladimir	Aug. 11	3	Present.
Russia—Samar	July 22-Aug. 3	23	Present.
Russia—Saratov	July 16-Aug. 5	1	Present.
Singapore—Straits Settlements	July 14-Aug. 3	21	

Yellow Fever—Foreign.

Brazil—Manaos	Aug. 3-17	7	
Brazil—Para	Aug. 18-31	8	
Cuba—Cienfuegos	Sept. 11-17	11	
Cuba—Total recent outbreak to September 17th		50	13
Cuba—Habana	Sept. 10-14	2	1
			From Palos.
Cuba—Matanzas Province, Ber		1	
Cuba—Santiago Province, Gl		1	
bara	Sept. 12	1	
			From S.S. <i>Galveston</i> , from
Ecuador—Guayaquil	Aug. 11-17	1	Quanto, Venezuela.
British West Indies—Trinidad,			
Port of Spain	Aug. 12-18	2	2

Plague—United States.

California—San Francisco	Sept. 11-17	8	8
Total number of cases from Aug. 12 to Sept. 17		29	17

Plague—Foreign.

Africa—King William's Town, July 30-Aug. 1	1	1	
from Dubeis Location			
Africa—Izell	June 23-Aug. 2	6	6
Chile—Arica	July 31-Aug. 6	7	2
Brazil—Pernambuco	July 1-15	2	
China—Amoy, Kulangsu	7-9 Aug. 10	25	deaths daily.
French Indo-China—Saigon	July 28-Aug. 1	3	3
India—General	July 7-13	5,557	4,899
India—General	July 14-27	3,995	3,335
India—Bombay	Aug. 6-13	23	
India—Calcutta	July 21-Aug. 3	20	
Japan—Osaka	May 29-Aug. 3	6	7
Japan—Yokohama, vicinity of	Aug. 4-21	2	2
Mauritius	July 25-Aug. 8	1	1
Peru—Trujillo	Aug. 9-15	3	1
Philippine Islands—Manila	July 23-25	1	1
			From German S.S.
Straits Settlements—Singapore	July 21-Aug. 3	2	
Siam—Bangkok	July 14-20	2	2

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the seven days ending September 18, 1907.

ASHFORD, F. A., Assistant Surgeon. Granted an extension of leave of absence for ten days, from September 13, 1907.

BEAN, L. C., Acting Assistant Surgeon. Granted leave of absence for two days, from September 16, 1907.

BELL, J. M., Pharmacist. Directed to report to the chairman of the board of examiners, Fort Stanton, N. M., on October 3, 1907, for examination for promotion to the grade of pharmacist of the second class.

COFER, L. E., Surgeon. Temporarily relieved from duty in Honolulu and assigned to duty at Ellis Island, N. Y. Order granting leave of absence for one month, from August 22, 1907, amended to read for seventeen days only.

CREEL, R. H., Assistant Surgeon. Directed to proceed to San Francisco and report to Passed Assistant Surgeon Blue for special temporary duty.

GOTDBERGER, JOSEPH, Passed Assistant Surgeon. Granted leave of absence for eleven days, from September 3rd, on account of sickness.

GOODMAN, F. S., Pharmacist. Directed to proceed to the Jamestown Tercennial Exposition and assume charge of the Service exhibit.

GRIFFITHS, T. H. D., Acting Assistant Surgeon. Granted leave of absence for seven days, from September 10, 1907, and excused from duty without pay for seven days, from September 17, 1907.

HICKS, B. I., Acting Assistant Surgeon. Granted leave of absence for twenty-one days, from September 6, 1907.

HOLT, J. M., Passed Assistant Surgeon. Directed to proceed to Portland, Ore., for special temporary duty, upon completion of which to rejoin his station at Columbia River Quarantine.

MATHEWSON, H. S., Passed Assistant Surgeon. Directed to proceed to Canton, Ohio, for special temporary duty, upon completion of which to rejoin his station at Cleveland, Ohio.

ROBERTS, N., Assistant Surgeon. Leave of absence granted for seven days, from September 11, 1907, under paragraph 191, Service Regulations, amended to read for two days only.

ROYSTER, W. L., Acting Assistant Surgeon. Granted leave of absence for ten days, from September 15, 1907.

SCOTT, E. B., Pharmacist. Granted leave of absence for two days, from September 16, 1907.

STIMPSON, W. G., Surgeon. Granted leave of absence for three days, from September 17, 1907.

TUTTLE, JAY, Acting Assistant Surgeon. Granted leave of absence for sixteen days, from September 16, 1907.

VOGEL, C. W., Passed Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report to Passed Assistant Surgeon Blue for special temporary duty.

Boards Convened.

A board of medical officers was convened to meet upon the call of the chairman for the examination of an employee of the Life Saving Service at Cape Charles, Va. Detail for the board: Surgeon C. P. Wertenbaker, Chairman, and Acting Assistant Surgeon G. P. Moore, Recorder.

A board of medical officers was convened to meet at Fort Stanton, N. M., October 3, 1907, for the examination of Pharmacist J. M. Bell, to determine his fitness for promotion to the grade of pharmacist of the second class. Detail for the board: Surgeon P. M. Carrington, Chairman, and Passed Assistant Surgeon L. D. Fricks, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending September 21, 1907:

ARTHUR, W. H., Major and Surgeon. Appointed a member of an Army Retiring Board to meet at Washington Barracks, D. C., on October 15, 1907, for the examination of such officers as may be ordered before it.

BANTA, W. P., First Lieutenant and Assistant Surgeon. Ordered to Fort Riley, Kas., for temporary duty.

BOYER, P. L., Captain and Assistant Surgeon. Relieved from duty at the Army and Navy General Hospital, Hot Springs, Ark., and ordered to the Philippine Islands for duty.

BROWN, O. G., First Lieutenant and Assistant Surgeon. Will proceed to St. Joseph, Mo., for duty with the troops at the Camp Hospital at that city during the tournament.

COLLINS, C. C., Captain and Assistant Surgeon. Assigned to duty as Surgeon, Camp at St. Joseph, Mo., during the military tournament at that city, September 23 to 28, 1907.

DAVIS, WILLIAM B., Lieutenant Colonel and Deputy Surgeon General. Will proceed, at the proper time, to Omaha, Neb., and report in person not later than October 31, 1907, for duty as chief surgeon, Department of the Missouri; will retain station in New York city pending his departure for Omaha.

EDIE, G. L., Major and Surgeon. Appointed a member of an Army Retiring Board to meet at Washington Barracks, D. C., on October 15, 1907, for the examination of such officers as may be ordered before it.

GOSMAN, G. H. R., Captain and Assistant Surgeon. Ordered to accompany the 16th Infantry from San Francisco, Cal., to Fort Crook, Neb.

GRANT, JAMES C., Captain and Assistant Surgeon. Granted three months' leave of absence.

HARVEY, P. F., Colonel and Assistant Surgeon General. Will proceed to Fort Thomas, Ky., and Fort Wayne, Ind., for duty as chief surgeon, and will make an inspection of the sanitary conditions at those posts.

LEWIS, WILLIAM E., Captain and Assistant Surgeon. Ordered to proceed to Fort Leavenworth, Kan., for duty as chief surgeon.

- cisco, Cal., to Fort Logan H. Roots, Ark.; granted twenty-three days' leave of absence.
- MACY, F. S., First Lieutenant and Assistant Surgeon. Relieved from duty at Fort Williams, Me., and ordered to the Philippine Islands for duty.
- REYNOLDS, F. P., Major and Surgeon. Assignment to duty at Fort Sill, Okla., revoked, and ordered to Fort Snelling, Minn., for duty instead.
- WOODALL, W. P., Captain and Assistant Surgeon. Relieved from duty at Fort Sill, Okla., and ordered to the Philippine Islands for duty.
- ZINKE, S. G., First Lieutenant and Assistant Surgeon. Ordered to accompany the 16th Infantry from San Francisco, Cal., to Fort Crook, Neb.

The following named medical officers have been detailed to represent the Medical Department of the United States Army at the sixteenth annual meeting of the Association of Military Surgeons of the United States at the Jamestown Exposition, October 15 to 18, 1907:

Major W. FITZHUGH CARTER, surgeon; Colonel VALERY HAVARD, assistant surgeon general; and Major CHARLES E. WOODRUFF, surgeon.

The following named medical officers have been ordered to report in person, in service uniform, mounted, to the Department Commander, on the dates and at the posts indicated below, for the purpose of testing their skill and endurance in horsemanship, as prescribed in Special Orders, Department of the East, and General Orders 181, War Department.

At Camp Captain John Smith, Jamestown Exposition, Va., October 11, 1907:

CARTER, W. FITZHUGH, Major and Surgeon.
WOODRUFF, CHARLES E., Major and Surgeon.

At Fort Ethan Allen, Vt., October 16, 1907:

GIBSON, R. J., Major and Surgeon.

HALLOCK, H. M., Major and Surgeon.

POWELL, J. L., Major and Surgeon.

At Fort Myer, Va., October 21, 1907:

BYRNE, C. B., Colonel and Assistant Surgeon General.

MEARNS, E. A., Major and Surgeon.

RICHARD, CHARLES, Major and Surgeon.

WILSON, W. H., Major and Surgeon.

WINTER, F. A., Major and Surgeon.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending September 21, 1907:

AMES, H. E., Medical Inspector. Detached from duty on board the *Connecticut*, as fleet surgeon of the Atlantic fleet, and ordered to command the Naval Hospital, Boston, Mass.

BELKNAP, J. L., Assistant Surgeon. Detached from duty with the marine detachment, Camp Harrington, Va., and ordered to the *Wabash*.

CAMPBELL, F. E., Passed Assistant Surgeon. Detached from the *Washington* and ordered home; resignation to take effect October 1, 1907.

CATHER, D. C., Assistant Surgeon. Detached from the *Pennsylvania* and ordered to the Naval Training Station, San Francisco, Cal.

CLIFFORD, A. B., Assistant Surgeon. Orders of June 17th revoked; detached from the *Maryland* and ordered to the Naval Hospital, Mare Island, Cal.

COWAN, J., Pharmacist, retired. Detached from the Naval Recruiting Station, New York, N. Y., and ordered home.

GRAYSON, C. T., Assistant Surgeon. Detached from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., and ordered to the Navy Yard, Washington, D. C.

HOEN, W. S., Passed Assistant Surgeon. Ordered to additional duty with Recruiting Party No. 1.

MCLEAN, N. T., Assistant Surgeon. Detached from the Naval Hospital, Washington, D. C., and ordered to the Naval Station, New Orleans, La.

OHNSORG, K., Passed Assistant Surgeon. Detached from the *Wabash* and ordered to the Naval Hospital, Philadelphia, Pa.

PLEADWELL, F. L., Surgeon. Ordered to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

VICKERY, E. A., Assistant Surgeon. Ordered to the Naval Hospital, Boston, Mass.

The following named assistant surgeons and acting assistant surgeons have been ordered to report for a course of instruction at the Naval Medical School, Washington, D. C., on September 30, 1907:

Assistant Surgeons M. E. ROSE, W. H. SHORT, H. L. KELLY, and M. A. STUART; Acting Assistant Surgeons S. BACON, C. W. O. BUNKER, and C. J. HOLEMAN.

Births, Marriages, and Deaths.

Married.

BOYD—FULMER.—In Downingtown, Pennsylvania, on Tuesday, September 10th, Dr. Robert Boyd and Miss Mary Florence Fulmer.

DOW—LATHROP.—In Arlington, Massachusetts, on Monday, September 16th, Dr. William Snow Dow and Miss May Ethel Lathrop.

LEWIS—LEWIS.—In Philadelphia, on Monday, September 16th, Dr. Osborn Barrett Lewis and Miss Lydia Tomlinson Lewis.

MCDONALD—FERGUSON.—In New York, on Wednesday, September 18th, Dr. Robert Francis McDonald and Miss Anna Loretta Ferguson.

MORRIS—GADBERRY.—In Louisville, Kentucky, on Monday, September 16th, Dr. Charles D. Morris and Miss Elizabeth Gadberty.

SMITH—SOUTHERLAND.—In Central Valley, New York, on Wednesday, September 18th, Dr. Roy J. Smith, of Newburgh, and Miss Isabel See Southerland.

TAYLOR—WEEKS.—In Tarrytown, New York, on Wednesday, September 18th, Dr. Alfred S. Taylor and Miss Lucy E. Weeks.

Died.

ABBITT.—In Appomattox, Virginia, on Friday, September 13th, Dr. William H. Abbit, aged seventy-five years.

BAILEY.—In North Conway, New Hampshire, on Thursday, September 12th, Dr. George Bailey, of Cambridge, Massachusetts, aged eighty years.

BARRY.—In Chicago, on Thursday, September 12th, Dr. Russell Thomas Barry.

BRIDGHAM.—In Cohasset, Massachusetts, on Tuesday, September 17th, Dr. Charles B. Bridgham, aged sixty-six years.

CARROLL.—In Washington, D. C., on Monday, September 16th, Dr. James Carroll, United States Army, aged fifty-three years.

FOWLER.—In Laurel, Delaware, on Friday, September 20th, Dr. Edward Fowler.

GLENN.—In Rock Hill, South Carolina, on Friday, September 13th, Dr. E. L. Glenn.

HANCOCK.—In Holyoke, Massachusetts, on Wednesday, September 11th, Dr. John Hancock, aged eighty-six years.

HARLAND.—In Worcester, Massachusetts, on Saturday, September 14th, Dr. W. G. B. Harland, of Philadelphia, aged thirty-eight years.

HYDE.—In Brooklyn, N. Y., on Sunday, September 22nd, Dr. Joel W. Hyde, aged sixty-eight years.

LESH.—In Stroudsburg, Pennsylvania, on Monday, September 16th, Dr. M. G. Lesh, aged fifty-seven years.

NORDEMANN.—In New York, on Sunday, September 15th, Dr. Felix Nordemann, aged eighty-one years.

RIGGS.—In Independence, Missouri, on Thursday, September 12th, Dr. O. H. Riggs, of Kansas City.

TAYLOR.—In Providence, Rhode Island, on Tuesday, September 10th, Dr. V. O. Taylor, aged sixty-five years.

WHIPPLE.—In Buffalo, N. Y., on Friday, September 13th, Dr. Electa B. Whipple.

WHITEFORD.—In Baltimore, Maryland, on Sunday, September 9th, Dr. William T. G. Whiteford.

WISE.—In New York, on Sunday, September 22nd, Dr. Peter M. Wise, aged sixty-four years.

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Original Communications.

MORBID IMPULSES AND THEIR MEDICOLEGAL IMPORTANCE.*

BY ALFRED GORDON, M. D.,
Philadelphia,

Associate in Nervous and Mental Diseases, Jefferson Medical College; Examiner of the Insane at the Philadelphia Hospital, etc.

The study of obsessions and morbid impulses is very important because of the grave consequences to which they lead from social and medicolegal standpoints. Such a study presents multiple interesting features. First of all, the underlying basis upon which these morbid states develop. Since Morel the question of heredity began to play the most important rôle in the domain of mental pathology. The list of hereditary stigmata is quite long; it presents a long chain, each part of which is a morbid state by itself, and the final end of it is the ultimate degree which is represented by the idiot.

All these individual conditions, or taken as a whole, depend upon one common cause, which constitutes "mental degeneracy."

The stigmata of degeneracy may be physical and mental. Among the latter, with which we will be exclusively concerned, obsessions and various morbid impulses constitute episodic manifestations of mental degeneracy.

What is degeneracy? Under this term is understood a pathological state of an individual whose psychophysical resistance is *constitutionally* diminished; in other words, it is a condition which is a deviation from the normal type of humanity. In such a person there is an interruption of harmonious equilibrium existing between various functions of cerebrospinal centres; the cooperation and adaptation of the latter are incomplete. There is an ataxia of thought, of sentiment, of will, of psychomotor functions.

According to the parts involved these patients form several clinical groups which are only apparently different from each other, but under which is hidden the same individuality, viz., the degenerate, the neuropath.

The most important characteristic features in neuropathic individuals are found in their psychical sphere. They are manifested by an arrest of development of the intellectual faculties; it is a development which is irregular and in which there is a state of oscillation in the faculties. Such individuals are called "epileptics" in a figurative sense. They may have

a remarkable memory but cannot fix their attention. Their mental instability is sometimes extreme. At the same time they are apathetic and present paroxysms of great excitability. They are eccentric, dreamers, with romantic tendencies. They are emotional, timid, extremely sensitive, impressionable, suspicious, egotistic, haughty, and affected with moral perversity of the gravest nature. Above all, the best illustration of the loss of psychical equilibrium is found in obsessions and morbid impulses.

What is an obsession? Normally an idea, a sentence, an image may unexpectedly invade our mind and obstinately persist. It is sufficient, then, to exercise our will to a certain extent and make this phenomenon disappear. This, so to speak, physiological obsession never leads to a morbid impulse. When a morbid obsession occurs, the cerebral centres are invaded by a certain image or idea, which remains fixed, and suppresses subsequently all antagonistic images or ideas. This is accomplished not without a struggle, but the tenacious idea is accompanied by a moral pain so intense that it subordinates the will and the individual, perfectly conscious of what is going on, but powerless, finds himself irresistibly forced toward acts of which he himself disapproves. The obsession leads to an impulse, and these two phenomena are in the same relationship as a thought to the act.

The characteristic features of an obsession are therefore: (a) Lucidity as to the phenomenon; (b) energetic struggle against the invaded thought; and (c) moral torture. The elements of morbid impulses are: (a) Sudden function of a centre or of a group of isolated centres without participation of reason; (b) momentary impotence of will controlling the act.

The state of consciousness, the apparent lucidity, are misleading for those who are not familiar with these disturbances and judiciary errors are readily explained.

As you see, this question is of the highest importance from a clinical, psychological, and medicolegal standpoint.

The obsessions and irresistible impulses are not met with in every neuropath. They are episodic morbid manifestations which accompany usually a neurasthenic state of a mental degenerate. They are merely allied phenomena. It is not an intermediary state between the neuroses and true insanity. They have no moral and no legal significance so for a long time without actually crossing the line. Finally, the obsessions and impulses are associated with

* Read at the meeting of the American City Association of Medical Officers, May 1, 1907.

with a break, and the border line may easily be overstepped.

A neuropath who becomes fatigued, whose nervous system becomes exhausted, may develop obsessions and morbid impulses. Depressive emotion, prolonged intellectual effort, a prolonged waking state, excess of any sort, abundant hæmorrhages, protracted infectious diseases, disturbance of nutrition, intoxication, especially alcoholic, are all the usual provoking causes of obsessions with morbid impulses. The sight of a capital punishment, the news of a suicide or homicide, the recital of a murder, are also sufficient reasons for the development of morbid impulses in a neuropathic individual.

A young woman of thirty-five who was profoundly neuropathic, whose hereditary history was of the most unpromising (father syphilitic, mother alcoholic, a grandfather had paresis), had several miscarriages accompanied by tremendous losses of blood. Her recovery was of long duration. She soon developed morbid impulses. Being a butcher's wife, she assisted him in carving meat in the shop. On several occasions while handling the large knife she felt the desire to cut off the customers' heads. She realized her condition, she struggled with herself, resisted the torturing temptation. Finally once, in the presence of several customers, she began to scream; the knife fell out of her hands; trembling she begged them to remove the knife from her sight, as otherwise she would commit murder.

A young pharmacist, who has been under my care for the last two years, has frequently the almost irresistible desire to commit suicide. This occurs only when he becomes unusually tired from continuous work. He is fully conscious of his condition, fights it often at the expense of his sleep. Once riding on a boat, he felt the necessity of jumping overboard. Fearing himself, he begged the passengers to tie him to a post and keep him in this position until the boat landed.

Obsessions and irresistible impulses may affect also crimes of a less important order. In kleptomania there is an irresistible impulse to possess objects which are of no value. This is frequently done by individuals who are otherwise perfectly honorable, who possess sufficient means. Here, again, they are perfectly conscious of the criminality of the act, and of the consequences to which it may lead. They struggle against this tendency, they suffer morally, but they finally succumb to the irresistible impulse.

Arson, assaults, rape, all varieties of sexual perversion, may be committed by a neuropathic individual under the influence of an obsession.

What is the outlook in obsessions with irresistible impulses? The evolution of these symptoms presents nothing typical. It may be periodical and intermittent. Sometimes it appears for a short period and disappears completely. In other cases it is slow, remains stationary for months and years. In still another series of cases the symptom disappears, but recurs from the least cause.

As Magnan has well said, they are episodic symptoms in the life of a degenerate. They are incorporated in the mental state of the individual, and never become separated from him. Appearing now

and then during his life, they never undergo modifications; they are always the same.

In making a diagnosis of cases of this order it should always be borne in mind that while morbid impulses for minor offenses are frequent in the neuropathic individuals in general, the irresistible impulses for acts of graver nature, as homicide and suicide, are not frequent. They are met with often in true insanities in which the individual blows out his own brains or kills, seeks revenge, because he is under the influence of a delusion or is prompted by hallucinations of a terrifying nature. When a patient suffers from melancholia, he is mentally tortured by his delusion of the unpardonable sin, of his physical worthlessness, of deserving punishment for his imaginary misdeeds. Voices are constantly reminding him of his wrongdoings. Such an individual will seek relief from his continuous torture and finally commit suicide. Sometimes his delusive ideas will run in a somewhat different channel, and he will imagine that through his sins his relatives and neighbors, his wife and children will undergo punishment and will suffer; in order to save them from inevitable suffering and torture he prefers killing them himself, and he acts accordingly.

A paranoiac develops in his diseased mind a grudge against certain individuals, who for an apparently logical reason are persecuting him or trying to prevent him from obtaining a certain important position which they themselves are after. He hears their voices through the wall at night; sees them masked in his room. Another paranoiac gets a mission from God to preach, to convert the sinful men, women, communities, nations. He gets messages from the Almighty through spirits, angels, who order him to accomplish his task and destroy any obstacle on his road. Such individuals will exhibit irresistible impulses commanded by their delusions and hallucinations and commit homicide.

In paresis similar delusions may lead to identical consequences.

In dementia præcox when the youth commences to show signs of dementia, he develops hallucinations and delusions; commits excesses and assaults of the gravest character, kills or commits suicide.

A senile dement forms delusions of being defrauded, robbed, believes himself being persecuted. Frequently erotic delusions make him plan ridiculous marriages, and if he is prevented from doing it he assaults and kills. Assaults of senile dement on very young girls or children are not uncommon.

In toxic insanities, especially alcoholic, the delirious and confusional states are frequently accompanied by delusions and hallucinations; morbid impulses are then easily formed.

In epilepsy, after the motor manifestations are over, the patient remains in a confusional, delirious, or stuporous state, during which irresistible impulses may develop and a crime may be committed. Sometimes the epileptic attack itself may consist of a sudden irresistible impulse for attacking, assaulting, and injuring.

In determining the nature of and the motives for morbid impulses only a prolonged and thorough examination will help the medicolegal expert to form an impartial opinion.

Let us emphasize the distinctive diagnostical

points as they are essential for a proper conception of these interesting phenomena.

When a lunatic assassinates, he is under the control of a delusional conception and hallucination or illusion, by which he is carried away towards the abnormal impulse. The latter has a special character, viz., unconsciousness of the act; automatism is the essential feature.

When a morbid impulse is the result of an obsession in a neuropathic individual, the characteristic features of the act are: The lucidity of consciousness, the tormenting mental struggle before the act is accomplished, the realization of the horror of the act. At the same time the state of anxiety of the patient is accompanied by cardiac palpitation, acceleration of the pulse, headache, tremor, perspiration, etc. All these symptoms occur in an individual whose mentality is abnormal, irregular, asymmetrical and without equilibrium. In such an individual the *soma* will frequently be found deviated from normal; many stigmata of physical degeneration, disturbed functions of the viscera, of tissues, of organs. A profound study of his own life, of his reactions to external and internal stimuli, of his adaptability to surroundings, also of his family history, of the hereditary features—such a study is indispensable in making a diagnosis.

Medicolegal Considerations.

The question of responsibility of individuals presenting morbid impulses is of the greatest moment from a social and medicolegal point of view. It is frequently accompanied by difficulties, and has led not infrequently to many judiciary errors.

The primitive society of mankind recognized crime as a punishable act, irrespective of any other consideration. The criminal was always punished, no matter what his mental state was. Ancient legislation ignored entirely the question of irresponsibility. The Romans were the first who distinguished between *compos* and *non compos mentis*. But the great difficulty was to determine under what condition an individual ceases to be *compos mentis*. Prejudices, errors of all sorts, religious and political passions, interfered with the proper understanding of cerebral functions, of genesis of ideas and of their manner of manifestations. Even the humane principles of the French Revolution were unable to eradicate from the minds of the legislators the deep seated ideas of moral responsibility.

With the advent of Pinel and his school a new era entered the field. With him the old ideas suffered a decided blow. He succeeded in convincing human minds that insanity was a disease and that there was no crime if the criminal was insane while committing it. Gradually the field of responsibility became wider and wider: The criminologists of the new anthropological school, and with them the psychiatrist and all students of normal and abnormal psychology, jurists and enlightened laymen, all admit now that a neuropath, as defined, presenting episodic paroxysms of pathological impulses cannot be considered fully responsible for his criminal tendencies and acts, and that instead of being committed to prison, he should be removed from society and placed safely to undergo medical treatment.

The medicolegal literature is abundant with examples of indiscriminate conviction of this category

of individuals. Notwithstanding the considerable work of the psychiatrist and the incessant labor of the profound students of psychology and of the evident and flagrant injustice to mankind, some jurists are loath to accept the humane and scientific principles laid down by the workers in this field of human knowledge. It is, of course, proper to advise, as they do, to moderate the passions and to learn to control them, but this is possible only for a brain free from any hereditary or acquired taint. It is just as difficult to control and direct the operation of a brain whose anatomical and functional integrity is affected as it is to hold oneself straight with a spinal column which is scoliosed or otherwise deviated.

The degenerates with morbid impulses are, therefore, irresponsible; but what is the degree of their responsibility between the acts, viz., during the lucid intervals? Here jurists, alienists, anthropologists are not exactly of the same opinion.

The old classical school of criminology believes in so called *partial* responsibility. They say that because an abnormal brain, although not insane, has an abnormal will, an abnormal conception of right and wrong, the law should impose only partial punishment. The modern psychiatric views, the glory of which belongs mostly to the French school and especially to Magnan and his pupils, are based upon a different conception of degeneracy and criminality. Lombroso, Ferri, Garofalo, in Italy; Broca, Bordier, Manouvrier, Lacassagne, in France, have laid the foundation for the modern anthropological school. According to the anthropologist the criminal is under two kinds of influences: *Intrinsic* or individual and *extrinsic* or social. This double responsibility in a neuropathic individual is *nil*, and his irresponsibility is absolute at all periods of his life; its excuse lies in the heredity and in the morbid impulses which are not present in normal beings.

Expert Testimony.

When an expert is called upon to give his scientific opinion on crime committed under the influence of an irresistible impulse, he has to consider not only the crime, but also and mainly the criminal. As to the criminal, it must be determined whether he is insane or only a neuropathic individual affected with obsessions and morbid impulses. In both cases a thorough and careful examination is absolutely necessary.

When the crime is committed without a motive, when it is accompanied by a perfect integrity of conscience, when it is preceded by a mental struggle, there is no doubt that it was the result of a morbid obsession. In insanity the expert will sometimes encounter difficulties. In the first stages of a mental affection, in which a perverted mode of thinking, feeling, and acting is not easily recognizable; in epilepsy, when between the attacks the individual is comparatively lucid; in some cases of paranoia, when the patient will skilfully conceal the subject of his delusion—in such cases the expert will have to surround himself with all possible precautions, obtain detailed personal and family histories, interrogate the criminal at various times before he decides the question of insanity, viz., responsibility. The rôle of the expert in these conditions must consist not only of giving a personal impression more or less

justified by his own experience, but also of presenting evidence which will be understood by laymen.

The determination of the degree of responsibility of a criminal should therefore be placed in the hands of an alienist. Only he is capable to determine early stages of insanity, only he is able to determine apart from insanity the degree of mental control, of inhibitory power of a delinquent who presents mental stigmata of degeneracy.

One word on the legal responsibility. There is a frequent conflict between medical and legal conceptions of insanity. The law admits that a man with one fixed delusion may be sane on every subject except when he touches upon the delusive thought, and some consequently argue that he can be considered sane before or after a crime is committed, but insane during the act. From a medical standpoint such an argument is unscientific, for if delusive ideas are apt to originate in a brain, the function of its constituent elements is certainly disturbed. In such a brain one certain delusion may be formed and remain fixed, but by the very reason of this fact, this brain must be considered diseased, and misconceptions with misinterpretations may become manifested at any moment. An individual thus affected should by no means be considered "responsible before the law" before or after the crime.

I will conclude with the following propositions:

The legal conception of responsibility is not in accordance with the principles of science, and does not satisfy the practical exigencies of life. An alienist should be called upon to examine each criminal. Administration of justice in such cases should be confided to a jurist and to an alienist.

Administration of houses of correction should be placed in the hands of alienists and pædagogues.

Youthful criminals should be placed, not in prisons, but in special institutions where they shall receive medical attention.

Conviction of criminals intellectually and morally defective is unjust and should be replaced by prophylactic measures which form a part of social hygiene.

1430 PINE STREET.

VARIETIES OF TUBERCULOSIS ACCORDING TO RACE AND SOCIAL CONDITION.*

By WOODS HUTCHINSON, A. M., M. D.,
New York.

Classifications of the types and varieties of tuberculosis are notoriously unsatisfactory. Each successive one is far more successful in criticising the defects of its predecessors than in removing them. This, of course, is only to be expected in view of the enormous frequency of the disease, and that it attacks ruthlessly all ages, sexes, races, and conditions of men, from the cradle to the grave.

The well known triple classification: *Miliary*, *bronchopneumonic*, and *fibroid*, according to type, which is almost universally accepted—valuable as it is for descriptive purposes—is recognized as based upon nothing more than a group of symptoms, any one or all of which may appear in the same case, and in many cases.

The miliary type of tuberculosis is due to the

passage into the blood stream of usually a large—but it may be a very small—number of bacilli, and of their consequent rapid colonization all over a given organ or a considerable part of the system. Only when the disease assumes this form at a very early stage is the type clear cut, for then of course the patient usually dies before any other type has time to develop. It may, however, appear at any stage of any type of the disease, even the fibroid, and constitute the terminal attack.

The bronchopneumonic and fibroid types are related to one another pretty much as the so called parenchymatous and interstitial forms of nephritis. If the patient's power of resistance to the inroads of the bacilli are poor, and he cannot succeed in encapsulating them, he goes steadily down and dies of the bronchopneumonic type. If he can succeed in limiting their spread, the battle settles down to the slow and year long—or it may be decade long—fibroid form. There are, of course, certain cases in which the attack is so insidious and difficult of recognition and the progress so slow from the first, that they may be regarded as fibroid from the start; but they are, in my experience, the exception rather than the rule. Most fibroid cases that I have seen are those which have survived one or more bronchopneumonic attacks; and most fibroid cases, if carefully watched, will usually be found to develop exacerbations of the bronchopneumonic or even local miliary type. To say that a patient has either the bronchopneumonic type or the fibroid type, is merely to say how long he has resisted the disease so far, with comparatively little indication as to how long he will continue to resist it in future.

The division of the disease into stages, though of great practical value and probably the best that can be done under the circumstances, is very far from satisfactory in many respects. First of all, it is notoriously difficult to draw accurate dividing lines between the stages, or even to agree upon the main central group of symptoms which constitutes the picture of each. The old rough and ready division into first, second, and third stage was confessedly made with an axe, and now demands a fourth ("pretuberculous"), in order to make it even cover the ground respectably. The modified division of Turban is probably the most satisfactory and intelligent one to date. But all stage classifications fail at their most vitally important point, and that is, as to the possible light they may shed upon prognosis. The main thing that we have in mind—the chief thing that we want to know when we classify a case of pulmonary tuberculosis as in the first, second, or third stages is not so much "how long has the disease been running?" but, in the language of the street, "how far has it got?"—how much longer probably has it got to run? And the vital question is, not how much of the distance the pathological railway train has covered between the station where it first made up and the end of the division, "The Great Divide" from beyond which "no traveler e'er returns," but whether it is an express train or a slow freight.

I am well aware that a classification based upon this ground would require the gift of prophecy; also that to imagine that any modifications which I can suggest will remove the defects of existing classification is all literally to be a "rushing in where

*Read before the New York Branch of the National Association for the Study and Treatment of Tuberculosis, May 8, 1906.

angels fear to tread." But I believe that there is one factor bearing upon the problem, which on account of the difficulty of its estimation has been hitherto entirely ignored, but which may perhaps become of value in future. That is, the extent to which the resisting power of the individual is affected by and may be predicated, from his race and social condition, so far as this latter determines the place where and circumstances under which he lives, or has lived for several generations.

Our estimate of the probable future course of the disease must be a product of the virulence of the infection divided by the resisting power of the patient. The specially interesting and valuable work, based upon the varying degrees of virulence of different strains of tubercle bacilli from human secretions, done by Theobald Smith, Arloing, and Lartigau, gives promise that in the near future we shall be able in any case where the bacilli can be found in the sputum to obtain an estimate of their degree of virulence most valuable for prognostic purposes. It is the other factor in the problem, the probable degree of the resisting power of the patient, that is most difficult to estimate; and the purpose of this paper is to present a few data upon which ultimately some estimation of this important factor may be based.

The question which I wish to raise is briefly: Is there such a degree of difference in the resisting power of different races under the same conditions, and of the same races under different conditions, as to give us any clue to the probable resisting power against tuberculosis likely to be possessed by any patient of that race, or class?

Such data as I have been able to collect so far rather incline me to the belief that a certain degree of resistance to or immunity from tuberculosis is a fixed characteristic of many races, and even of some social classes.

My first opportunity for studying this question on a reasonably extensive scale came when, some six years ago, I went to reside on the North Pacific coast. There, during a four years' residence in Portland, Ore., during two years of which I was secretary of the State Board of Health, I was brought in contact with a number of Indian schools and reservations and their attendant physicians, scattered all over the North Pacific coast, from Alaska to California. At the same time, I was also able to observe considerable bodies of Chinese and Japanese immigrants living very largely in colonies and under conditions similar to those existing in their native lands.

These two great groups of non-Caucasian peoples offered a particularly valuable contrast for purposes of study, in that they are both regarded as being derived from the great "Mongol" division of the human family, and though ethnologists differ as to the relation, their physical characteristics are generally similar in a number of respects, so much so that a Japanese dressed up as an Indian warrior and plumed up as a scout would pass as expert while in costume of either. In fact, their physique, color and character of hair, they are generally alike. They live in almost identical climates on opposite sides of the Pacific Ocean, and the only important differences between them are those incident to the

different degrees of civilization which each has attained.

The first thing that struck me on visiting the Indian schools and reservations was the large number of individuals, both adults and children, showing huge scars in the neck, or enlarged glands. These I found to be due to "struma" of the type described in our medical classics of one to two hundred years ago. I next found that the greatest difficulty in educating Indian children lay in their strong tendency to develop tuberculosis of an exceedingly rapid and fatal type, as soon as they were brought indoors and gathered together in considerable numbers. In fact, several of the missionary schools in an earlier day, where no precautions whatever were taken, were reported to have been completely broken up by the prevalence of this scourge.

I then turned to the agency physicians, to inquire what were the general morbidity and mortality of this disease, and found that both were enormously high. I shall not soon forget the answer of the first agency physician to whom I put this question. "Why," he said, "hardly anybody ever dies on this reservation except of tuberculosis or gunshot wounds." And his answer was a fair type of a majority of the others. It was difficult to get accurate figures, for the statistics were rather loosely kept, the physicians were changed frequently, in many of the tribes the prejudice against the white doctor was so strong that he would have no opportunity of making a diagnosis during life; but the testimony was practically unanimous. From all over Oregon, Washington, Idaho, Montana, British Columbia and Alaska (this last including the Aleuts and the Eskimos), tuberculosis was reported to cause a major of, and in many cases from two thirds to three fourths of the deaths in all tribes in contact with civilization. In tribes which were still fairly well isolated the disease appeared to be rare, but where it did occur, it was almost invariably fatal. And this high susceptibility prevails not only among the pure bloods, but among the half breeds and quarter breeds.

I had an interesting illustration of this fact when, through the kindness of Dr. Calvin S. White, of Gervais, I was given an opportunity of studying a little area of almost endemic tuberculosis among the descendants of the Hudson Bay *vogageurs* living in a region known as French Prairie, near Portland. The grandparents of these people had been induced by Dr. John McLaughlin, the Hudson Bay governor of the Oregon country, to settle on this rich prairie, about twenty miles south of Portland, in order to raise wheat, to supply his posts at Oregon City and elsewhere.

They had become substantial, and in some cases very successful, farmers, still speaking their native French patois,—clannish, exceedingly fond of both frolics and fights, the latter in the most cordial of spirits. They had no contact with any of the other respects so much to be envied by the other inhabitants of the neighborhood.

They were, however, not exceptionally subject to tuberculosis in spite of their isolation in their dense and exclusive community. Upon going down among them I found a somewhat more of a taint. A couple of the French descendants

were scarred, not merely in the neck but all over the body, as a result of tuberculous abscesses. One bone or one joint after another would be attacked, the cornea would ulcerate, and the victims, if they did not die of the acute pulmonary or meningeal involvement, would be left crippled and scarred for life. In fact, it was a survival in the twentieth century of the dreaded scrofula, or "King's Evil," of which all the older medical treatises are so full.

Then, I found one house after another where three, five, seven members of the family had died of tuberculosis within as many years. One such house had a peculiarly pathetic history. The family originally consisted of a mother and son. The mother some fifteen years before became tuberculous, developing the fibroid form; the son married and brought home a healthy, vigorous wife of perfect family history. Their first child died at two years of age, of tuberculous meningitis, their second at about the same age, the third at about one year of age, of the same cause. Finally, the wife developed miliary tuberculosis and died in a few months, leaving the old mother and son again alone in the house, the former still tuberculous and still with bacilli in her sputum.

In another house within twelve years seven children had died of tuberculosis, four of them in infancy from meningitis. In another, three children had died and another was in the third stage of the disease. In another, a sister of the man of the house and her two children, aged fifteen and seventeen years, had died of tuberculosis, and the mother, who lived with them, had developed the disease. These houses showed nothing distinctive, but were typical, small, three to six room frame structures such as are found in the farming districts all over the United States. They were well lighted, well heated, with both stoves and open fireplaces, as wood is abundant and cheap in Oregon, and rather better ventilated than the average farm house, on account of the mild climate and the corresponding carelessness of Oregonian carpenters. The first two families were a complete puzzle to me. I had always heard the people referred to simply as "French," and though I knew they were descended from *voyageurs*, it had never occurred to me particularly to inquire into the other element of their pedigree. But after I had seen a dozen or so of them, the racial type began to be so unmistakable that I made inquiries, and promptly found out that the "*voyageurs*" were many of them "breeds" of varying percentages to begin with, and that they had all taken Indian squaws as wives when they settled down to become permanent inhabitants. So that the keynote of the situation was the susceptible blood of the savage,—though, as a matter of warning, it might be well to remark that if anyone wishes to get a broken head, one of the easiest ways possible to secure it, is to go into one of the French blacksmith shops, saloons, or other places of resort and use the term "*savage*" as an epithet.

I next resided for two years in southern California, where I had an opportunity of seeing the condition of affairs among several of the Indian tribes of the southwest, and of collecting information from the agency physicians and also the statistics of the *tribes* among the Mexican population. The

same high degree of susceptibility prevailed, except that it appeared to be diminished somewhat among those who had been living in villages for generations, the so called *Pueblo* Indians, and particularly among such of these as had long been in contact with civilization, like the Mexicans, who as a rule are about three parts Indian and one part Spanish, although, like all hybrids, they bitterly resent being classed in any way with the inferior race whose blood runs in their veins.

About a year ago, Dr. I. W. Brewer, of Fort Huachuca, Arizona, made a careful study of the Indians of the southwest, both personal and through the agency physicians. His findings may roughly be summed up as follows:

Among the Mojaves tuberculosis was responsible for 95 per cent. of the deaths. Among the Hopis and Navajos, it was, according to one agency physician, "very prevalent," and according to another, Dr. Parshell, "the greatest cause of death in children." On another Navajo reservation it was reported as "not very prevalent, but always fatal." Among the Apaches it had "gained a strong hold." Among the Pimas and the Maricopas, it "caused 66 per cent. of the deaths." Among the Havasupai and Walapai, it "caused 75 per cent. of the deaths." On one reservation of the Apaches, "far the largest proportion of the deaths," on another 60 per cent.; among the Pueblo Indians at Santa Fé it was "rare, less frequent than with other Indians." Among the Zúnis, the actual amount was small "but the mortality 100 per cent." The average, from the percentages actually given in these cases, was 72 per cent. of all the deaths. This, with my own observations, pretty well covers the Indians of the Pacific northwest, of the coast, and most of the great southwest.

Other data are at hand, typical of and covering the great Dakota or Sioux group, the three areas practically covering all the Indians west of the Mississippi river. One of these is the admirable paper, which many of you will remember, which was read before the last session of this Association by Dr. James Walker, of Pine Ridge Reservation, South Dakota. This I regard as our most valuable single contribution to accurate knowledge of tuberculosis in the Indians, first, because it is based upon direct personal study, extending over a number of years, by a skilled observer; second, because exact records have been kept and definite statistics can be given; and third, because Dr. Walker, not content with merely speculating upon the cause of the phenomena, has done actual experimental work upon the diminution of the disease, with admirable results. Here is a population of 7000 Indians of the great Sioux tribe or family, which, as every ethnologist knows, represents all that is finest physically and bravest mentally in our North American Indians. The average height of the adult males is nearly two inches above that of our American white population, viz., 5 feet 9.6 inches; the average chest measurement is 38.75 inches and expansion 3.25 inches; they are well fed, upon abundant and fresh government rations, live largely in the open air, hunting and taking care of their cattle, in a healthful climate, to which they are thoroughly accustomed. In fact their vital conditions and surround-

ings are ideal, with the single exception of their houses, which, though warm and weather tight, are small and heated with stoves for which they have an abundant supply of fuel; and acting upon the irresistible instinctive logic of the savage, the barbarian and the peasant everywhere, they think that the business of a house is to be tight, and have every possible chink stuffed with rags or daubed with clay. Into this small house the Indians crowd themselves, drinking, smoking, and spitting. But even when everything that can be said against the house or hut of the average reservation Indian has been said, it must be admitted that it differs only in very moderate degree from the hut of the civilized peasant all over the world and even from the small two or three room house of the average small farmer in our United States. The farmer also believes that windows were never made to be opened, and the farmer's wife will wreak summary vengeance when anybody happens to leave the door open for more than the fraction of a second in cold weather. Farmers overheat their houses, and live almost exclusively in one room, on the floor of which they expectorate freely. The food of the average farmer is neither as rich nor as varied as that of the reservation Indian under a paternal government. He has to work a great deal harder and more incessantly. He is liable to just as severe exposure to the inclemency of the weather; he is even considerably addicted to the use of alcoholics. And yet, what do we find as to the average death rate from tuberculosis of the two races?

Some of the figures previously quoted may be exaggerated, others based upon carelessly kept records; and Dr. Walker very properly comments upon the habitual tendency to exaggerate that which is in any way unusual, displayed in discussing tuberculosis among the Indians. Yet even from his carefully kept and scrutinized records, covering nearly 7000 individuals and extending over ten years, the average death rate was *24.88 per thousand*, as contrasted with the average death rate of the entire United States, according to the census of 1900, of *1.73 per thousand*. In other words, the death rate among this flower of the Indian tribes in a healthful climate, well fed, comfortably housed, was *more than fifteen times that of the whites*.

By five years of devoted and painstaking work in checking the spread of infection and improving sanitary conditions, Dr. Walker succeeded in reducing this frightful mortality nearly one half—that is, to 13.45 per thousand. But this still leaves it nearly eight times that of the white population. These appalling figures are again supported by the reports of the physicians of the Indian agencies incorporated in a report of the Commissioner of Indian Affairs for 1905. Nearly everyone refers to tuberculosis, and all who do describe it as “the greatest menace,” “responsible for far the largest proportion of deaths,” “most of the deaths,” etc.

At the Black Foot Agency, Dr. George Martin reports that 67 per cent. of the deaths were due to that disease in that year, adding the interesting statement that half breeds were more resistant to the disease. Among the Mesquero Apaches, it is reported that far the largest proportion of the deaths are due to it, and an interesting comment by the

well known anthropologist, Dr. Ales Hrdlika, who had spent considerable time on the reservation, is quoted as to how he had been struck by the low resisting power of the Indians, not only to this, but to all other infectious diseases of civilization.

From the Crow Creek Agency in South Dakota, Dr. J. Silverstein reports that “most of the deaths are due to this cause.” Among the Rosebud Sioux, Dr. H. W. Harrison declares it to be “the greatest menace to the health of the tribe.”

From the Yankton Agency, South Dakota, Dr. Chapman gives figures showing 66 per cent. of the deaths to be due to “that old plague of the Indian” tuberculosis. In the Winnebago, Neb., Reservation the disease is “undoubtedly increasing,” and six deaths among children are ascribed to tuberculous meningitis.

To sum up, upon nine reservations where the actual figures are given, the average proportion of deaths due to this disease is 66 per cent. The average total death rate as given in these reports is 52 per 1,000, which, corrected by the average Indian death rate of the United States Census, to be on the safe side, gives a rate of 42 per 1,000, thus showing the appalling mortality of 280 per 1,000 living due to tuberculosis, or nearly sixteen times the average white mortality for the registration area of the United States.

Outside of the moderately unsanitary condition of their houses and tents, almost the only environmental feature which could possibly be blamed for this astonishing preponderance is alcoholism. But this is entirely inadequate to account for such an enormous disproportion. In fact, most competent medical observers, like Dr. Walker, dismiss it with the statement that, although deplorable, it is at best only a contributing cause, and one which, owing to better policing of the reservations and increasing intelligence and stability of character among the Indians, is diminishing to an encouraging degree, while tuberculosis in the same instances is steadily increasing.

Moreover, it is of course obvious that this factor could act only upon the males, the women and children never becoming addicted to it, if for no other reason than for the very practical one, that the braves never give them any chance at the whiskey bottle, and that it is among them that the heaviest death rate from tuberculosis falls. In fact, we have been inclined altogether too much to follow in this instance our customary habit of making alcoholism the scapegoat for any pathological or moral condition which we are otherwise unable to account for.

An interesting feature of the disease as it appears among the Indians is the marked difference in its type, course, and clinical features. I could hardly believe my ears when some of the agency physicians assured me that they had seen adult braves die in three weeks of tuberculosis. All united in the statement that the disease usually ran its course in about nine months in adults, seldom extending beyond a year, and, taking children into consideration, the average duration of the disease from start to fatal termination would not average much more than four to six months. Moreover, these who went into details described a new and curiously uniform type of the disease, beginning with fatigue, shortness of

breath, pallor or blueness of the lips, rapid pulse, and frequently subnormal temperature, with exceedingly rapid consolidation of the lungs, beginning with the apices. The patient would lose weight with frightful rapidity, fall into a muttering delirium, and die of heart failure, much as in septic pneumonia or in typhoid. Nearly all of them also, like myself, had been struck with the large amount of glandular tuberculosis, both in the fatal cases and in survivors, and the large proportion of scars in the neck which were to be found in children and young adults from this cause.

Our distinguished secretary, Dr. Livingston Farrand, informs me that he also was impressed with the great frequency of tuberculous scars in the neck among the Indian tribes whose language he was studying on their reservations. In fact, the entire group of symptoms and results forms an irresistibly convincing picture of a pathogenic microorganism falling upon a host which is highly susceptible.

Of course tuberculosis by no means stands alone in this respect. As is well known, not merely the Indian tribes, but the Eskimos, the Maoris of New Zealand, the Islanders of Hawaii, the Hill Tribes of India, the Kaffirs and Hottentots of South Africa, the Caribs of the West Indies, Central and South America, and the savage aborigines all over the world are frightfully susceptible, not merely to tuberculosis, but to all the infectious diseases of civilization.

Half the population of a village will be destroyed by measles, by whooping cough, or by influenza. A number of the older pioneers of Oregon told me ghastly stories of a great plague which had swept through the tribes of the Columbia River Basin just before the coming of the permanent settlers. Whole villages were found deserted, with the remains of dead bodies in every tepee or hut. The canoes were rotting on the shore, the salmon nets were still standing in the river, torn into shreds by the current. As they grimly remarked, it greatly facilitated the settlement of the country by the white invaders. But, as nearly as I could discover, it appears to have been nothing more ferocious than simple measles, brought by the child of some trapper or *voyageur*. Even within the last ten years, instances were reported to me by physicians employed by the Coast Survey in Alaska and the Bering Sea country of 40 per cent. of the whole population of a village of Aleuts being destroyed by influenza, of 60 per cent. of another tribe being disabled by one attack of measles; and such instances might be multiplied by the score and the hundred.

Almost all the medical experts who have observed the aborigine in his environment are coming to the conclusion that, many and grievous as are the sins of the white man against him, in the way of the introduction of alcohol, houses, schools, clothing, and venereal diseases, the real agency which has thinned his numbers and which threatens his continued existence is none of these, but the contagious diseases of civilization—primarily and most heavily at first, those which through age long exposure have so markedly declined in virulence as to be now classed as the "diseases of infancy," and later, but with more tenacious clutch, tuberculosis.

Much and justly as we may blame ourselves for

our treatment of the aborigine, the greatest harm that we have done and are doing him is one which has been entirely innocent and unintentional on our part. Incidentally, it might be mentioned that in the case of the Indians not only did we not infect them for the first time with syphilis, to which they were thoroughly accustomed long before our appearance on this continent, but that many of the most expert syphilographers now believe that the Indians originally communicated the disease to us through the returning sailors of Columbus's second voyage of discovery. Be this as it may, careful inquiry on my part has utterly failed to elicit any evidence of an unusual prevalence of venereal diseases among Indians after infection by the white man, or that their form in any way differs from those among the white races. Nor have I ever been able to discover, on careful scrutiny of hundreds of Indian children, any traces in the teeth, cornea, or angles of the mouth, of the congenital form of the disease.

Now let us turn for a moment to the other two representative peoples of non-Caucasian blood, whom I was to be able to have under observation on the Pacific coast, the Chinese and the Japanese. Here a strikingly different state of affairs confronts us. Tuberculosis is common in both peoples, but the death rate among the Japanese was, in my experience, very little higher than that among the native white population. My findings are confirmed by the census of 1900, which gives the death rate as 239 per hundred thousand living, among the Japanese, as compared with 173 in the white population. Moreover, the form of the disease in the Japanese was much more chronic and less divergent from that seen in the white population—the only striking difference being, in my own personal experience of some 60 or 70 cases, that there appeared to be an unusually high proportion of peritoneal and pleural involvements, and this was the more striking from the fact that all the cases seen occurred in adult males.

In the Chinese, precisely this same type of disease presented itself, with about the same average duration as that usually seen in white populations—possibly a little more rapid in its course, the average duration of the disease being estimated by those of my colleagues in Portland and Los Angeles, who had had most experience with Chinese patients, as about two to three years; a little greater tendency displayed to involvement of the serous membranes (as in the Japanese), but a very much higher death rate. In the Portland and San Francisco Chinatowns the mortality was more than double that of the surrounding white population, which again represented a higher proportional preponderance on account of all the victims being adult males. My results are in the main supported by the figures of the United States Census of 1900, which gives the exceedingly high rate of 656.8 per 100,000 living—nearly four times that of the general white population. This, however, I think can be very largely accounted for by the extraordinary conditions under which these people tend to live, unless very energetically health policed. They are exceedingly clanish and almost invariably live in colonies or rookeries of their own, for which the head men pay high rents and then subdivide and sublet them to the

most incredible degree of overcrowding. I have seen rooms in the Portland Chinatown, whose only opening consisted of a door, opening into an absolutely dark and unventilated passage, with no window, air shaft, or communication of any sort with the external air. In such a room, 12 by 14 feet, from nine to twelve Chinamen would cook, eat, sleep, and work. Few white men, I am satisfied, would have survived a single night in such an atmosphere. Added to this, they are parsimonious to and far beyond the verge of stinginess, and in order to save enough money to go home to China and live as retired capitalists for the remainder of their days as rapidly as possible, will half starve themselves on the coarsest and most insufficient of food, and go inadequately clothed.

Under all these circumstances it is small wonder that their tuberculosis death rate, like their general death rate, is more than double that of the surrounding white communities. In fact, as will be seen, their mortality, 656.8 per hundred thousand, is only comparatively slightly above that of the white population in the more crowded wards of our great cities. The Irish in the lower wards of New York, for instance, come only a fraction of a percentage behind, with 645.7 per hundred thousand, while similar wards in Chinatown show a death rate of 565, 495, and 502 per 100,000.

These results harmonize with the medical history of the two Mongol races, among both of which tuberculosis is not only very frequent and a common cause of death at present, but has unquestionably been so for an indefinite period in the past. They were at one time quoted by our bovine source of infection friends as an illustration of the absence of tuberculosis where no milk was drunk; but that of course has collapsed most ludicrously, like a good many other of their arguments, under the reports of surgeons in the United States Marine Hospital Service, of medical missionaries in both China and Japan, and of the modern school of Japanese physicians.

The conclusion seems to me almost irresistible from a comparison of these two great non-Caucasian peoples, the one crowded into cities and villages and exposed to the ravages of tuberculosis for thousands of years past—the other scattered out in tents and camps and never exposed to the disease until within the last century or so—that in the course, or process, of civilization (in its derivative sense of "civilization"), the race does acquire" by some means a considerable degree of immunity against tuberculosis. I have been unable to discover any evidence whatever to justify the belief that tuberculosis existed in any form among the Indians before the coming of the white man. The contagious diseases of all sorts, with the possible exception of syphilis, appear to have been extremely rare.

How this immunity is acquired is still an open question. There appears to be little reason to doubt that all acute infectious diseases tend to diminish in violence with successive generations and centuries. Many of them, in fact, may be seen to have undergone that process within historic times, such as syphilis, leprosy, measles, and tuberculosis. As Theobald Smith has brilliantly pointed out, any infectious organism which is to continue as endemic

in a race must modify its original virulence to such a degree as to allow its victim to live long enough to permit of its ready transmission to another patient. An acute infection which kills its victim within two or three days, unless it can succeed in establishing a secondary nidus in the soil or in some domestic animal, will naturally tend rapidly to become extinct, by dying with its hosts. Therefore, of two strains of a pathogenic organism, one mild and one virulent, the mild one stands the best chance in the long run of survival.

There can be little question that our modern "diseases of infancy," measles, chickenpox, whooping cough, and scarlatina, represent such attenuations of originally virulent diseases of adult life; and there is abundant evidence to show that tuberculosis has become both milder in form and less fatal within the last 100 years—in fact, ever since accurate vital statistics have been kept. This decline preceded its recognition as an infectious disease and the precautions taken against its spread as such, although it has been accelerated since that time. It is quite possible that in its earliest form, tuberculosis was a frank, acute, septic infection, involving the glands, bones, joints, and all the viscera alike, as is bubonic plague to-day. The glandular form has certainly become much milder, and the bacilli isolated from strumous glands of the neck are among the least virulent of all strains of tubercle bacilli. It may be nothing more than a coincidence, but it is at least a suggestive one, that with our Indian tribes the disease appears inclined to revert to this virulent, generalized, infectious type, attacking every tissue in the body, though showing a greater preference for the lung. Theobald Smith suggests that this very preference for the lung may have been developed by the bacillus as a means of solving the problem of rapid transmission to another host.

Inasmuch as the infection in every instance has been brought to the Indian tribes by white men, it can hardly be supposed that the strains of bacilli are any more virulent than those usually found elsewhere in civilized communities. There does, however, seem good reason to believe that a strain of bacilli passed through a number of Indian hosts in rapid succession might undergo an intensification of virulence, similar to that long since familiar in the laboratory, from passing a pathogenic germ through a series of highly susceptible animals.

Whether this immunity is acquired or inherited is also an interesting problem, the probability being that both influences have played their part. There can be little question, as is now shown by the figures in all carefully conducted post mortem examination rooms, that every one of us has not merely been exposed scores of times to infection, but that from 80 to 90 per cent. of us have actually suffered a localized invasion of the bacillus. If this bacillus was of attenuated form, like that of scrofula, or our resisting power vigorous, it seems highly probable that we have, by repelling this invasion, acquired a certain increase of resisting power against this disease. This, of course, is pure speculation, but the fact that immunity of a considerable degree has in some ways been acquired under civilization is in my judgment indisputable.

INCARCERATION OF THE RETRODISPLACED GRAVID UTERUS.

With Report of Cases.

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The normal or pathological, gravid or nongravid uterus may be contained in the sac of an umbilical inguinal or vaginal hernia (vaginal prolapse), and may thus become incarcerated. The progressive increase in size makes incarceration the more to be expected during pregnancy if these mallocations exist. The normal sized uterus may lie in the pelvis and become incarcerated in the posterior *cul-de-sac* between the sacrouterine ligaments. The uterus may be said to be incarcerated to a degree whenever it is so placed that its circulation or growth receives mechanical interference.

The gravid uterus may be held in a retrodisplaced position until it completely fills the pelvis, the cervix being carried upward, the fundus being held in the posterior *cul-de-sac*. In rare cases the uterus may continue to grow until full term pregnancy is reached, but more frequently abortion, ischuria, uræmia, septicæmia, gangrene of bladder, rupture of bladder, rupture of uterus, peritonitis, and death follow late incarceration.

Less frequently spontaneous restitution takes place, even after symptoms of incarceration have become marked. Frequently a mild degree of incarceration is met with intolerance on the part of the uterus, and abortion follows.

The history of incarceration of the gravid uterus is nearly as old as the history of medicine. Mention is made of the condition in the writing of Hippocrates. Gregoire, of Paris, deals with the subject in an unpublished lecture. To Hunter we are indebted for the first detailed description. In 1754 he delivered a lecture upon incarceration of the gravid uterus, and instituted the use of the term *retroversion*. In *Medical Observations and Inquiries*, 1776, he deals with the cause of the condition, and lays stress upon a roomy lower portion of the pelvis and scarcity of adipose tissue with a constricted inlet, together with overdistention of the bladder from some cause as etiological factors. This was known as Hunter's theory. That his opinion that the displacement was secondary to the bladder distention, was generally held, is shown by W. Tyler Smith in his quotations from the writings of Denman, Ramsbotham, Robert Lee, and Meigs. He, on the other hand, quotes Rigby as believing that retrodisplacement precedes bladder distention and is a cause of it. He then reports several cases which combat Hunter's theory, indicating that the retrodisplacement is primary. G. Veit was also an early and able advocate of this opinion. This is now generally accepted.

While there is abundant evidence to prove that the retroversion precedes the ischuria, and also that the retroversion frequently precedes the pregnancy, yet Keitler and Gottschalk have shown that the retrodisplacement may follow pregnancy although preceding the ischuria.

In a paper read before the Mississippi Valley Medical Society, I called attention to the occurrence

of retrodisplacement and prolapse during the early weeks of pregnancy as a result of the softening of tissue, congestion, and increased weight of the uterus.

Many theories have been advanced as to the cause of the ischuria. Olshausen held the view that kinking of the urethra was a frequent cause of the difficulty; Zweifel that the presence of the displaced cervix caused the valve like fold in the bladder.

Williams says, "As the pelvis becomes more and more filled by the growing uterus, the pressure upon the neck of the bladder and urethra becomes so intense as to cause retention of the urine, with consequent overdistention."

Kolischer has found oedema of the bladder and believes the ischuria due to the oedema.

Reed considers these theories untenable, and maintains that the whole phenomenon is explained only by pressure paralysis. Observation of cases leads me to believe that the disturbance of the motor and sensory nerves plays a more important part than was formerly supposed, and the mechanical interference with the urethra less. Yet one must disagree with the statement offered in support of this theory that the retention is sudden. My observation shows that these patients complain of irritability of the bladder, frequent and distressing desire to urinate, then a retarded flow, incomplete relief, rather rapid enlargement of a supposed gravid uterus which is due to a gradual accumulation of urine in the bladder. Following this accumulation is retention, and following this, frequent desire, with dribbling of urine and involuntary passage of small amounts of urine in certain positions. This will be illustrated by report of Case I, Mrs. McL.

Clinical Course, Symptoms, and Diagnosis.

Retroversion or retroflexion usually exists prior to the beginning of pregnancy, but may take place thereafter. Adhesions may or may not exist. Sinclair has denied the possibility of pregnancy existing with adhesions of any extent, but many cases prove the incorrectness of this observation. In many cases the uterus returns to normal position as growth advances, with only mild symptoms, or none at all. Other cases present moderate or severe symptoms of incarceration, and still return to normal position.

Not a few cases manifest an intolerance on the part of the uterus by an early abortion. Some cases exhibit marked symptoms early in the pregnancy, and the uterus is returned to position by the physician.

Now and then the retrodisplacement persists, the fundus remaining in the pelvis, the cervix being carried upward. Merriman and Oldham have shown that in an exceptional case retroflexion may continue to term. This could hardly be true of retroversion. Usually ischuria follows incarceration and, if relief is not afforded, cystitis, gangrene of the bladder, rupture of the bladder, uræmia, peritonitis, gangrene of the bowel, gangrene or rupture of the uterus, or some less frequent complication ends the life of the patient.

Gottschalk collected from literature, with the aid of Treub's statistics, 67 fatal cases in which the cause of death was as follows: Peritonitis of ves-

ical origin, 17; uræmia and exhaustion, 16; rupture of the bladder, 11; erroneous treatment, 5; septicaemia of vesical origin, 4; gangrene of bladder, without peritonitis, 3; pyæmia, 3; rupture of peritoneum and vagina, 2; peritonitis resulting from gangrene of the bowel, 1; knuckling of the bowel, 1, and unknown causes, 4. Storer collected 10 additional fatal cases.

The typical symptoms are history of displacement or pelvic disease; increased weight in the pelvis, and increased difficulty with constipation; constipation more and more marked; weight in the pelvis increased to a decided discomfort or pain; increasing irritability of the bladder. If abortion or replacement does not occur difficulty is experienced in getting the urine started, and this is followed by retention; this in turn by paradoxical incontinence. The urine is apt to become mixed with pus and blood and desquamated portions of the bladder mucous membrane.

Examination reveals a large, fluctuating mass in the abdomen, sometimes supposed to be the gravid uterus, but it will have a history of too rapid enlargement, and will be found to be the bladder. Vaginal examination finds a mass bulging the vaginal wall and crowding it toward the symphysis. The cervix is found close to the symphysis or above it in retroflexion, and above the symphysis or not felt at all in retroversion. Rectal examination discovers the mass crowding the rectal walls firmly against the sacrum. The catheter discovers the lengthening of the urethra and the presence of a large quantity of urine, the drawing of which causes the abdominal tumor to disappear.

The greatest aid to diagnosis is to have seen a previous case. One with this experience seldom finds any difficulty in immediately making the proper diagnosis. The inexperienced nearly always meets great difficulty, and is frequently baffled, perhaps never thinking of the possibility of this condition. The history of pregnancy makes this condition a possibility. Auscultation, palpation, and catheterization demonstrate that the abdominal tumor is not the gravid uterus. Bimanual examination after the catheterization fails to find the enlarged, gravid corpus uteri above the symphysis, and so helps to eliminate the probability that the pelvic mass is a cyst or other tumor, separate from the uterus. If the cervix can now be felt, as is usual, the mass will be found continuous with it, and yet it is too soft to be a fibroid.

We sometimes see an incarcerated fibroid with retention of urine, but then we would have increased flow from the uterus instead of cessation of menses.

The pelvic mass gives to the finger the sensation of a ruptured tubal gestation sac, but I have never seen this condition present a tumor so close to the perineum between the vagina and rectum, as is found in incarceration.

The sudden characteristic onset of severe pain, followed by hemorrhage from the uterus, with the absence of bladder symptoms, discloses the extraordinary gestation when present. The slower onset, the constant dragging distress, and colic-like pain with absence of flow from the uterus, together with the characteristic bladder symptoms, enable us to find the characteristic incarceration.

Treatment.

Mann, writing in 1898, says, "The alternatives which have been given up to the present time in cases of retroversion of the gravid uterus with incarceration are either to replace it or, that being impossible, to empty it; the argument being that if we leave the uterus displaced the death of the mother and child will result." I am told that this is the obstetrical teaching in many of our schools to-day. I was surprised at the frequency with which incarceration of the uterus was given as an indication for abortion in the Cook County examination for internes one year ago. He then advocates the use of all nonoperative measures for replacement; these failing, celiotomy as a last resort. The presentation of similar views by Düarsen in Europe was met with harsh and immoderate criticism from some sources.

No doubt we will all agree with the earlier writers in the first part of the treatment spoken of by Mann, viz: to return the uterus to normal position if possible. To this end the bladder and rectum should be emptied and warm, cleansing douches given. An effort is then made at bimanual replacement. The value of the knee chest position should not be underestimated. Frequent assumption of the knee chest position by the patient is to be recommended. Vaginal and rectal bags have been recommended. The shot and mercury bags in the vagina have been used. Sinclair reports success with the watch spring pessary. Of greater value, however, is anæsthesia, and we should not consider our nonoperative efforts exhausted until we have made use of this valuable aid. In the early months of pregnancy it may be necessary to retain the uterus in position by means of a pessary, if replacement is accomplished.

But efforts to replace the uterus having failed, if it is during the early months and only slight inconvenience is felt, a little time may be allowed for spontaneous replacement. This failing, and symptoms increasing, another decided effort should be made. This too failing, we come to the alternatives.

Shall we wait for an intolerant uterus to abort or a tolerant one to suffer extreme incarceration, or, shall we induce abortion, or shall we practice the more modern treatment of replacing the uterus by operative measures?

Our answer should depend upon our present conception of the right method of dealing with retrodisplacement, the danger or absence of danger of celiotomy, the tolerance of pregnant women for operation, and the value of the life of the child. It must not be based on the conception of these matters fifteen, ten, or even five years ago.

If a laparotomy is considered dangerous, and the same operation upon a pregnant woman much more dangerous, the life of the fœtus of little value, and if there is no method of permanently curing the retrodisplacement, then abortion, incarceration, and death will be the rule. If we can make a laparotomy fairly safe, if this danger is only slightly increased in the pregnant woman, if the rights of the child are recognized, and an incision can be made which prevents the possibility or probability of a return of the displacement after delivery, even then patients should not be kept waiting for safety. Last resort surgery in this, as in other conditions, will be less popular.

The taking of one life to save another, when a little sacrifice on the part of one would save both, is not according to the best spirit of the age. Ultra-conservatism may throw themselves under the wheels of progress and thereby impede but not turn them back.

Williams considers retroflexion one of the most frequent causes of spontaneous abortion. In the light of our present aseptic technique, the tolerance of pregnant women for operations, and our present methods of permanently curing retrodisplacement without creating new pathology, *I wish to enter a plea for earlier and more efficient treatment in these cases.*

We can give no better reason for letting children die before birth from retroflexion and incarceration than after birth from appendicitis. It is but another example of an untitled field in medicine. With the uterus intolerant, abortion only threatening, or incarceration having occurred, other means failing, the abdomen must be opened and the uterus replaced, complications dealt with, and if conditions are such as to warrant it the radical operation should be performed to cure the retrodisplacement. In the days of ventrosuspension, the radical cure could not wisely be advised, although Fry pleads for earlier treatment in these cases of retrodisplacement, even with ventrosuspension as a means of cure, although he admits that some abort from the suspension. Laphorn Smith instances a case in which he performed suspension of the gravid uterus, after opening the abdomen with a mistaken diagnosis. Kelly cautions against it in his new edition of *Operative Gynecology*, even going so far as to advise routine curettage in preparation for suspension, saying "it would seem better to do an unintended abortion on a woman whom we did not suspect to be pregnant, than to occasion fixation in a gravid uterus." The logic of this reasoning might be severely criticised as regards the gravid uterus, although it shows his attitude toward suspension of the same.

Ventrosuspension does not recommend itself. We must, however, do more than replace the uterus, if we are to encourage the early attention which these cases deserve. Fry says, "When a woman under these conditions submits to a coeliotomy, she is entitled to more permanent benefit than merely the replacement of the gravid uterus." Since he wrote this we have learned to give the pregnant woman more permanent benefit without the harmful suspension. In the early cases we must hold the uterus forward for immediate results; in these and in later cases we should look forward to a permanent cure of the displacement. Unless we can promise a probability of permanent results, coeliotomy does not commend itself to the patient except as a last resort.

With an operation which is safe for the mother, which decreases the fetal mortality, and which permanently corrects the retrodisplacement, earlier relief will be sought. Instead of pregnancy being a bar to operation, it will under some circumstances be an urgent indication for an operation.

The following cases illustrate many of the points that have been referred to.

CASE 1. Mrs. M. C., age thirty, of Scotch descent, had long been suffering from Bright's disease after giving birth to twenty-one children, four pairs of twins.

Patient had a strong constitution, and had always been well, except an attack of inflammation of the bowels at the time the menses began, with occasional symptoms of pelvic trouble since. Bowels were moderately constipated. Menses began at the age of fourteen, never regular, varying from four to seven or eight weeks, sometimes painful, other times not. Last menstruation October 15, 1906. She had been married eight years, and had given birth to one child five years ago, with instrumental delivery, the large child living only a few minutes.

When seen February 16, 1907, patient gave the following history of present trouble: Soon after last menstruation, in October, constipation began to be more troublesome, and there had since been increasing difficulty in getting bowel movements. At times they had not moved for several days. Soon after pregnancy began the bladder became irritable. During the last few weeks there had been frequent desire to urinate and the urine had been slow to start. During the last two or three weeks the abdomen had been rapidly enlarging. Ten days ago she had had great difficulty in passing water, being unable to pass water nearly all day. After taking large doses of sweet spirit of nitre urine passed involuntarily, a little at a time, when the patient was lying on her side. Patient had had pelvic distress and pain for several weeks, but this had been aggravated since the bladder difficulty became marked.

The patient was of good color and healthy in appearance, except that she had a worried, anxious look. Abdomen enlarged to the size of six months pregnancy, but the mass seemed to stand up rather prominently for pregnancy; there was tenderness over lower abdomen. Percussion note was dull; auscultation negative. Perineum and vagina bulging. Vaginal wall was crowded forward against symphysis, the cervix being above the symphysis. Rectal examination showed a mass crowding the rectum against the sacrum. A catheter could be introduced into the urethra without difficulty, and when inserted two and three quarter inches, urine began to flow, eighty-five ounces of clear, normal appearing urine was drawn. The odor of the urine was strong, the abdominal mass disappeared, although a thickened, leathery bladder could be felt. No albumin was found at this time or later.

An effort to replace the uterus was now made. The cervix could be crowded down and was drawn down, but little could be done to raise the fundus from the perineum. Hot douches, sodium bromatum, and potassium citrate, and frequent knee chest positions were ordered. The catheter was to be used every six hours if the patient was unable to pass water. Occasionally she would urinate, but more frequently the catheter was necessary. The knee chest positions relieved the patient some, but did not return the uterus to position.

On February 18th the patient was anesthetized and a firm but cautious effort was made to replace the uterus. The cervix was drawn downward and backward. With a gauze pad in the vagina against the fundus of the uterus, it was pushed away from the perineum. Pressure through the rectum was also made. Quite a portion of the uterus appeared above the symphysis, and it was thought possible that it would grow out of the pelvis. Urination was much improved.

Two days later it was found that while the patient was encouraged over the fact that she could urinate, she had an increasing distress in the pelvis, and the bladder was found filling with urine.

Coeliotomy was now advised and accepted, the more readily because we could promise a probable cure of the retrodisplacement. On February 21, 1907, under hyoscine-morphine-cactine-chloroform anesthesia, the abdomen was opened with care not to enter the enlarged bladder. The peritonæum was found to be injected and slightly thickened, the omentum was adherent to bladder.

There were evidences of a recent, mild, subacute inflammation. Extensive cobweb adhesions of the uterus throughout its whole pelvic contact were seen. These were separated without great difficulty, but the uterus was not so easily replaced. A gauze pad held by a strong forceps was pushed against the cervix, carrying it low down in the pelvis, at the same time the hand in the pelvis with the palm to the uterus endeavored to lift the uterus away from the sacrum to allow the entrance of air; otherwise no reasonable amount of force would lift the uterus out of the pelvis. With an opportunity for air to enter the pelvis the uterus came up with a characteristic sinking sound. The left ovary and tube were hopelessly matted together, and the tube was inflamed and closed. These were therefore removed.

I then did my transplantation of the round ligament¹ to prevent a return of the displacement after delivery. The advantages of this operation, which does no sewing to the uterus, which uses the best part of the ligaments, and which takes them from the abdomen through their normal exits, and which can be accomplished through the median incision, must be apparent in these cases.

There was at first considerable oozing of blood from the severed adhesions, but this soon ceased. The abdomen was closed with catgut and figure eight silk-worm gut.

The convalescence was uninterrupted. The relief from the pelvic distress and bladder symptoms was immediate. The patient left the hospital sixteen days after the operation. There were no rhythmic contractions of the uterus, nor was there flow to evidence any effort on the part of the uterus to abort.

July 13, 1907. The patient is under observation and expected to be confined any day. Pregnancy has proceeded in a perfectly normal way.

CASE II.—Mrs. W., age thirty-one. Family history was negative. Menses appeared at the age of fourteen, were very irregular before marriage, sometimes not appearing for three or four months, after marriage regular. Date of last flow was April 21, 1900. Patient had had attacks of cystitis and complained of having had dragging pains in pelvis, backache, headache, and general weakness. She had worn a pessary for retrodisplacement. When seen June 14, 1900, patient was suffering from severe bladder irritation and rhythmic pains in the pelvis. Lower portion of the abdomen was tender. She was very nervous. Examination revealed sharply retroflexed gravid uterus, with apparent adhesion, a mass being felt to the left of the uterus.

With preparations made for celiotomy, the patient was anesthetized for more complete examination. This examination discovered that the mass to the left of the uterus was an ovarian cyst. As a result of moderate effort to replace the uterus, the cyst ruptured. It was then thought best to open the abdomen to remove the cyst, break up the adhesions, and shorten the round ligaments within the abdomen. This was accordingly done. The ligaments were shortened by taking a bight of the round ligament near the uterus and another near the internal ring with catgut, which was then tied. This served to hold the uterus for the time. The patient went to full term without inconvenience. Delivery took place while the patient was greatly weakened by an attack of the grippe. Instruments were used to hasten the delivery on this account. The attending physician reported that a severe hemorrhage followed, from which the patient made a fairly good recovery. The retrodisplacement had returned. This was quite certain would not be the case when the transplantation had been used.

CASE III.—This case has been reported quite fully in a previous paper, but is perhaps deserving of brief abstract here as it has some of interest in this connection. Mrs. P., age forty, had been well until a few weeks ago.

Sanita, Gynecologist and Obstetrician, November, 1906.

vious, when she began to suffer with bladder irritability, considering herself about three and a half months pregnant. This was followed by retention. A large amount of urine was drawn with the catheter; further catheterization was necessary, and the bladder became infected. Urine mixed with blood and pus. Upon entering the hospital the patient's temperature was running as high as 103° F. Abdomen was large, distended, and tender. A fluctuating mass was found in the lower abdomen, also a tense, semifluctuating mass in the pelvis, crowding the vagina forward and the rectum backward. Cervix of the uterus was not palpable. There had been no hemorrhage from the uterus. The diagnosis of the incarceration of a retroverted gravid uterus was made. Efforts were made to replace the organ; knee chest positions were advised, hot douches, and hexamethylenamine were used. The condition of the urine improved under treatment, but did not entirely clear. Laparotomy was advised as the best means of dealing with possible complications, and offering some hope for the fetus. Upon operation the uterus, tubes, ovaries, and all pelvic organs were found oedematous. Cervix was high up, pointing toward the umbilicus. The reposition of the uterus was accomplished with difficulty. The radical operation for the retrodisplacement was not done in this case, owing to the great size of the uterus, and the oedematous condition of all pelvic structures. Abortion took place the following day. Laparotomy here did not save the fetus. On the other hand, an earlier operation would have offered greater safety to the woman, would have prevented much suffering, and would probably have saved the life of the child.

CASE IV.—Mrs. B. aborted with the first pregnancy as the result of retrodisplacement. She began to have pelvic pain and distress after the beginning of the second pregnancy. Pain, irritability of the bladder increased markedly, until the patient was seen in the hospital, when two and three fourths months pregnant. The uterus was found retroverted and retroflexed; pelvic tenderness was extreme. Hot douches, sodium bromide, and liquor sedans were administered, and efforts were made to replace the uterus. These methods failed, until an anæsthetic was administered. Under anæsthesia the uterus was replaced and a pessary inserted. After remaining in the hospital for a short time, the patient returned to her home in Ohio and continued to full term pregnancy.

My friend and former pupil, Dr. J. W. Robinson, in reports by personal communication a case in which pregnancy had been advised as a therapeutical measure for retrodisplacement. When pregnancy had progressed three months incarceration became so marked that relief was sought, but nonoperative efforts failed to replace the uterus. Celiotomy (suprapubic) was refused and the posterior vaginal incision was resorted to as a second choice. Dr. Robinson speaks of his inability to do complete work through this incision. The adhesions could only partially be broken up, and these were thought to give trouble from time to time, although the interference was not great enough at the last report to interrupt pregnancy. An extensive and even dangerous hemorrhage must be feared through the vaginal route.

These cases must be looked upon as illustrating certain phases of retrodisplacement rather than proof of the correctness of expressed views. They emphasize the importance of the bladder symptoms and the great necessity for taking this organ into consideration in the diagnosis and treatment. They also point out the feasibility of other treatment than operating the pelvis.

All agree upon the importance of returning the uterus to position, if possible, without operation. Dührssen calls attention to the importance of first emptying the bladder. This may usually be done with a catheter. Sometimes it is advisable to open the bladder per vaginam. Mann and Cameron have each opened the bladder for drainage and stitched it to the abdominal incision when opening the abdomen for reposition. Aspiration has been practised. Hunter has recommended puncture aspiration of the amniotic fluid to reduce the size of the uterus, but it is urged that this sometimes produces abortion. This has been done as a preliminary step to emptying the uterus. This has serious objections, both as regards the mother and child. Hunter's puncture belongs to the days of Hunter.

This same author found that the incarcerated uterus could be replaced in the cadaver after symphysiotomy and following this suggestion Purcell and Gardien have recommended this operation, but this must be looked upon as no less than a surgical monstrosity.

Posterior incision has been done, but Dührssen disproves of this because of the danger of hæmorrhage. He says other means failing cœliotomy should be considered if a living child is desired. If the mother rejects an operation, puncture or vaginal Cæsarean section must be done. I cannot see a moral reason for allowing the mother so wide a range of choice. We should distinguish sharply between destroying the life of the foetus to save the mother's life, and doing the same thing to save the mother inconvenience. Mann and others have recommended cœliotomy as a last resort. Fry has urged earlier attention to these cases, with ventrosuspension. I now wish to urge earlier attention to cases of retroversionflexion with beginning signs of incarceration or suspected abortion, with a more rational means of radically correcting the displacement and submit the accompanying histories of cases as illustrative of some phases of the subject.

I have quoted freely from a previous paper, for the reason that the principles remain the same and my views have not changed. My justification for an additional paper lies in the fact that I have new clinical material to present, and at this time each case is important.

In conclusion I would say:

1. That although pregnancy may be a means of correcting some cases of retrodisplacement, each case of pregnancy and each case of retrodisplacement has added clinical significance when the two conditions are combined.

2. With the onset of pregnancy a retrodisplaced uterus should be returned to normal position as soon as possible and supervised during the early months of pregnancy.

3. An irreducible retrodisplaced gravid uterus may be given time to raise out of the pelvis with growth if symptoms of early or late incarceration do not present.

4. An irreducible retrodisplaced gravid uterus that shows early symptoms of incarceration which might lead to abortion, or late incarceration, with its attendant evils, should be replaced by means of a cœliotomy; the complications should be dealt with, and a radical operation should be performed to permanently cure the retrodisplacement.

5. Cases of late incarceration may be met in which gangrene, septicæmia, peritonitis, uræmia, etc., may contraindicate cœliotomy for replacement and in which drainage of the bladder, drainage of the peritonæum, emptying of the uterus, or hysterectomy may be indicated.

6. The latter cases, now uncommon, will be rare indeed if the former teaching is generally accepted.

7. Careful cœliotomy will seldom be the cause of abortion, but abortion will sometimes follow the operation as a result of the incarceration.

8. This instead of contraindicating an operation points to the necessity of earlier operative measures.

9. This earlier resort to operative treatment appeals to the judgment of the patient and the physician when it can be shown that a radical cure of the displacement and its complications, is feasible.

100 STATE STREET.

INTRATYMPANIC OPERATIONS UNDER LOCAL ANÆSTHESIA.

BY MILTON J. BALLIN, M. D.,
New York.

If we consider the gradual development in the therapeutics of aural effusions, it will be seen that at first conservative treatment played the greater part of otological practice. As time advanced operative measures became more and more in vogue, so that to-day surgery has become the most important factor in the daily routine work of the ear specialist. This stride towards intraaural and extraaural operative procedures has naturally suggested the employment of anæsthesia, so that surgeons have therefore to resort either to a local or general anæsthetic. In aural operations of a more or less extensive nature, as for instance opening up the mastoid region, etc., general anæsthesia is by all means the best method, although operations of this nature can be carried out under a local anæsthetic, as is readily seen from the cases reported by Neumann and Alexander, of Vienna, and a number of other observers. Such a procedure is usually adopted, however, only in exceptional cases in which the physical conditions will not admit of the administration of a general narcosis, and answers the purpose very well. In the minor intratympanic operations, on the other hand, a general anæsthetic is not as a rule necessary, and it is just in this class of cases that the writer has employed local anæsthesia by the method of injection into the canal with such gratifying results.

Since the publication of the writer's paper on Ossiculotomy Under Local Anæsthesia in the Treatment of Chronic Suppurative Otitis Media in the *New York Medical Journal* of February 17, 1906, he has performed a large number of intratympanic operations under local anæsthesia by the injection method, and has become more and more convinced of its efficacy. In that paper the writer described the method of procedure and added an illustration showing the syringe used for this purpose.

The various formulæ which have been recommended from time to time for local anæsthesia of the drum and tympanic cavity, have proved rather inadequate and not entirely satisfactory. For, if we consider the anatomical construction of the drum

it will be seen that absorption does not readily take place owing to its external cuticular layer, which is a continuation of the cutis of the external auditory canal. Then, again, in cases in which there is a destruction of the drum and the instilled fluids reach the mucous membrane of the tympanic cavity, the desired anæsthesia is not, as a rule obtained, as absorption is poor owing to the pathological condition of the parts. Even when the drum is intact, whether in a normal state, or in a state of congestion, the mere application of a piece of cotton saturated with one of the anæsthetic mixtures given below, is in itself a painful procedure and cannot always be relied upon. Among the formulæ most commonly used the following may be mentioned:

Bonnain's mixture, consisting of	
Phenol (in crystals).....	.....
Menthol.....	..... equal parts.
Cocaine hydroch..... }
Gray's mixture:	
Aniline oil.....	..... aa. 10 grammes.
Alcohol (absolute)..... }
Cocaine hydroch.....	..... 1 gramme.
Haug's mixture:	
Cocaine hydroch.....	..... 1.5 to 3 grammes.
Glycerin.....	..... aa. 10 grammes.
Distilled water..... }
Sterilize and add alcohol (absolute).....	..... 10 grammes.

These are the local anæsthetic mixtures yielding the best results, a few drops of which, if poured on a piece of cotton and introduced into the external meatus so as to come in contact with the drum and allowed to remain for five or ten minutes, often give a sufficient degree of anæsthesia.

Of these the first seems to be the best. Having tried them repeatedly, the writer has given them up as unsatisfactory. He uses now only the method of injection when he wishes to resort to local anæsthesia, and if a general anæsthetic cannot be administered either on account of physical conditions not permitting, or on account of unwillingness or fear on the part of the patient.

It will be seen that in the cited formulæ cocaine is one of the active constituents; however, absorption being poor owing to anatomical conditions already stated, we see that we cannot attribute the lack of anæsthesia to the drug itself, but mainly to its mode of application. Of all the drugs heretofore suggested for local anæsthesia cocaine seems to hold its own, so that it is now extensively used in otological practice in the powdered form, as well as in aqueous solutions ranging from 1 to 20 per cent. The writer has tried cocaine of varying strengths, as well as alypin, and has come to the conclusion that the best results are obtained with the cocaine. In the majority of intratympanic operations a 1 per cent. solution of cocaine to which a few drops of adrenalin solution, 1 to 1,000 have been added, is of sufficient strength. To produce the desired anæsthesia only 10 to 15 minims of the solution are injected into the superior wall of the external meatus. For this purpose the writer uses the small syringe as devised by Neumann, but any hypodermic syringe with a long, fine needle may be employed. The method of procedure will be given in detail under paracentesis. Heretofore the writer has performed the method of injection only in the chronic cases of suppuration in which he wished to remove the ossicles; when he wished to remove granulations and polypi, curette the tympanic cavity and break up adhesions in the tympanic cavity, or to remove the external attic wall in cases

in which the suppuration is confined to the attic and is associated with perforation of Shrapnell's membrane. The removal of polypi is often accompanied by a considerable amount of pain and hæmorrhage so that our operative manipulations are often interfered with. In these cases the growths are often easily removed after the injection, thus sparing the patient unnecessary pain and enabling the otologist to complete the operation without much hæmorrhage. As a rule the application of the pure powdered cocaine applied at the end of a probe does somewhat reduce the pain, while aqueous solutions as high as 20 per cent. have little effect. It may be mentioned here that in cases in which there is a large polypus protruding into the external auditory canal, and which can be readily removed with a snare, we can employ the method proposed by Frey of Vienna (*Wiener klinischen Rundschau*, 1902, No. 25), with good effect. This consists in injecting a 2 to 5 per cent. solution of cocaine directly into the growth. The needle is introduced directly into the body of the polypus and advanced slowly towards its root, the fluid being slowly injected at the same time, by which procedure the injected fluid is disseminated over its entire base, and at the end of 2 to 3 minutes the desired anæsthesia is produced. The method has proved of value in a number of cases in which the growth was very large, but when the growths are small and far in, better results are obtained by the method of injection into the superior wall of the canal.

Another class of cases in which this mode of local anæsthesia may often prove of service, is, namely, that class of cases in which the drum is intact and in which there is an impairment in the hearing which might be improved by a slight operative procedure. The writer refers to those cases in which one wishes to perform synchotomy, mobilization of the stapes, tenotomy of the tensor tympani muscle and incision of the posterior fold of the drum.

The writer's main object, however, in presenting this paper is to call attention to the applicability of the method of local anæsthesia by injection, in the acute cases. The aurist is daily confronted with the acute inflammatory conditions of the middle ear, and is repeatedly called upon to perform paracentesis. This being one of the most common minor operations, and generally being associated with marked pain, the question of anæsthesia is often an important factor. In dispensary practice where one has to deal with a large number of patients, and the time is limited, an anæsthetic cannot, as a rule, be used; while on the other hand, in private practice, patients usually demand some method of anæsthesia, whether general or local. It cannot be denied that in order to operate more freely and with complete absence of pain a general anæsthetic is at all times the best, and especially so, in very nervous individuals and in children. On the other hand, however, one often meets with patients who either dread the taking of a general narcotic or in whom the physical conditions will not admit of such a procedure. It is in this class of patients that the writer has employed the method of local anæsthesia by injection, with gratifying results, and has been able in a large number of acute middle ear inflammations to perform incision of the drum with comparatively no discomfort to the patient. That the method does

not always respond as desired may be due to some faulty manipulation on the part of the operator, or to the heightened congestion of the parts which do not always allow a proper absorption of the injected fluid. The writer has never seen any unpleasant sequelæ follow the application of this method, with the exception that now and then the patients become somewhat faint, or complain of a slight headache which, may be attributed more to fear than to the absorption of the small amount of a 1 per cent. solution of cocaine.

To bring about anesthesia of the drum the writer pursues the following course:

The external auditory canal is first thoroughly cleansed with any antiseptic solution. A small piece of cotton is then placed into the canal so as to protect the drum against the ethyl chloride spray, which would otherwise cause too much pain. Having done this, a cleft speculum is introduced in such a manner that only the superior wall of the canal is exposed to view. With the aid of an assistant a spray of the ethyl chloride is now allowed to play on this exposed surface, and as soon as the parts are well anesthetized the needle of the syringe is quickly introduced at the junction of the bony and cartilaginous canal, and the fluid slowly injected as already stated; the writer uses for this purpose 10 to 15 minims of a 1 per cent. solution of cocaine to which 5 to 6 minims of adrenalin solution (1:1000) have been added. Injection must be carried out very slowly so that infiltration takes place gradually, thus avoiding unnecessary pain. Having done this the little piece of cotton is then removed from the canal. We now wait for 4 to 5 minutes, at the end of which time it will be noticed that the drum has assumed a more or less bleached appearance, and has also become so insensible to pain that paracentesis can be performed without any annoyance to the patient.

There are cases in which it will not be found necessary to use the ethyl chloride spray, as some patients do not mind the slight stick caused by the introduction of the needle; yet it is always well to inform them of the slight pain in advance. The writer prefers using the spray, and finds it necessary to freeze the parts thoroughly before introducing the needle.

As a rule one introduction of the needle is sufficient, yet it may sometimes be advisable to inject at first at the external orifice of the canal, withdraw the needle and introduce it once more at the junction of the cartilaginous and bony canal further in, and then inject again.

The operation as described takes about ten minutes and can be readily carried out. If performed correctly, the incision in the drum should not be felt at all, or very slightly. This mode of anesthesia is not applicable to children, as they are too restless and will be bold, nor to young nervous persons. It can, however, be recommended in adults, even if they are of a sensitive nature, in persons in whom it is not advisable to give a general anæsthetic owing to some physical condition, and in individuals who dread the taking of a general narcotic.

The excellent results obtained by the writer with this method of local anesthesia, has induced him to employ it in a large number of cases, and he can

certainly advocate its use in all cases, whether of an acute or chronic nature, in which it is desirous to carry out some operative procedure on the drum membrane, or in the tympanic cavity without undue pain to the patient, and without the undesirable flow of blood which so often obstructs the field of vision.

In conclusion the writer would like to add, that in as much as he employed this method in a large number of cases in the ear, nose, and throat department of the Mount Sinai Dispensary, he wishes to express his thanks to Dr. Emil Mayer for placing this large material at his disposal.

57 EAST NINETIETH STREET.

ADHESIVE PLASTER FOR THE CURE OF CERTAIN EXTERNAL DISEASES AND LESIONS.

By M. B. HUTCHINS, M. D.,
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In the *New York Medical Journal* (LXXV, p. 322, February 22, 1902) I published a paper detailing the method of and success in the treatment of boil and abscess cavities by the carbolyzed poultice to rapid, final recovery. For the patient's convenience in going about during the day, adhesive plasters were employed as a direct, closed dressing.

Since this publication the use of the rubber adhesive has been extended with such striking success in the shortening of time of treatment and the minimum of scar left that it would seem a service to present the details to the profession.

Following the caustic or electrolytic destruction of a lesion, epitheliomatous or otherwise, the adhesive plaster has been closely fitted to the eschar and crust as they hardened sufficiently to obviate too free oozing. Constant contact of the adhesive plaster, renewed as soon as soiled, hastens the softening and separation of the eschar and shortens by many days the time required for healing. This is simply a nice and convenient substitute for an ordinary poultice.

Observing that healing began and progressed well under the plaster, as the edges of the eschar were loosened, a few cases have been dressed, the plaster directly on the wound and periphery, in the same way, to the final healing of the lesion. The small amount of moisture stimulates granulation, which "levels up" the wound, epidermizing proceeding rapidly. The scar is limited to a very small size relative to the original lesion. I have found, however, that this method leaves a rather red or livid scar, and often telangiectases which evidences of rapid formation of granulation tissue disappear very slowly, often the large vessels persisting. My older method seems preferable. After the last of the eschar has separated and the wound is ready to granulate from the bottom the patient has for daytime wear a powder, such as bismuth subnitrate, which forms a crust. Over this, as a poultice, the adhesive plaster is applied at night. The next morning the crust is found liquefied, the wound is then dried, and the powder put on. Under this plan we control (with half or two thirds of the time a dry hard dressing and the rest a moist condition from partial retention of attracted serum) the activity of

the new vascular tissue, prevent injury from the prolonged presence of crust, and obtain a whiter scar.

After full healing, the scale crusts that may form from the bountiful epithelial supply can easily be loosened by the use of the plaster without injury to the new tissue. Often the effect upon these or other dry, hard conditions would be nil, save for the fact that the needed moisture comes from the retained skin secretions.

I might here briefly note another use of the plaster, although the subject will be elaborated in a later paper, and that is, as a substitute for the, often unreliable, salicylic acid plaster. Desiring the full effect of the drug, it is directly applied to the lesion and covered with the plaster. The results are better than with the strongest commercial salicylic acid adhesive.

I have had little experience or success with the adhesive plaster for closure or narrowing of incised wounds, slipping under tension defeating the object.

Indolent ulcers will usually begin to granulate if covered with the adhesive directly, under a process of serotactic action and stimulation, even to final scar where, as on the legs, the appearance does not count.

The most striking results of the use of the adhesive plaster method have been in the treatment of boils and subcutaneous abscesses. In the case of boils, the patient usually appears at the time when the entrance of infection is a break in the skin of perhaps one eighth inch or less, and the surrounding tissue in the maximum stage of tension and pain; necrosis has just begun to show in the formation of a core, and liquefaction is not initiated. The majority of these lesions occur on the back of men's necks, often too high to dress easily. Such of the "core" as is removable is picked out, no incision or none more than the diameter of the core is made. A solution of 95 per cent. carbolic acid is swabbed in and the whole area is then covered with the adhesive plaster. This dressing prevents crusting and permits enough outflow from beneath its edges, apparently increases the serous flow and phagocytosis, suggesting somewhat the Bier theory. The dressings are changed when soiled. A poultice made with a 2 or 3 per cent. carbolic acid solution may be used at night if preferred, the principle being much the same. At each change of dressing loose parts of the core are removed and carbolic acid again swabbed in, never followed by alcohol. The phenol destroys many virulent cocci and hastens necrosis of dying tissue. As the dead tissue decreases by liquefaction and discharge, the serous flow increases, and granulations of giant size rapidly fill the cavity. While the discharge is very free a small pad of cotton is first applied, then the adhesive plaster to cover the whole area. This is to prevent too much leakage from beneath the adhesive plaster and its annoyance to the patient. When the big, soft granulations get up to the skin level the constant presence of the plaster may continue their growth to the formation of a hypertrophic scar. A dry dressing may best be employed, at least part of the time, at this stage.

One of the greatest advantages of the plaster

method lies in its closing in the infection sufficiently to prevent the usual "crop" of boils. In practically 100 per cent. of cases I can assure the patient that his boils will end with those he brings on his first visit. A last advantage is that having the slightest incision, or opening, the scar is often difficult to find.

Perhaps more brilliant have been the results in subcutaneous abscesses, the skin, showing no breach, movable over a fluctuating mass. These abscesses have varied from the size of a bean to that of a small tomato. Without any surgical preparation a one eighth to one quarter inch puncture is quickly made and every particle of the pus is pressed out until blood and then serum appear from the distended capillaries. When pressure has quite well "milked the cavity dry" a small piece of cotton is put on and all covered with the adhesive plaster over a sufficient area to insure some sloppiness beneath. Serous flow is constant, the incision cannot heal nor crust, infection rapidly yields, and granulation begins to repair the damage. Often the one emptying ends the infection, at most the larger abscesses may show a little pus in the serum at the change of the dressing on the next day, but usually collected serum is pressed out instead. Three or four days see the end of the process in the smaller cases, rarely over a week is needed in the larger. As the cavity fills with granulations the little incision tends to heal under the adhesive and must be probed open each day until fluid no longer appears, then a last little piece of adhesive plaster and dismissal, with practically no scar nor depression of the area.

The dressings seem to owe some of their effect to exclusion of air, as shown by the fact that I have never seen pustules develop in the skin around the opening, though covered by the plaster and more or less bathed in the discharge. But the serum and its opsonins do the best of the work, while spongy granulations rebuild the tissues.

A few cases follow showing the duration and results of treatment:

CASE I.—Mrs. J., aged twenty-nine. There was an epithelioma on the right side of the middle of the nose, about one quarter of an inch in diameter. Lesion and borders were destroyed with deliquesced caustic potash. Bismuth subnitrate was applied to cover dark, soft eschar. The next day the area was depressed, hard, and dry. A piece of zinc oxide adhesive plaster was applied to the area and periphery. On the following day the edges showed slight separation of eschar crust. At the end of a week it was quite loose. On the eleventh day the wound was nearly free from eschar, the edges were healing, and it was entirely clean on the thirteenth day. On the fifteenth day all but a "pin point" was healed. When seen five days later for dismissal, the scar was not over two third size of original area, but a bit too red. The adhesive plaster was constantly on save for intervals of renewal.

A patient treated with caustic potash and the eschar left exposed has often been from three to four weeks waiting for sufficient separation that we might learn if the treatment had been thorough enough to permit healing and demonstrate proper destruction of the disease.

CASE II.—A split pea sized ordinary wart on a young lady's wrist was destroyed with caustic potash. No

adhesive plaster was employed. Eleven days later the small eschar could not be removed without pain and bleeding. The dead tissue was soon out and the lesion healed with three or four days' use of the adhesive plaster.

CASE III.—Diffuse epithelioma of the left nasofacial area. X rays could not be employed on account of patient, Miss H., aged sixty-two, living at a distance. Area was about one by one and one quarter inches, superficial, with some cicatrix. Deliquesced caustic potash was employed. Adhesive plaster was applied closely the next day, and patient continuing this treatment at home. At the end of a week some edge points below canthus were healed, and the main lesion was nearly clean. On the sixteenth day an irregular band of hypertrophic granulations was seen across lower part. To control this, the adhesive plaster was now used at night and the bismuth subnitrate application in the daytime—"half and half" treatment. Ten days later the entire area healed, but a slight recurrence in edge. This was treated. Total time was about twenty-five days, patient managing the dressings nearly all this time.

CASE IV.—Mr. C., fifty-two years of age. Caustic potash destruction of epithelioma on the right cheek. Patient had to return home before final healing. He came back within six weeks with the report that it healed, but "a sort of blister immediately followed" in centre. In the middle of the small, level scar was a clean cut, appleseed sized, smooth, raw defect. A minute piece of cotton was put in and the adhesive plaster over it. On the next day the cotton was omitted and the zinc adhesive plaster applied directly. The patient was well by the fifth day after his return.

CASE V.—Following prolonged treatment of various forms for an ulcer in the middle of the front of left leg, probably the result of a nonspecific, fat necrosis, the healing reached about one and one quarter inch in length and one eighth to one quarter inch in width, level with scar and skin, moist, indolent, flabby, while any new scar readily broke down. This absolute condition of standstill and relapse continued over a month. Now, in the hope of stimulating free granulations and preventing any crust effect, the adhesive plaster was applied over the raw surface and edges. The next day the lesion was very sloppy. On the second day there was a little healing, less wet. There was a little seropus the first few days. On the sixth day firm healing of upper and lower ends was noticed. On the eighth day upper half was nearly well, the rest healing. These formed a firm pearly white scar. On the eleventh day a lentil sized raw point still remained. The patient was well in about fifteen days from beginning use of adhesive plaster, with a slight scar ridge.

CASE VI.—Mrs. X., fifty-three years of age, had an old x ray burn beneath right eye, finally healed to point size of end of a toothpick under gauze covered with adhesive plaster, the dressing was changed daily. Last point indolent and moist and did not heal under adhesive plaster farther than to the size of a pin point. The adhesive plaster retained moisture, but the tissues were too indolent to fill the small hole with granulations. Healing ultimately took place after stimulation with silver nitrate.

CASE VII.—Mr. T. had a furunculosis and abscesses of the arms, recurrent attacks, for two or three years. The lesions occurred chiefly on the extensors of the arms from elbows to deltoid insertion. The primary development was in the subcutaneous tissue, a livid to red swelling, finger tip to two inches in area, would form. Puncture always disclosed pus. Even in the case of the larger lesions puncture never exceeded one quarter inch. In slightly over two months I treated six or eight of these by pressing free, after puncture, of pus until blood and serum followed. The

smaller lesions required less than a week, the larger, up to two inches in area and fully one inch cavities, required from two to three weeks, but because the patient would sometimes remain away, with same dressing on from two to four days. Scars were practically imperceptible. This patient was in a bad general condition. He was unable to explain the recurrences and multiplication of the lesions, but often a very small point was neglected until it became large and contained as much as an ounce of pus. After the second day it was exceptional to find any pus, but the time of healing was prolonged because of the indolence of the tissues around the large cavities left by the destructive process. He had been treated by the usual free incision and dry dressing. Results of this were imperfect, progress slow and scars marked.

CASE VIII.—Miss F. Beginning over two weeks previously to the present attack a small "blind boil" formed on the left cheek over facial artery. Patient used various home remedies. Upon examination, the lesion was a stiff infiltration somewhat wider than a half dollar and one half inch thick. Central part was soft and fluctuating. One eighth inch puncture was made through the skin. More than one half ounce of pus was pressed out, then a little blood and serum. Dressing consisted in cotton with adhesive plaster. Upon removal of dressing on the next day, there was some free serous outflow, faintest evidence of pus. On the third day the cotton was slightly stained, but about 1 drachm retained serum was let out. On the fourth day there was a little serum, infiltration was almost gone. It was necessary to probe open. Patient was dismissed on the fifth day with a healing puncture not larger than a match end.

CASE IX.—Mrs. M. showed a small epithelioma in the middle of top of nose, destroyed with x rays. Bismuth dressing formed too much crust and pressed down, even when the adhesive plaster was kept on half the time. The plaster was applied directly over a bit of cotton as sole dressing. Healing and granulation began at once, the patient being dismissed in five days.

CASE X.—Illustrating the treatment of a boil of carbuncular type: Lesion developed six days before on back of neck. Patient was in delicate health. When first examined there was a one half walnut sized elevation, tense, red, painful; over necrotic mass were several small openings. He had been poulticing. There was a necrosing, perforated skin area one half dime size, from which some pus could be pressed out. Treatment consisted in a one quarter inch incision, enlarging central hole, part of core was still adherent. This was cleansed with a 50 per cent. volume of hydrogen peroxide solution, then covered with a pledget of cotton, and finally with zinc adhesive plaster. The lesion was cleansed and redressed twice a day, pus and particles of core being removed as presenting. On the third day there was only a finger end sized cavity. A solution of 95 per cent. of phenol was used to swab out, and this was repeated daily until the cavity was clean. On the fourth day a necrotic skin area one half dollar size remained, cavity extending to nuchal muscles. On the fifth day large granulations appeared, pus formation was very free. The last of the necrotic tissue was removed on the seventh day. On the eighth day the swelling was gone, and the wound granulated nicely. On the ninth day the wound was entirely granulated to top save one one inch deep sinus and one smaller one. 1 to 1,000 bichloride gauze was loosely put in and covered with adhesive plaster, which form of dressing was used for several days. On the tenth day there was just a trace of pus, and on the eleventh day no pus. Oval skin wound was now one eighth by two third inch. This was dressed once a day with a little gauze and the covering adhesive plaster, so as to draw the edges toward each other. On the fifteenth day large

vascular granulations with freely exuding serum filled the wound to skin level. Everything was well, save healing over the granular tissue. This required some days longer because of its having been allowed to grow too high and the patient's neglecting the condition.

This case was really one of a carbuncle. Final cleansing had required about ten days, filling of cavity to level with new tissue fifteen days. There was no new lesion, no infection around, simply steady progress to recovery. The patient attended to his business most of the time.

CASE XI.—Typifying this treatment for a common furuncle of the back of the neck is the following case: Mr. A. had a half walnut sized and extremely painful boil on the right side of the back of neck just below the occipital hair margin. There was a minute central necrosis. The boil was punctured, carbolic acid being used first and then adhesive plaster as a dressing, twice a day. There was rapid progress to recovery, no new boils formed, and the final scar showed the size of a match end.

The usual "surgical" incision of boils and carbuncles is not only painful, but affords a larger and wounded surface for absorption of infection. Packing with gauze is painful, the gauze acts as a foreign body, irritating, and checks granulation. This dressing is dry and plugs up the wound. Finally the healing takes much longer and the scar is often a disfigurement.

1015 CENTURY BUILDING.

HYPERTROPHIC WANDERING SPLEEN WITH TORSION OF THE PEDICLE.*

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Since the era of aseptic surgery reports of successful extirpation of the spleen have been constantly accumulating. Its removal, causing no detrimental influence on the health of the individual, certainly demonstrates that it is not an indispensable organ. Splenectomy has been performed for traumatic and pathological conditions. Removal for rupture, neoplasms, and cysts have given the best results and offer the best prognoses. Malarial spleens only lately have been included in this class as offering no contraindications for removal, while extirpation of the hyperæmic and amyloid spleens of leucæmia give the worst results.

Thus splenectomy has a fixed place in surgery as a therapeutical measure, and offers a rational method of treatment in certain traumatic and pathological conditions. It is recognized to-day as an established fact from the number of cases reported by surgeons of extensive experience that splenectomy for hæmorrhage, rupture, cysts, neoplasms, and malarial enlargements is followed by the most favorable results. It cannot be doubted now that to this group may be added the hypertrophied wandering spleen. Pain, pressure disturbances, and its liability to axial rotation with its attendant danger of peritonitis have been acknowledged as potent reasons for its removal. These disturbances and consequences, therefore, stamp such spleens as a menace to life.

Simple hypertrophy is sometimes a common derangement. Warren (*Annals of Surgery*, xxxiii,

page 514) states that "enlargement of this organ seems at times to be a racial characteristic, and among the Armenian inhabitants of Boston enlargement of the spleen is so common as to be regarded of little diagnostic significance." In southern Italy large spleens are also said to be very common.

These large spleens by their weight frequently are liable to displacement by traction and stretching of the ligaments which hold them in place. To such a degree may these ligaments be relaxed that either through extrinsic or intrinsic cause, rotation may take place and torsion of the pedicle cause fatal ileus or peritonitis. It is to this hypertrophied wandering spleen with axial rotation that I wish to call attention to in this paper.

Stierlin, in *Deutsche Zeitschrift für Chirurgie*, xlv, 1897, speaks about the importance of operating on an enlarged ectopic spleen, not only on account of the pressure and traction on neighboring organs, but also on account of the dangerous symptoms it may produce by axial rotation with torsion of the pedicle. This latter complication is sometimes symptomless and at other times followed by stormy and dangerous consequences, such as thrombosis and occlusion of the vessels, with peritonitis and death. He cites as illustration the cases of Hartmann (reported by Terrier, *Zentralblatt für Chirurgie*, 1895, No. 28), Sutton (*Lancet*, 1892), and Körte (*Deutsche medizinische Wochenschrift*, 1893, page 1120).

If such dire consequences can result from a dislocated hypertrophied spleen, and the mortality of splenectomy for wandering spleen has been lately only a little over 7 per cent (3 out of 43), it would seem that extirpation for such a condition is justifiable, especially if size and displacement are of such nature to produce marked abdominal disturbances. If the spleen is large and hypertrophied in doubtful cases an anæsthetic may be necessary to determine the nature of the mass and even with the utmost care the real condition of an axial rotation is at times only discovered at the operation. Even gynecologists of vast experience have been confused and deceived by a dislocated spleen which was lodged in the pelvis and simulated an ovarian growth.

Walther (*Bulletin de la Société de chirurgie de Paris*, xxix, page 861) cites a case "where a woman, thirty years of age, had a tumor which filled the abdomen and seemed connected with the uterus. Believing he had to deal with an uterine fibroma he did a laparotomy, and to his astonishment the expected fibroma proved to be a greatly enlarged dislocated spleen adherent to the uterus, which he extirpated. The patient gave a history of frequent attacks of intermittent fever. Professor G. Heinrichs, of Helingsfor, Finland (*Zentralblatt für Chirurgie*, page 607, 1898) reports a case he laparotomized believing he had to deal with a tumor of the genital organs, which on operation proved to be a fibrosarcoma growing from the capsule of the spleen.

To gynecologists as well as to those who frequently perform cœliotomy, instances occasionally occur where incisions have been made for abdominal tumors, the nature of which had not been previously diagnosed, the operation revealing the growth as not arising from the genital organs. In this paper I wish to cite a case as coming under my observation which is of double interest: (1)

* Read before the Metropolitan Medical Society, May 28, 1907.

On account of the difficulty of diagnosis before operation; and (2) on account of the absence of such severe symptoms as are generally characteristic of torsion of an internal organ. To Dr. T. Graber, gynecologist to Lebanon Hospital, whom I had the pleasure of assisting in the removal of this organ, I am indebted for the privilege of reporting this interesting case.

CASE.—Fannie D., thirty-one years of age, married, nativity Russia, was admitted to the gynecological division of Lebanon Hospital on April 14, 1907.

Anamnesis: She first menstruated when she was thirteen years old, was regular every four weeks, lasting four to six days, the amount of flow was profuse, but attended with no pain. Her last menstruation occurred on March 28, 1907. She had seven children, the oldest thirteen years of age, and the youngest fourteen months. Her labors were all normal, the average time of confinement to bed being eight days. She never had any abortions. Family history is free from tuberculosis, diabetes, or tumor. Her present illness dates back two years, when patient complained of pain and weight in her abdomen while pregnant in the sixth month. She was told that she needed an operation for Cæsarean section, and remained in an hospital eight days. She then went home without an operation having been performed, and was delivered normally of a child at proper time without any trouble, the labor lasting less than twenty-four hours. The patient was quite comfortable since then until two weeks before admission, when she was seized with sudden abdominal pain, with nausea, vomiting, and constipation. For the last five days she had chilly sensation and fever, but no sweats or vomiting. She felt weaker, but had not lost flesh. Bowels were still constipated. She entered the hospital for pain in the abdomen, menorrhagia, and tumor. On admission her temperature was 101° F., and pulse 90. Within two days temperature was down to normal.

Status præsens: Patient was well nourished, skin and mucous membranes were of good color, tongue coated and moist. Heart and lungs were normal, no arteriosclerosis. Pulse slow and regular, feeble and of low tension. Breasts large and pendulous. Abdomen was large and pendulous, and showed a fulness upon the left side. There was no restriction to abdominal respiration. There was a large mass observed in left side, extending from the lower border of the ribs to the pelvis and passing inwards beyond the median line for several centimetres and outwards towards the left axillary line. By manual palpation it was felt to be smooth, of solid consistency, and not adherent to the skin. It was flat on percussion and not very tender.

Vaginal examination: The perineum was found intact. Vagina was large and roomy, but encroached upon by a mass in the left fornix. This mass felt hard and movable, seemingly independent of uterus, though close to it. Uterus was palpable through anterior vaginal wall. Urine was normal. Superficial observation led to the assumption that the mass was of ovarian origin, though tumor of spleen was not considered out of the question.

Diagnosis: Tumor abdominis.

On April 16th blood examination showed 90 per cent. hemoglobin, white blood cells 12,200. Smear examination: The red cells showed a slight central pallor, otherwise normal in size and shape. No plasmodia or pigment, no nucleated cells. Differential count: Polynuclear, 64 per cent.; large mononuclear, 24 per cent.; small lymphocytes, 10 per cent.; eosin, 2 per cent.

Operation: Four days after admission, on April 18th, patient was operated upon in Trendelenburg posture. The usual median incision below the umbilicus was made, about seven long. Upon opening the abdomen a large bluish red mass presented itself of somewhat soft con-

sistency, covered by adherent omentum, extending below to the uterus and upwards to the ribs. The opening was enlarged upwards, and the hand inserted between tumor and abdominal wall, followed the dome of the diaphragm. A great many adhesions containing vessels were encountered, which were principally connected with the omentum. The tumor was found to be the greatly enlarged spleen. The adhesions on the presenting surface having been ligated with double ligatures of catgut and severed, it was found that the spleen was completely turned around. By gently drawing and lifting the mass it was found to have been rotated on its hilus as an axis, two and a half times; in other words, rotated completely around its pedicle. The introduction of the hand partly delivered the spleen from the abdomen. The many adhesions of the omentum loosened partly with the fingers and partly tied with ligatures. Below it was attached to the uterus and bladder by adhesive bands, which were also ligated and cut. The large omental mass adherent to the spleen having been removed, the pedicle then presented itself about 15 cm. long enclosing the enormously enlarged vessels of the spleen twisted in corkscrew fashion and closely resembling a greatly thickened umbilical cord of a new born child. Being free in front and below, the pedicle was tightly ligated with several heavy catgut ligatures, and the organ seized and pulled down by the hand introduced above, between it, and the abdominal wall, and thus delivering it out through the wound. The few remaining adhesions were ligated and cut. The enormously enlarged spleen was then removed. Hot sterile saline solution was poured into the abdominal cavity. The incision closed by through and through silkworm gut sutures. Dressing was applied and patient returned to bed in a fair condition.

The spleen weighed over 2,000 grammes. Its length was 26 cm.; width, 17 cm.; thickness, 7 cm. Microscopical examination showed simple hyperæmia. The number of the white blood cells immediately after operation was 43,000. Differential count: Polynuclear, 58 per cent.; large mononuclear, 20 per cent.; lymphocytes, 14 per cent.; basophiles, 6 per cent.; eosines, 2 per cent. No myelocytes, but some normoblasts.

April 19th: Hemoglobin, 70 per cent.; white blood corpuscles, 28,200; red blood corpuscles, 2,896,000.

April 19th: Temperature rose to 102.8° F.; pulse, 150. Increased distention of abdomen developed with vomiting and constipation. These symptoms continued till April 21st, when patient grew gradually weaker, and died seemingly of shock. Partial autopsy showed no peritonitis.

In seeking for the causative factors in the production of dislocation of the spleen and torsion of its pedicle, it will be necessary to briefly review the anatomical support of this organ and some of the intrinsic and extrinsic influences which are prone to produce axial rotation and torsion of its pedicle. The spleen is held in its normal position in the abdomen by ligaments which are composed of reduplicated layers of the serous membrane, continuous with that of the peritoneal covering of its neighboring organs. The fold of serous membrane extending from the infundibulum of the stomach to the hilus of the spleen, including its vessels and nerves, is called the gastrosplenic ligament.

Another connects the diaphragm with the upper end of the spleen is called the phrenosplenic ligament; and the third called phrenocolic, extends underneath the spleen to the left colonic flexure. The real suspensory ligament of the spleen is the phrenosplenic. The spleen moves up and down with respiration corresponding with the excursions of the

diaphragm. Upon the stability of the phrenosplenic and phrenocolic ligaments depends the maintenance of the spleen in its normal position. Relaxation and elongation of these ligaments may be congenital or acquired. Those connected with the stomach and diaphragm are the ones chiefly affected. Should the phrenocolic ligament stretch or become extended, then the spleen can easily become dislocated, so that the obliquely situated long axis becomes vertical. Through abnormal relaxation or stretching or tearing of these ligaments, the spleen may become a mobile organ. Its dislocation may then be practically produced by pure mechanical causes. Thus a heavy and bulky spleen of neoplastic growth or a chronically diseased spleen such as is due to malaria, leucæmia, or simple hypertrophy are prone to fall from their normal position.

Frequent pregnancy causes relaxation and stretching of the abdominal walls, and the alternate relaxation and contraction of the anterior abdominal wall acts most decidedly upon a presenting tumor, and causes excursions of a mobile mass. That relaxation and stretching of ligaments occurs has been demonstrated by finding them frequently enormously long, sometimes up to 20 Cm. Thus congenital and acquired anomalies of these folds of peritonæum are responsible for their relaxed conditions and may be considered also as contributing factors in producing wandering spleen. Should the phrenosplenic and phrenocolic ligaments be so relaxed as to take away the support of a heavy spleen one can readily understand that through some sudden and violent effort or gradual pressure the spleen may fall forward and lie horizontally in the body, and rotation easily follow with torsion of gastrosplenic ligament, producing tortuosities of its contained vessels, and even obliteration of the same. The topographical conditions in the abdominal cavity vary by the changing contents of neighboring organs and may further influence the excursions of a loosely attached spleen. So also unequal weight in different parts of an hypertrophied spleen may cause it to become topheavy, so to speak and fall over.

At the Twenty-first Congress of the Deutsche Gesellschaft für Chirurgie, 1902 (*Zentralblatt für Chirurgie*, 1902), Payr of Graz in his essay On Causes of Twists of the Pedicle in Intraoperative Organs states that the circulatory conditions in the pedicle and tumor itself play an important part in the causation of torsion. These circulatory conditions belong to the intrinsic causes. Previously torsion of a pedicle had always been regarded as due to extrinsic circumstances, that is, influences outside of the tumor or pedicle. In explanation of this intrinsic influence Payr says that the veins play an important rôle. They are longer than the artery which they accompany, as is evidenced by their inclination to form plexuses and tortuosities. Through stasis in the venous system brought about by slight changes in the position or kinking of the pedicle, the passively hyperemic swollen veins well up in bow-shaped form. In other cases where the basic structural substance of the pedicle which is made up of the anterior surrounded by connective and elastic tissue is less resisting and more rigid than the veins, then the latter assume a spiral form around it and carry with them the attached organ. Such mechanical conditions one observes in an overfilled appendix, in a distended

Meckel's diverticulum, and in certain forms of torsion of a greatly filled intestinal coil, in which the mesenteric attachment plays the part of the unyielding cord or pedicle around which torsion takes place.

In the *Deutsche Zeitschrift für Chirurgie*, lxxxv, 1906, Payr has again taken up the experimental study of causes of torsion of the pedicle of abdominal organs, and in this article cleverly proves by new and ingenious experiments the possibility of torsion of a pedicle being due to pressure influences in the vessels of the same, and speaks of it as an "hæmodynamic torsion." He confirms his previous theory that the rotation of an organ connected by a pedicle depends upon the lengthening, bowing, and spiral formation of the more distensible veins around the shorter and more rigid arteries. In conducting his experiments to prove this theory he used an apparatus, consisting of two rubber tubes, one of thick and the other of thinner walls of certain length placed together lengthwise, and at one end arranged for the injection of water under different pressure, and the other ends fastened to a pasteboard disk, whose rotation could be observed. He took tubes of different calibre and thickness, and sometimes tubes of like calibre, sometimes fastened together, and at other times not. This physical apparatus represented an organ with its afferent and efferent vessels. The rubber tubes of different thickness represented the artery and vein of a pedicle, and the pasteboard disk attached represented an organ or tumor. The water injected under different pressure represented the blood pressure as it enters and leaves the artery, vein, and organ. All his physical experiments showed that by varying the pressure of water in one or the other tubes, a rotation of the disk took place around them with tortuosity of the more distensible or lighter tube. He went further and extirpated a spleen from a cadaver and formed a pedicle by enucleating with it in one mass without separating one from the other the splenic artery and vein from their bed in the pancreas, and ligated their branches. This anatomical specimen with its pedicle of 12 to 20 cm. long was analogous to his apparatus made of rubber tubes, etc. By modifying the pressure of water injected at the openings of the vessels he produced a gradual torsion of the spleen with a spiral twisting of the veins.

These oft repeated experiments carefully carried out with a spleen and its pedicle always showed that the organ rotated and the pedicle twisted as a consequence of the increased hydrodynamic or hæmodynamic pressure in the veins. He went still further to prove his contention, and produced artificial torsion of the omentum in living dogs. This he did by forming a pedicle of a section of the omentum turning down its distal portion so as to form a mass akin to an organ or tumor. In the artificially produced pedicle he impeded the return circulation by ligating the veins. He thus formed an artificial tumor with a pedicle out of a portion of the omentum. The abdomen was then closed. In four of the eight cases after a few days the clinical symptoms of torsion of a tumor or organ in the abdomen appeared, such as is seen in the human being, i. e., peritonitis, etc. The autopsies also revealed serious exudate, cyanosis of omentum, fibrin deposit, necrosis, and venous thrombosis, with twisted pedicle, just as is seen in man.

The physical experiments which sustained and elucidated his theory, that the rotation of an organ or tumor with torsion of its pedicle, in the living organism may be due to difference in blood pressure in the vessels of the pedicle; in conjunction with observations and experiments made on living animals justified him to speak of a hæmodynamic torsion.

But granting such to be a fact one must not assume that this intrinsic hæmodynamic factor obtains in every case of torsion of tumor or organ. One can readily comprehend that an hæmodynamic influence may be a contributory factor in the rotation of a small, freely mobile organ or growth, free from adhesions, such as a testicle or spermatic cord, an appendix, or a Meckel's diverticulum, or a small pedunculated ovarian cyst, or uterine fibroid. But where a greatly hypertrophied organ such as a spleen exists even with relaxed or ruptured ligaments, or a large and heavy pedunculated fibroid or cyst is attached to the uterus or ovary it seems to me that some extrinsic influence rather than a difference of blood pressure in its circulatory apparatus would be necessary to cause it to rotate around its axis.

I should rather be inclined to believe that in a patient within an enlarged wandering organ or growth, and a relaxed and pendulous abdominal wall, some sudden strenuous effort, or movement or even slow and gradual exertion would be the potent factors in causing a rotation of the same with twisting of its pedicle. In an organ or tumor unequally balanced, with variable fulness or distention of the neighboring organs, it would require but little muscular strain to cause it to turn turtle, so to speak, and rotate.

Epicrisis.

1. Rotation of an organ or tumor with twisting of its pedicle may be due to intrinsic or extrinsic causes, depending upon the size, the nature, and situation of the same.

2. Both intrinsic and extrinsic causes may be factors in the rotation of an organ.

3. A *sine qua non* for displacement or rotation of an hypertrophied spleen is relaxation or rupture of its supporting ligaments.

4. Every intraperitoneal wandering organ or growth should be operated on in order to avoid the serious consequences of ileus or of torsion of its pedicle.

5. Removal of a wandering spleen, in view of the low mortality, may be classified as a justifiable operation, when threatening symptoms arise.

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71 EAST SIXTY-SIXTH STREET.

THE TREATMENT OF TUBERCULOUS CYSTITIS,

With Special Reference to Röntgen Therapy.

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In reporting these cases, I do so, firstly, because the progress in each case was unusually prompt and satisfactory, and, secondly, for the reason that the literature as to the effect of the Röntgen rays upon this particular manifestation of tuberculosis is limited. It is not the intention to dwell upon the ætiology, symptoms, etc., of the disease, for the literature upon these subjects is voluminous.

As results in Röntgen therapy depend in a marked degree upon the efficiency of the apparatus used in the production of the Röntgen rays, the general consideration of the apparatus will not be out of place here. As a means to actuate the tube my preference is for a good Ruhmkorff coil. My experience leads me to the belief that there are very few really efficient coils upon the market which are adapted to Röntgen work. The reason for this is that every manufactory is a standard unto itself. Coils are usually bought upon the single elastic specification, spark length. No information is given as to the essential points in its construction, as, for instance,

the number of turns and the size of the wire in the primary and secondary, or voltage and milliamperage per inch of spark delivered under a given wattage passing through the primary. The tendency of manufacturers to-day is to show a caloric (yellow) spark. This is obtained by winding the secondary with coarse wire which delivers current strength at the expense of current potential with the result that the velocity of ions in the tube suffers in consequence.

The best Röntgenographic results are obtained with a coil giving a high voltage (wound with No. 36 magnet wire). My therapeutical results have been more satisfactory with a secondary so wound. My experience is of a practical nature, for I have constructed seven coils. The first coil I had the use of (twelve inch spark length) was purchased at an expense of two hundred dollars. It was considered at that time the best in the market. It would give fairly good Röntgenographs of the hand, foot, elbow, and knee. Effort was made to obtain a Röntgenograph of the hip of a fourteen year old girl. Several exposures were made—each a failure. The last exposure resulted in the coil breaking down. A skilled electrician was called in. He found that two of the end sections had burned out and that the hard rubber insulating tube between the primary and the secondary had punctured. The sections were removed and each found to be about one eighth inch in diameter, and containing about 1,000 turns of No. 34, double, cotton covered wire, wound into form by passing through melted paraffin. The insulation between sections was of two thicknesses of paraffined paper; these were punctured in several places and the paper was charred. With this experience and after careful study of the subject, I constructed my first coil (fifteen inch spark). The secondary was wound in sections, each containing about 2,000 turns of wire. The complete secondary had about 105,000 turns, or 170,000 feet, of No. 36, double, silk covered magnet wire. The insulating tube between primary and secondary was of micanite. The insulation of the wire and forming material was of rosin and beeswax. The insulation between sections was of the best Scotch bond paper, using five thicknesses in the centre, gradually increasing until at the end twelve thicknesses were used. The sections were then properly put together and placed in an oven at 275° F., and left there until all air and moisture had been expelled. The whole mass was then allowed to solidify to form. This coil has been in use about seven years. It has never given a minute's trouble. Perfect Röntgenographs of a male pelvis were obtained with it, in one minute's exposure, and the energy which actuated the tubes used in the treatment of the cases here reported was furnished by this coil.

Having a good coil, its efficiency depends upon the interrupter—one which will give a complete make and break. The interrupter I have in use was designed by Dr. R. H. Cunningham, of the Medical Department of Columbia University, and is known as the Cunningham Mercury Jet Interrupter. This interrupter differs from most upon the market in that the make and break can be varied. Dividing each coil into four parts, we can by lowering

the vanes as far as they will go obtain three parts make, one part break. In the other extreme we obtain one part make and three parts break. The effect of this variation in the tube is very noticeable. With the short make it gives us a very high tube. The current is interrupted twice in each revolution of the spindle. The number of revolutions can be increased or diminished. The first interrupter of this kind I used was purchased about five years ago. It had not been in use long before there was a short circuiting between the vanes, due to the mercury collecting on the porcelain between them. This was overcome by cutting away a piece of the metal so as to lengthen the distance between each vane where it touched the porcelain. The upper portion of the metal and porcelain was coated with an insulating varnish. After this there was no trouble whatever. I clean the mercury after each twenty hours of use, and also the points of contact. The current passing in the primary is seldom over three amperes. To obtain the same output from the coil with the Wehnelt interrupter about six amperes are necessary, which goes to show that the mercury jet interrupter is twice as economical.

As to the choice of a Röntgen tube, I have derived a great deal of satisfaction from the tubes of the old General Electric type (made in America). They sold at about twelve dollars each. The vacuum was remarkably steady and staple. I am still using one of my first tubes. Its walls are so black that it is with difficulty that the anode can be seen; yet the definition and the quality of the rays are all that could be desired. After five hours' intermittent use of a tube it should be set aside for a month to rest. In this way tubes regain their original molecular freshness. In the majority of the tubes upon the market the vacuum is exhausted but once; whereas the best tubes go through several exhaustings, allowing an interval of several weeks between each. In this way the gases are removed from the metal terminals. Tubes so exhausted are more durable.

Following will be found details of the cases I desire to report:

CASE I.—J. W. B., a native of Kentucky, aged thirty-one years, weight 195 pounds, height 6 feet; married seven years. Three children, all healthy.

Father died at fifty, of apoplexy. Mother was living, at seventy, and healthy.

His occupation was that of a farmer. He had never had venereal disease, but had been excessive in sexual intercourse. His trouble was of six years' standing. His greatest complaint at the time his history was taken was frequent urination, during the daytime every hour, and at night he had to get up about four times. There was considerable smarting the day of micturition, and the sore at the urethra varied, but seldom to slight discomfort. Frequently there was a sudden shooting out of the stream, when he had to wait a moment. There was some pain on the region of the bladder and smarting in voiding urine. The pain was most severe when the bladder was empty. The most painful blood in the urine. Five samples of twenty-four hour urine were saved during the six weeks of treatment. It was saved after the following instructions: The first urine voided on arising the first morning was thrown away; thereafter all that was voided during the day and night, in addition the first passed on the second morning, was saved in a bottle. In the average twenty-four hours'

sample the total amount of urine voided was 1,800 c.c.; the highest, 1,960 c.c., the fifth sample; lowest, 1,650 c.c., the first. Specific gravity average was 1.016; highest, 1.017, the third; lowest, 1.015, first and fifth. Urea average was 28.9; highest 30, second sample; lowest, 23.5, the fourth sample. Reaction was acid. Of albumin, there was a slight trace. The sediment, which was considerable, consisted of pus, free and in shreds; also of a few normal red blood corpuscles; of a few bladder and prostatic epithelium; and of moderate bacteriuria. Bacilli tuberculosis were present in every sample in small numbers, in small clusters and free, curved and beaded. No kidney elements were found. There was practically no change in the analyses from first to last.

Examination of Prostate: Seminal vesicles were enlarged and nodular on both sides, also prostate, no tenderness. Pressure over the bladder and deep urethra revealed considerable tenderness. Testicles were normal. Lungs and retina were normal.

Treatment: He was instructed to keep his living room well ventilated, and was allowed a liberal diet. He was given as urinary antiseptics:

℞ Salol, 2 drachms;
Oil of gaultheria, 4 drachms.

M. Sig.: Ten drops on sugar every three hours while awake, and as a diluent water five to six glasses daily.

His bladder was irrigated every other day, using a soft catheter. The irrigating fluid was a boric acid solution, to each pint of which was added from five to ten drops of formalin. The urethra at first was very sensitive. (The week before he had been in a large Maryland hospital, where instrumentation was performed of the point where he could stand it no longer.) The bowels were kept loose.

Röntgen treatments lasted ten minutes every other day, raying alternately the perinæum and over the pubes; the tube at a distance of eight inches, using alternately a medium and a high vacuum tube in each region.

His progress: On the tenth day of treatment all discomfort in the bladder had disappeared and micturition was normal as to frequency, and he reported that he had not been so well in a year. On the thirty-sixth day, he reported that he had not felt so well in twenty years. He went to bed at ten o'clock, and did not have to void his urine until six the next morning; the sudden stoppage of the flow had disappeared, the size of the stream has improved, and it is voided without discomfort. It is now nearly two years since the last Röntgen ray treatment was given, and there has been no return of the symptoms. No analysis of urine has since been made.

CASE II.—P. B., a native of Canada, aged thirty-three years, by occupation a farmer. Present weight, 145 pounds; usual weight, 165 pounds. Height, five feet ten inches. Married seven years. Four children, all healthy.

Father died at sixty-six, of pneumonia. Mother died of cancer.

Patient used alcohol to excess previously, chewed tobacco to excess. Heart and lungs examination was negative. He had had an irritation of the urethra eight years ago, which lasted about one week. Gonorrhœa (?). Trouble came on five years ago following exposure to the weather.

Examination per Rectum: Seminal vesicles and prostate were found to be enlarged and indurated and nodular. Epididymitis was present in the left testicle, which came on three months ago with discharging sinus. The patient's principal complaint at the time of entry was pain in the penis and the bladder, and frequent desire to evacuate the bladder. Desire to mic-

turate appeared every half hour usually, at times almost constant night and day, with tenesmus amounting almost to strangury. Flow of stream was not hard to start. There was scalding of urine during the passage through the urethra, severe at end of act. Hæmaturia occasionally; blood diffused throughout urine. Some dribbling.

One twenty-four hours' sample of urine was saved each week while under the treatment. In all, there were eleven analyses. The average amount of urine in twenty-four hours was 1,496 c.c.; the highest (second), 2,000 c.c.; the lowest (tenth), 1,100 c.c. Specific gravity, average, 1.021; highest (fifth and tenth), 1.026; lowest, 10.19 (first and second samples). Reaction was acid. Urea, 26.22; highest, 30.0 (second); lowest, 20.4 (seventh). Albumin, large trace. Sediment, respectively, 0.45, 0.40, 0.425, 0.375, 0.30, 0.35, 0.25, 0.30, 0.25, 0.25, and 0.20, consisting of pus, free and in large loose clumps, a little normal blood, a few vesical and prostatic epithelium, and on two occasions spermatozoa. Bacilli tuberculosis were found in every sample, except in the ninth and tenth, always in small numbers, usually in small clusters. They were in thin rods, curved and beaded. No casts or renal epithelium were found. The only noticeable change in the analyses was a gradual diminution of the amount of sediment from 0.45 to 0.20. In estimating the amount of sediment in a twenty-four hour sample Purdy's albuminometer tube was used. The contents of the bottle as soon as possible after saving the total amount of urine was shaken and the tube filled to the 10 c.c. mark; 5 c.c. of distilled water was then added to lower the specific gravity, and thus to facilitate close packing of the sediment. The contents of the tube were centrifugated for two minutes, at 1,800 revolutions per minute. The amount of sediment in bulk was then read off as c.c. or fraction thereof (original).

The treatment in this case was practically identical with Case I. Röntgen treatments were given three times a week. A bichloride pack was applied to the scrotum twice daily, and it was rayed every other day. At the commencement of treatment, November 22, 1905, the capacity of his bladder was three quarters of an ounce. On December 8th he slept five hours without voiding urine; for the last three nights he had been up on an average of three times. On December 13th, he could hold his urine for two hours during the day. His weight increased to 151 pounds. Capacity of bladder was one and one half ounces. On March 3, 1906, symptoms were practically the same. Weight, 161, a gain of seventeen pounds since starting treatment. Capacity of bladder about the same. After irrigating and emptying the bladder, it was inflated with pure oxygen. At the end of the ninth week, his weight was 164 pounds. He could sleep five hours at a stretch; he could hold his urine two and one half hours during the day. Voided urine practically without discomfort. Epididymis was smaller. Sinus had healed. A year after Röntgen ray treatments were discontinued his symptoms were practically nil. There was still considerable pus in the urine. In the last three analyses no bacilli of tuberculosis were found by most careful search with the microscope.

CASE III.—J. W. Z., a native of Pennsylvania, aged thirty years; his present weight was 145 pounds; former weight, 165 pounds. Height, five feet nine inches. Married five years. No children.

Father was living, aged sixty-four. Mother died of phthisis.

Patient never used tobacco or alcohol. Had scarlet fever at fifteen, his only previous sickness.

His trouble commenced five years ago. His home physician had diagnosed it stone in the bladder. Symptoms: Constant pain at the meatus urinarius, ex-

tending into the fossa navicularis. When standing or when moving about, the pain was sharp and cutting; it gradually grew less after moving about for some time. There was relief when lying down. There was sensation of a foreign body in the bladder. Haematuria occasionally after violent exercise. No sudden stoppage of urinary stream. No reflex pain in the eyes, testicles, or the soles of feet. There was frequent desire to micturate, in the day every hour, at night seven or eight times. Urine was scalding. He did not completely empty the bladder on account of pain at the end of act. Lungs were normal. Testicles were normal. There was slight induration of seminal vesicles, but no enlargement of the prostate.

Patient first came under observation November 28, 1906, and was discharged February 1, 1907.

A twenty-four hours' sample of urine was saved on eight occasions, once a week. The average amount 1,259 c.c.; highest, 1,675 c.c. (second); lowest, 1,100 c.c. (fifth). Specific gravity was, average, 1.022; highest, 1.025 (fifth); lowest, 1.019 (eighth). Reaction was acid. Urea, 26.65; highest, 33.95 (fourth); lowest, 22.32 (sixth). Albumin trace. Sediment much, respectively, 0.70, 0.70, 0.60, 0.55, 0.45, 0.50, 0.475, 0.425 c.c., consisting principally of pus, a little normal blood, a few vesical epithelium, and on one occasion a large spermatic shred. Bacilli tuberculosis were present in small numbers in all specimens free and in small groups. No renal elements were found. Röntgenograph was taken and bladder searched, but no stone found.

As to treatment, the general plan as carried out in the other cases was adopted, except that benzosal and codliver oil were given, and one to two drachms of hydrogen peroxide were added to each quart of his drinking water. Capacity of bladder at the commencement of treatment was two and one half ounces. December 5th, capacity three and one quarter ounces. Patient had gained in weight three pounds. On December 8th, considerable irritation in bladder; night micturition eight times. Irrigation was stopped December 24th, little discomfort in the bladder; night micturition three times. January 12, 1907, much less discomfort in the bladder; he urinated with very little discomfort; could empty the bladder. Urine contained much dirty looking sediment. Irrigations were recommenced. Capacity four ounces, February 1st, felt good, slept well. Micturition two or three times during the night. He had a little pain in the bladder; only occasionally on standing, hardly noticeable. Day micturition was every hour and a half or two hours. Capacity of bladder was five and one half ounces. He went home much improved. Increase in weight was seventeen pounds. He was instructed how to irrigate his bladder, and the same medical treatment was to be continued. He got along very well for a month and then gradually the old symptoms returned with loss of weight.

April 11, 1907, he returned for further treatment. Micturition took place every hour—same at night. Haematuria was considerable, almost every day. Patient was weak, could hardly move around, had lost twenty pounds since the end of February. Medical treatment unchanged, *Röntgen rays the only addition*.

April 19th, he reported a good night's sleep, had gained seven pounds, and suffered only little pain. May 22nd, night micturition was but three times. He held urine two hours during the day, and could move around without discomfort. June 10th, had improved gradually. Weight 165 pounds, a gain of twenty pounds since April 11th. He went home feeling better than he had for the past five years. The last sample of urine showed but 0.30 of sediment. Tubercle bacilli found in but one of the last four examinations. The tubercle bacilli were stained with Ziehl's carbol-fuchsin solution.

CONGENITAL SYPHILIS

By WALTER B. JENNINGS, M. D.,

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When one considers that the annual infant mortality of New York city in children one year old or under is more than 16,500, and out of that number only 78 reported deaths of specific disease, one would naturally conclude that the latter disease was not a common one or particularly fatal. But experience teaches us that this is not so.

During the year of 1905 there were reported to the Health Department of New York 169 abortions, 3,993 "congenital debility," premature birth, preterm births together with malformations and marasmus under three months of age; and 6,352 still births. When we take these cases into consideration, and it is reasonable to believe that in a large percentage death is due to specific disease, the discrepancy is not so great. L. Perrin (Paris), Abt. Anderson, and others of this country have recently brought to notice the tardy manifestations of congenital syphilis.

The writer has a series of sixty-five cases of specific disease seen in his clinic at St. Mary's Free Hospital for Children, including a few cases in his private practice, and with the exception of fourteen cases all are under one year of age. It is intended here to present a clinical study of this disease as seen in infants from birth to the end of the first year of life. These cases have been seen from time to time during the last three years. Patients, 65; males, 33; females, 32.

First month, eleven cases.
Second month, nine cases.
Third month, nine cases.
Fourth month, four cases.
Fifth month, one case.
Sixth month, no case.
Seventh month, one case.
Eighth month, two cases.
Ninth month, four cases.
Tenth month, no case.
Eleventh month, no case.
Twelfth month, one case.

Of the fourteen patients over one year: 13 months, 1; 15 months, 1; 16 months, 1; 24 months, 1; 3 years, 3; 4 years, 3; 6 years, 1; 7 years, 1; 9 years, 1; 11 years, 1. Of the fifty-one patients under one year, thirty-four were breast fed, six bottle fed, one mixed feeding, and ten cases were not determined. A positive family history of syphilis was obtained in twenty-five patients; the greater number gave a paternal infection. Maternal infection, five patients; paternal infection, eighteen patients, and in two cases both parents had been infected.

The youngest case occurred in private practice last December. The child only lived one hour. All the signs of congenital syphilis were present in a marked degree; the face was covered with large and small macules, the body with macules and specific ulcers, the buttocks with condylomata and the hands and feet with pemphigus syphiliticus. It was particularly interesting in this case to notice the syphilitic changes in the placenta as well.

Edis Mohr of Stuttgart (*Germanische Medizinische Wochenschrift*, 1906, 1), has done some interesting work on the syphilitic changes in the placenta, and

bilical cord, and membranes. He found the presence of the pale spirochæta in more than 50 per cent. of the umbilical cords examined, and in about 70 per cent. of the placentæ. These findings are particularly important on account of the absence of nerves in the placenta. Dr. Theodor Saling states that the spirochæta pallida are "silver stained nerve fibrils." The fact that the placenta and membranes are free from external infections excludes error from this source. Spirochætæ were never found in the decidua, but were very abundant in the foetal villæ and in the umbilical cord when the foetus showed signs of syphilis, and not otherwise. Mohn thinks that the parasites find their way into the ovum or into the semen, or later pass from the mother to the foetus. He says that the spirochætæ proliferate in the foetus and that they acquire a new virulence and then pass into the placental circulation.

It will be seen from the table that the greatest number of cases in this series were only one month old or under, the second and third months of age being the next most frequent. This corresponds to the observations made by Miller, of Moscow, and Holt in this country.

Symptoms.—These can be local or general, and are fairly constant, pemphigus syphiliticus, catarrh of the nasal mucous membrane (coryza or snuffles), and the skin eruption.

(1) As a rule if pemphigus is not present at birth it will appear in forty-eight hours, if it appear at all. Several writers, including a few Germans, speak of this condition being limited to the hands and feet. Pemphigus occurred in 5 per cent. of the author's patients, and all had bullæ on body and head as well.

(2) Nasal catarrh or snuffles is one of the most common symptoms, but does not differ from ordinary catarrh except in one particular—it persists for a long time. One patient had snuffles for two months, another three months. The discharge at first is watery, then mucoid, and sometimes mucopurulent.

(3) The skin eruption may be described as a *syphilitic dermatitis*, not unlike erythema intertrigo except that there is a marked desquamation. It is most frequently seen around the genitals, on the buttocks, and on the inner side of the thighs, often extending over the abdomen as well as the extremities. The hands, forearms, soles, neck, head, face, axillæ are frequently covered with a squamous eruption. Macules, papules, superficial ulcers, condylomata are the most frequent forms seen. The ulcers are often as large as a ten cent piece, and after they heal there is a line of pigmentation around the border, the centre often being a pinkish white. Two cases had a macular, papular, and pustular eruption. In another case the mother said "she thought the baby had a heat rash." Ulcers and fissures of the lower lip and mucus patches in the mouth were also present. The hair was affected in a few cases, the hair on the sides and back falling out in large patches, while the top of the head was apparently not affected. One case had a marked "saddleback" nose. (Five and one half months old).

Occasionally one sees a separation of the epiphysis (not seen in this series of cases). One case had an

apparent paralysis of the soft palate together with a laryngitis.

The joints were not affected except in one case. This was in the left wrist. There was a swelling of the hand and wrist, together with a thickening of the bones, painful on pressure. Dr. Robert W. Taylor says: "The joints are frequently affected and a peculiar and constant lesion of the ossifying ends of the long bones has been observed in the early months of hereditary syphilis." This statement is not borne out in this series of cases.

One or two cases of dactylitis were seen. Not every child that has a desquamation of the skin is syphilitic, but when we have two or more of the above symptoms present, there is no doubt of it in the diagnosis. In regard to syphilitic arthritis and dactylitis, Hochsinger described an affection which he called hereditary *syphilitic phalangitis*. It was more frequently found on the fingers than the toes. He preferred the name phalangitis to that of dactylitis, because the disease was exclusively an osteitis. It was a typical and characteristic manifestation of hereditary syphilis and began at the proximal phalanges. It was also shown by the x rays that the osteitis began at the borders of the bone and cartilage, not only in the phalanges, but in the metatarsal or metacarpal bones. Suppuration was absent, and the soft parts were not affected. The joints remained intact and inclined to a spontaneous cure when general antisyphilitic means were used.

General Symptoms.—In fully 40 per cent. of these cases the child was well nourished, often plump and fat and of normal weight. The skin was pale and anæmic and often a shiny appearance of the skin was present. In children over six months old there is often a delayed dentition. Marasmus was present in about 6 per cent. of cases.

Cassel. (Berlin) speaks of infantile nephritis as an early manifestation of syphilis and reports six cases out of a series of thirty-one. The writer had two suspicious cases, one with a swelling of the face, the other with swelling of the feet, but owing to the difficulty of obtaining specimens of urine in infants, and particularly in the clinic, unfortunately this fact was not determined.

Rhachitis was present in two or three cases, and in one of the older children (nine years) a diagnosis of gumma of the liver was made. The lymph glands were generally enlarged, some as large as lentils, but in a few cases no gland whatever was affected. The glands most enlarged were, in order of frequency: Inguinal, posterior cervical, axillary, and, lastly, epitrochlear. Parrot's nodules were not observed in any case. And this brings us to the question of glands in general. It is undoubtedly a fact that too much importance is placed by physicians on the general enlargement of the lymph glands. If there is an extensive eruption together with enlargement of the glands then they are extremely significant, but, on the other hand, it is not safe to make a diagnosis merely on the enlargement of epitrochlear or other glands. The majority of diseases which affect the lymphatic system arise as the result of the passage of microorganisms or these toxins into the lymph vessels, and children particularly are liable to have enlarged glands from different

causes. Dirt under the nails, hangnails, slight abrasion of the skin, etc., which may have been overlooked, will cause enlargement of the epitrochlear glands; nutritional disturbance, rachitis, etc., will very frequently be accompanied by a general enlargement of all the superficial lymph glands of the body. Another point in the study of glands is that of their relative size.

Prognosis.—The prognosis is unfavorable if the children go without treatment. The mortality is 50 to 70 per cent., but it is surprising how rapidly they respond under treatment.

Treatment.—Treatment in congenital syphilis is limited to one drug, mercury, as in the acquired form. The best method and the one that gives the most rapid effect is by inunctions. The dose is important, and in order that one may know how much mercury is used Dr. H. S. Bartholemew has suggested the following formula:

℞ Adipis.
Ung. hydrargyri (50%) ʒi. āā ʒi.

M. et fiant chartæ No. xvi.

Sig.: Rub in skin one paper night and morning.

Gray powder is internally given from one half to a grain and a half twice a day. If this causes diarrhoea, George F. Still (London) adds gr. $\frac{1}{8}$ of Dover's powder. The ulcers may be treated with calomel powder alone or in combination with starch or bismuth.

For "snuffles," the writer has used bichloride (1 to 10,000) application on a cotton applicator, but has not as yet used it in a large enough number of cases to draw any conclusions. Dr. H. Buschke (Berlin) suggests the bichloride of mercury baths for these cases, and considers them of especial value when ulcer and other erosions of the skin are present.

Conclusions.—While it is almost impossible to draw any definite conclusions from such a small number of cases (less than one hundred), still if it is possible, the following might suggest themselves:

1. Congenital syphilis is frequently seen and is a decidedly fatal disease if allowed to go without treatment.

2. If symptoms of this disease are not present at birth, they generally appear during the first month. (Second and third month being next most frequent.)

3. Nasal catarrh, or snuffles, is one of the most frequent symptoms.

4. The joints in congenital syphilis are rarely affected in infants under one year of age, although syphilitic phalangeitis (so called dactylitis) is fairly common.

5. It is not safe to make a diagnosis of congenital syphilis from the glands alone.

6. Evidence is accumulating in favor of the spirochæta discovered by Schaudinn as the real cause of syphilis.

157 LEXINGTON AVENUE.

Correspondence.

LETTER FROM MONTREAL.

The Fortieth Annual Meeting of the Canadian Medical Association.—Its New Constitution.—A Projected Official Journal.—The Canadian Society of Superintendents of Training Schools.—A Canadian Hygienist for Siam.—McGill University.

MONTREAL, September 30, 1907.

The fortieth annual meeting of the Canadian Medical Association was held in this city from the 11th to the 13th of September, under the presidency of Dr. Alexander McPhedran, of Toronto; Dr. George Elliott, of Toronto, acting as general secretary. It was a most successful meeting as regarded the numbers in attendance, the quality of the papers presented, and the adoption of a scheme of reorganization placing the working of the body under a new constitution and by-laws. The address in medicine was delivered by Dr. H. D. Rolleston, of London, England; the address in surgery, by Dr. Ingersoll Olmsted, of Hamilton, Ontario; the address in pathology, by Professor J. George Adami, of Montreal. There were two practical and very interesting discussions, the first on hypertrophy of the prostate gland; the second on cerebrospinal meningitis. The latter resulted in the adoption by the association of a resolution favoring the placing of cerebrospinal meningitis with other infectious diseases under the control of boards of health.

The adoption of a new constitution puts the association upon an entirely new working basis. The plan of the British Medical Association and the American Medical Association was taken as a guide. An executive council was provided for to be the business body of the association. This will be composed of delegates from the provincial societies and from the various medical councils in the different provinces. There will also be fifteen elected by the association proper. From this body a finance committee will be appointed to look after the finances of the association and undertake the publication of a medical journal to be the official organ of the association. It provides that the various presidents and secretaries of the provincial associations shall be provincial vice-presidents and local secretaries of the Canadian Medical Association. A special committee was appointed to look into the matter of launching a journal, to report at the next annual meeting. The special committee on public health was continued, and there was added to it all the members of the association who held seats in the Canadian House of Commons.

It was decided to meet in 1908 in Ottawa, with Dr. F. Montizambert, of Ottawa, director general of public health, as president; Dr. George Elliott, of Toronto, as general secretary; and Dr. H. Beaumont Small as treasurer. The social side of the meeting was well looked after. In addition to dinners and luncheons at the hospitals and private dinner and luncheon parties, there were a garden party at the residence of Dr. and Mrs. T. G. Roddick, entertainment at the private golf grounds of St. George Desjardins, and a smoking concert at the Victoria Rifle Armory.

On the 11th and 12th of September the Canadian Society of Superintendents of Training Schools met

Cellulitis.—Small stab wounds (one half cm. 1-4) in the centre of a developing cellulitis of an arm or leg, followed by the application of a Martin dressing above the site five to eight hours a day (Rier treatment), will relieve the patient more quickly than large incisions with drainage. *Annals of a Journal of Surgery.*

in Montreal. It met in the parlors of the Montreal General Hospital. Miss Agnes Snively, of the Toronto General Hospital, was elected president, and Miss Brent, of the Children's Hospital, Toronto, secretary.

Dr. James C. Fysche, superintendent of the Alexandra Contagious Diseases Hospital, Montreal, will shortly leave for Siam, where he has accepted the position of assistant director of the Department of Hygiene of the Kingdom of Siam.

There is a small freshman class this year in the medical school of McGill University, only about forty having thus far registered. In former years the number was generally about a hundred. The loss by fire last year and the introduction of the five year course are given as the causes.

Therapeutical Notes.

Adrenalin in Diabetes Insipidus.—Varanim, of Parma, reports the case of a patient, twenty-seven years of age, who had been diabetic since he was sixteen. He presented marked polyuria and polydipsia. The daily administration of five to ten drops of the 1 in 1,000 solution of adrenalin caused the cessation of the thirst and diminished the quantity of urine, without modifying the arterial tension.—*Revue de thérapeutique médico-chirurgicale*, August 15, 1907.

Lotion for Eczema of the Vulva.—Lusch (*Journal de médecine de Paris*, September 8, 1907) prescribes the following lotion to be applied morning and night, in eczema of the vulva:

- B Tincture of opium,.....8.0 grammes;
Sodium bicarbonate,.....8.0 grammes;
Potassium bicarbonate,.....4.0 grammes;
Glycerin (neutral),.....6.0 grammes;
Distilled water,.....260 grammes.
- M. S. Make a solution and heat it each time before using.

After each application, powder the affected surface of the skin with:

- B Starch (finely powdered),.....49 parts;
Camphor (finely powdered),.....1 part.

Treatment of Eclampsia by Lumbar Puncture.

Audebert and Fournier (*Annales de gynécologie et d'obstétrique*, June, 1907) state that lumbar puncture in the treatment of eclampsia has for its object the diminution of the hypertension of the cephalo-rachidian fluid, which is intimately connected with the cervical oedema and cortical congestion, the meningeal hyperæmia and hæmorrhages, the headache, visual troubles, and especially the convulsions. The authors have collected forty-six cases (counting two of their own) in which lumbar puncture was practised. In sixteen, the result was fatal, but this does not prove anything against the treatment; because the puncture was only resorted to after the failure of all the usual remedies. They do not recommend that the lumbar puncture should ever be the sole method of treatment employed; it should be used concurrently with other therapeutical procedures (such as venesection, water diet, injection of serum, chloral, chloroform, etc.). It should only be considered as a symptomatic treatment for the convul-

sive attacks; and it should be advised each time that the sphygmomanometer indicates a pressure notably above the normal. It is indicated in grave cases when the convulsive attacks are repeated and tend to become continuous, when coma persists, and the quantity of urine is much reduced. If the fluid is bloody it may be due to meningeal, or bulbar, hæmorrhage, in which cases the prognosis is very grave. From a review of the results, it appears that the lumbar puncture has a sure action in diminishing the number of the convulsive attacks. The quantity of liquid withdrawn is variable, in the personal observations reported, 10 to 12 c.c. were taken. Boissard took 20 c.c. in one case of eclampsia, which recovered. In certain cases, Krönig found that it was necessary to withdraw 40 c.c. (or ten drachms) of the rachidian liquid in order to reduce the pressure to the normal.—*Revue de thérapeutique médico-chirurgicale*, September 1, 1907.

Is Opium Useful or Injurious in Cases of Acute Peritonitis?—Professor Pel, of Amsterdam (*Berliner klinische Wochenschrift*, August 12, 1907), recognizing the fact that formerly the opium treatment of acute peritonitis was the approved treatment, but that recently there had been a number of objections raised against it, proceeds to discuss the subject on its merits. He declares that it facilitates the rest in bed, which is so important, and also favors the localization of the morbid process by suppressing the peristaltic movements, which would break the adhesions. In order to succeed with the remedy, it should be given in one of the liquid preparations, such as laudanum, to which a few drops of brandy or of sherry may be added to avoid nausea. The medium dose would be five drops of laudanum, every two hours, being guided by the intensity of the painful phenomena. It is proper to begin the treatment by an injection of morphine. Locally, he advises the application of the ice bag. It has been especially objected that the opium treatment favors intestinal paresis and the absorption of toxins; but the author considers this objection merely theoretical, he has never seen anything of this kind in his experience. Another objection stated that, as a result of the treatment, chronic constipation would result. This also is not valid, since opium really facilitates the evacuation of the contents when the crisis is over. The administration of laxatives, on the contrary, is likely to produce relapses. The opium treatment has one fault, and that is to mask the clinical picture. The appearance of favorable condition which it produces may deceive the physician and the patient; and the meteorism, which follows its use, makes it difficult to diagnosticate the symptoms relating to the peritoneum. The author states that if small doses are used meteorism does not occur, since the peristaltic contractions are not paralyzed. Moreover, there are a number of clinical signs which are able to take the place of the impairment of the palpation by the meteorism, even should this be present. In about three fourths of the cases the immediate operation, during the acute stage, is not possible, and the best therapeutics consists then in absolute rest in bed, with a very low diet, the application of ice, and the administration of opium in suitable doses. It is absolutely necessary to refrain from administering laxatives.

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THE CONCILIIUM BIBLIOGRAPHICUM.

Among the exhibits at the recent international zoological congress in Boston was a set of cards issued by the Concilium Bibliographicum, which is well known to zoologists as a central agency founded by the International Congress of Zoology for the purpose of collecting zoological bibliography from all current publications. The papers are classified according to a very complete system, and the references are printed on cards of the library bureau size, which are then sent out to the subscribers. The work is supported financially by the Swiss Confederation, the Canton and city of Zurich, the Zoological Station of Naples, the Elizabeth Thompson Fund, the American Association for the Advancement of Science, the Zoological Society of France, the American Microscopical Society, and numerous individuals. The work is under the patronage of an international commission composed of Professor Lang, Professor Spengel, Professor Hickson, Professor Scott, Professor Blanchard, Dr. Hoek, and Professor Schimkewitsch.

It will readily be seen that this bibliographical compilation touches medicine at many points— anatomy, physiology, embryology, cytology, and parasitology. With some additional labor it could be extended to take in the other departments of medical literature. In view of the probability that the Carnegie Institute will discontinue the publication of the *Index Medicus*, it occurs to us that if some scientific body or some individual who has the

interest of scientific medicine at heart would supply the funds, this extension might be accomplished. The scheme of the Concilium Bibliographicum is even better than that of the *Index Medicus*. A subscriber is able to purchase references to the branch in which he is interested without being obliged to buy the entire output. These references are printed on cards of uniform size (library bureau cards), so that they may be inserted in the card cabinets of standard size used in all parts of the world.

NATURE CURES AND NATURE CURISTS.

To use Nature's gifts for medical purposes was certainly one of the first aids which man applied for his ills. Among these helps, water, air, and sunlight were the most simple and easily mastered. Coming down to historical times, we find these three so called elements used in Egypt and in India and later in Greece and Italy. The Romans tried to cure gout and rheumatism with the sun bath, the solaria were not only to be found in public baths, but also in the private houses of even only moderately rich citizens. The art of curing was mostly in the hands of priests, who gave it a religious background and so changed natural help into supernatural.

But, to come down to modern times, we find the names of Priessnitz, as a representative of the water cure; Kneipp, a Nature curist; and Rickli, the sunlight curist. None of these three men had had a medical education, they were empirics.

Priessnitz was born in Austrian Silesia, on October 5, 1799, and died on November 28, 1851. Since he had been cured by a water treatment, it became his motto that "because water has cured me, I shall in future cure all ailments with water." A farmer by occupation, he in 1826 opened in Gräfenberg, Austrian Silesia, a sanatorium which is to-day very well frequented. A monument was erected to Priessnitz, who found many followers, professionals and others; a journal for the propaganda of water cures was published; and many new sanatoria were opened. The physicians modified and scientifically applied his teachings; of which there are many good representatives in our own country and abroad.

Sebastian Kneipp, a priest, was born in a small village of Bavaria on May 17, 1821, and died on June 17, 1897. In 1848 he became interested in the water cure, and, like many Nature curists, trying it for his own ills, he became an ardent advocate of its curative properties. But he changed it and added to it the walking in bare feet through wet grass, which custom had before been observed on Walpurgis night (May 1st), and was said to cure paralyses by the help of the saint. Besides, he used herbs and their infusions. In 1881 he became priest of a church at Wörishafen, which soon became a

centre for taking the Kneipp cure. In 1887 appeared his *Meine Wasserkur*, which has seen nearly one hundred editions! Two monuments have been erected to his memory, one at Wörrishofen, the other at Stefansried, both in Bavaria. The medical profession could find hardly anything in Kneipp's theories.

The third representative of Nature curists we wish to call attention to is the Swiss, Arnold Rikli, born on February 13, 1823, died on April 30, 1906. He founded on the Velder lake in Carniola, Austria, a sanatorium. He is the rediscoverer of light and air as a specific treatment. Besides, he invented a steam bed bath. His patients were ordered to expose their bodies, entirely naked, the head protected, twice a day for a longer or shorter period to the rays of the sun. To this Rikli added barefoot walking, an absolutely vegetable diet, drinking of water, sleeping in shacks, living in the open air, etc. Rikli, like Priessnitz, found medical followers who changed and purified some of his teachings and principles, among them Schwenninger, well known as Bismarck's physician, and Brieger, both of Berlin. A monument has not yet been erected to Rikli! In Rikli's treatment special attention is paid to chlorosis, fatty degeneration, diseases of the skin, etc., in short, ills in which an increase in metabolism is called for.

SPARE THE SIDEWALKS!

It is easy to understand how exasperating it is to everybody concerned in operating the surface cars in New York, from the president of a company down to the motorman, to say nothing of the passengers, to observe the stolid pertinacity with which truckmen obstruct the progress of the cars. Nevertheless, we must protest against a certain measure which has been proposed as a remedy for the congestion of the streets—that, namely, of adding to the width of the roadway by making the sidewalks narrower. The idea seems to be that if there was more room between the rails and the curb the drivers of traffic vehicles would avail themselves of it and leave the cars comparatively unimpeded. We do not believe that they would do so to any appreciable extent, for in the broadest of our streets they seem to prefer driving on the tracks, and their preference is quite intelligible, since the steel rails are free from the inequalities which even the best of our pavements present here and there.

We must preserve the ample sidewalks with which the greater part of New York is provided, and this we say for sanitary reasons among others. Fancy our thoroughfares provided with sidewalks no wider than those of Church Street, for example, with filthy puddles near the curb. Pedestrians, deprived of space for retreat on the approach of lumbering and

jolting trucks, could hardly avoid being splashed as the wheels fell into the pools and carrying to their homes the germ laden wash of the streets. Most of our avenues that run north and south are of sufficient width, though they are too far apart; the roadway will in almost all instances accommodate any probable amount of traffic, provided it is conducted in accordance with reasonable police regulation. There is really no occasion to curtail the width of our sidewalks, and we earnestly hope that the proposal to do so will not meet with official favor. Surely it will not be supported by popular opinion.

THE COLD KEY TO THE BACK.

In cases of hæmorrhage, especially in those of bleeding from the nose, says Dr. R. Hélot (*Archives internationales de laryngologie, d'otologie, et de rhinologie*, May-June; *Revue française de médecine et de chirurgie*, September 10th), our forefathers employed numerous hæmostatic measures. They applied to the forehead and to the nose ointments, the dung of the hog or the ass, and even the patient's own blood. They practised ligation of the limbs, a means devised by Appolinus in the reign of Nero, ligating the great toe of the side corresponding to the bleeding nostril, and they resorted to derivation by bloodletting. They plugged the ears with tow, a procedure recommended by Galen. But above all they sought to produce fainting. Locally, the hæmostatic most employed was spider's web, with which they filled the nasal fossa. Of all these empirical procedures, the most widespread and the one still most employed in popular medicine is the application of cold. The most available source of cold, because it is everywhere procurable, says M. Hélot, is water; consequently it has oftenest been employed. In epistaxis the ancient physicians advised bathing the face with very cold water and causing it to be held in the mouth; they also soaked the hands and feet in cold water.

On the theory that cold things restrain hæmorrhage many persons replaced water by solid cold objects, and hung about the neck of patients attacked with epistaxis coral, jasper, yellow amber, marble, or articles of iron. Physicians pointed out, indeed, certain regions with which it was preferable to make the contact. They realized that it was the coldness of the object, not its nature, that did the work; no special property must be attributed to the iron, said Guyon-Dolois, for chains of gold, silver, or lead would serve the same purpose. In popular medicine, however, iron has remained the material most employed in nasal hæmorrhages, and the application of the key to the back is largely resorted to in the household. The author tells us that he possesses an

enormous key which he uses only as a paper weight, and that one day a patient, pointing to this massive key, exclaimed: "It is to stop hæmorrhages." It was a key of the eighteenth century.

We may laugh, says M. Hélot, at the charm attributed to the key in epistaxis, but we must admit that cold has a certain action in cases of hæmorrhage. It contracts the capillary vessels. When it is applied at a distance from the site of hæmorrhage its efficiency may be a matter for discussion, but its effect is certain when it is applied to the actual seat of the bleeding, and rhinologists know the value of causing the patient to swallow ice. Possibly the cold key has no other hæmostatic power than what is connected with the sensation of cold which it produces; a cold compress would probably act with more certainty, but it would be difficult to dethrone the key, which one always has in one's pocket. There is certainly some wisdom in the resources of our ancestors and of the common people, even as the alchemists of old were no fools, as is shown by our modern chemistry.

INDIAN HEMP.

The problem of regulating the trade in the various intoxicating preparations of *Cannabis indica*, known under the convenient collective term hasheesh, is a serious one in certain Oriental countries; its absolute suppression, which has been attempted, seems to have proved insusceptible of accomplishment. Dr. Auguste Marie, of Villejuif, has written an interesting article on insanity due to hasheesh, especially as it has been observed among the Arabs. It is published in the May-June number of the *Nouvelle iconographie de la Salpêtrière*. Incidentally Dr. Marie furnishes us with a good deal of information about hasheesh apart from its agency in producing mental disease.

The use of hasheesh as an indulgence, he says, is particularly characteristic of southeastern Europe, western Asia, and the Mohammedan regions of Africa, and most of the hemp preparations used in those countries are made from the plant grown in Greece. It seems that in Egypt the production and importation of hasheesh were forbidden in 1868, but in 1874 it was made permissible to import it on payment of a duty. Toward the close of 1877 it was ordered from Constantinople that all the hasheesh imported into Egypt should be seized and destroyed. In 1879 the Khedive forbade its importation and production. But in 1884 it was proved that the forbidden article was sold by the customs officers instead of being destroyed, as it had been for a time, and that the proceeds were shared by the agents and the officials who had made the seizure. However, the great obstacle to the suppression of the hasheesh trade was

the fact that certain European nations did not recognize the right of the Egyptian government to search suspected warehouses and punish offenders by confiscation. It is said that in spite of the prohibition 140,000 pounds of hasheesh are consumed annually in Egypt. Prohibition is therefore a failure, and the tendency now is simply to regulate the trade. There are competent observers, indeed, who think that it should not be prohibited, lest the still more injurious alcoholics should become popular, but that would hardly be the case among the Mohammedans.

During the six years, 1896 to 1901, of the 2,564 cases of insanity in men treated in the Cairo asylum for Egyptian lunatics, 689, or about twenty-seven per cent., were attributed to the excessive use of hasheesh. The number occurring among women was very small. The forms of insanity caused by hasheesh are various, but they are mostly of the exaltation type. Occasionally there is a condition of acute mania which may prove fatal, with rapid exhaustion and a subfebrile course. The intemperate use of hasheesh does not seem to give rise to notable physical changes such as are attributed to alcohol, but it is quite as common a cause of criminal acts, such as murderous assaults and attempts at rape.

THE LATE PROFESSOR ATWATER.

The late Dr. W. O. Atwater, professor of chemistry in the Wesleyan University, was for many years well known and highly esteemed by scientific men. A few years ago he was brought prominently before the general public by the publication of a report of certain experimental investigations of his tending to uphold the opinion—not by any means a new one—that alcohol possessed a decided nutritive value. Of course he was reviled by the total abstinence zealots, but the importance of his work was recognized by everybody competent to judge of it.

Before he entered upon this study Professor Atwater had rendered important services in the field of agricultural chemistry. More than thirty years ago he was made the director of the Connecticut Agricultural Experimental Station, the oldest institution of its kind in the country, and in various official capacities he had been conspicuously efficient in the promotion of scientific agriculture. Of late years he had given particular attention to the experimental study of problems connected with nutrition and metabolism, and he devised an ingenious respiration calorimeter which is largely employed in such investigations. His university colleagues and the students who were privileged to sit under his teaching knew his worth as a man as well as his attainments in science.

News Items.

The Tri-State Medical Association, of Arkansas, Mississippi, and Tennessee, will hold its annual meeting at Memphis, on November 19, 20, and 21, 1907.

Philadelphia Changes of Address.—Dr. Clifford B. Farr, to 211 South Seventeenth Street.

Dr. John H. Jopson, to 1824 Pine Street.

Dr. S. F. Gilpin, to 432 North Fifty-second Street, Philadelphia.

A Roof Garden for St. Luke's Hospital.—A roof garden is to be added to this hospital, on Morningside Heights, by erecting a new story on the part of the central administration building known as the Muhlenberg Pavilion. The cost of this addition is estimated at \$20,000.

Lodge Practice.—The Montgomery County (Pa.) Medical Society has dropped four physicians from its roll for persisting in contract practice after the society had voted affirmatively on a resolution prohibiting its members from accepting such contracts.

The Eighth District Branch of the Medical Society of the State of New York held its annual meeting at Buffalo, on September 24th. Officers for the ensuing year were elected, as follows: President, Dr. A. D. Lake, Gowanda; vice-presidents, Dr. E. E. Snow, Batavia, and Dr. J. W. Grosvenor, Buffalo; secretary, Dr. Lee Masten Francis, Buffalo; treasurer, Dr. C. A. Wall, Buffalo. Dr. Francis and Dr. Wall were reelected.

Philadelphia Personals.—Dr. Robert Lounsberry, of Binghamton, N. Y.; Dr. H. T. Pope, of Lumberton, N. C.; Dr. Charles Rowan, of Allegheny, Penn.; and Dr. Frank L. Sanders, of Kansas City, Mo., are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

Dr. William Scott Wadsworth has resigned the position of coroner's physician of Philadelphia County. Dr. Thomas G. Morton has been appointed to the vacant position.

The Elmira, N. Y., Academy of Medicine.—The following programme was presented at a meeting of this academy held on Wednesday evening, October 2nd: A Suggestion, by Dr. A. H. Baker, of Elmira; The Increasing Number of Railroad Accidents: Can We Offer Any Suggestions that Will Diminish Their Number or in Any Measure Account for Their Increasing Frequency, by Dr. R. S. Harnden, Waverly, N. Y.; Report of a Case, by Dr. M. R. Pritchard, Westfield, Pa.

The Philadelphia Pathological Society.—At a stated meeting of the Philadelphia Pathological Society, held Thursday evening, September 26th, Dr. Allen J. Smith reported a series of parasites obtained from the gardens of the Zoological Society of Philadelphia. Dr. W. M. L. Coplin made a preliminary report on the Study of the Bundle of His in the Human Heart. Dr. David Riesman and Dr. A. G. Smith, Dr. Joseph McFarland, Dr. W. J. Cummins, and Dr. J. L. Donhawser, exhibited card specimens.

The Colorado State Medical Society.—At the annual meeting of this society, held at Glenwood Springs, on September 17-19, 1907, Denver was selected as the next place to hold the society and officers for the ensuing year were elected as follows: President, Dr. H. B. Whitney, of Denver; first vice-president, Dr. William P. Harlow, of Boulder; second vice-president, Dr. H. W. Swan, of Colorado Springs; third vice-president, Dr. W. W. Crook, of Glenwood Springs; treasurer, Dr. E. W. Miel, of Denver; secretary, Dr. Melville Black, of Denver.

The Mary Putnam Jacobi Fellowship Fund.—The sum of \$3,000 has already been raised toward this fund. In order to provide an annual income of \$1,000 and to render efficient aid to postgraduate women students in medicine, the fund must amount to at least \$25,000. The Women's Medical Association of New York City, of which Dr. Eleanor Tomes, 136 East Thirtieth Street, is treasurer, is engaged in raising the fund, and invites the hearty and generous cooperation of all who desire to further the higher education of women of the United States.

Charitable Bequests. By the will of Mrs. Annie Friedman, St. Joseph's Asylum receives \$2,000, St. John's Asylum receives \$1,000, St. Agnes' Hospital receives \$5,000, the Pennsylvania Home for Blind Women receives \$2,000, the

Home for Incurables receives \$2,000, and the Home of the Merciful Savior for Crippled Children receives \$1,000.

By the will of Mrs. Belle H. Crump, the Emergency Hospital, of Warren, Pa., and the Children's Hospital, of Philadelphia, become residuary legatees, depending upon certain contingencies.

The Buffalo Academy of Medicine.—The following programme was arranged for a meeting of the *Section in Surgery* of this academy, held on Tuesday evening, October 1st: Report of Case of Cerebral Tumor Simulating Gunma and exhibits of blood specimens of various types of malaria found in the Philippines, by Captain L. T. Hess, Assistant Surgeon, U. S. A., Fort Porter, N. Y.; Traumatic Paralysis of the Third Nerve, with report of case, by Dr. Lee Masten Francis; Intestinal Obstruction, with report of cases, by Dr. J. B. Young.

The Fifty-seventh Annual Meeting of the Medical Society of the State of Pennsylvania was held in Reading, Pa., on Tuesday, Wednesday, and Thursday, September 24th, 25th, and 26th. The following officers were elected: President, Dr. William L. Estes, South Bethlehem; vice-presidents, Dr. S. G. Statler, Alum Bank; Dr. Daniel Longaker, Reading; Dr. Theodore Miller, Pittsburgh; Dr. D. J. Langton, Shenandoah; secretary, Dr. Cyrus Lee Stevens, Athens; assistant, Dr. Theodore B. Appel, Lancaster; treasurer, Dr. George W. Wagoner, Johnstown. Next year's meeting will be held at Cambridge Springs.

An Aged English Practitioner.—According to *The Sphere* (New York Tribune, September 29, 1907), Sir Henry Alfred Pitman, who has just entered upon his hundredth year, claims the distinction of being the oldest physician in the United Kingdom. Sir Henry took his B. A. at Cambridge in 1831 and his M. D. degree sixty-seven years ago, and for the last half century he has been connected with the medical staff of St. George's Hospital, of which institution he is still senior consulting physician. He is old enough to remember the rejoicings after Waterloo. Sir Henry was knighted in 1883.

The Pennsylvania State Hospital for Feeble Minded and Epileptics at Spring City, Pa.—Governor Stuart has appointed the following board of trustees for the State Hospital for the Feeble Minded and Epileptics, which is located at Spring City, Pa.: Mr. John B. Lober and Dr. Wharton Sinkler, of Philadelphia; Mr. John P. Crozer, of Upland; Dr. Joseph K. Weaver, of Norristown; Mr. Henry W. Comfort, of Fallsington; Dr. George B. Umstead and Mr. Samuel A. Whitaker, of Phoenixville; Mr. B. Whitman Dambly, of Skippack; and Dr. T. C. Detweiler, of Lancaster.

Scientific Society Meetings in Philadelphia for the Week Ending October 12, 1907.—*Monday, October 7th*, Philadelphia Academy of Surgery; Biological and Microscopical Section, Academy of Natural Sciences; Northwestern Medical Society; West Philadelphia Medical Association. *Tuesday, October 8th*, Philadelphia Pædiatric Society; Botanical Section, Academy of Natural Sciences. *Wednesday, October 9th*, Philadelphia County Medical Society. *Thursday, October 10th*, Pathological Society; Section Meeting, Franklin Institute. *Friday, October 11th*, West Branch, Philadelphia County Medical Society.

A Traveling Tuberculosis Exhibition.—The State Department of Health has announced in its *Monthly Bulletin* that the first demonstration of its traveling tuberculosis exhibition will be given in connection with the meetings of the seventh conference of State Sanitary Officers, during the week of October 14th-19th, in Convention Hall, Buffalo. This will mark the beginning of an educational campaign looking toward the dissemination of information to all sections of the State regarding the means of preventing the spread of tuberculosis and the proper management and treatment of those who have the disease.

The American Society of Sanitary and Moral Prophylaxis.—A meeting of this society will be held at the New York Academy of Medicine, on Thursday evening, October 10, at 8.30 o'clock. The president in his address will review the work accomplished by the society and the outlook for the future. The field of work opening up before the society will be discussed as follows: In the settlements and social organizations, by Dr. J. E. Robbins; In the Physical Training Department of the Young Men's Christian Association, by Dr. George T. Fisher; In other directions, by various speakers.

Centre District and Merrimack County, New Hampshire, Medical Society will hold a quarterly meeting at Concord, on Tuesday, at 3 p. m., October 8, 1907. The one hundredth anniversary of the society will be celebrated at this meeting and the following programme will be presented: Our Anniversary, by Dr. Granville P. Conn; A Brief Review of Some of the Earlier Doings of the Centre District Medical Society, by Dr. E. E. Graves; County Societies, by Dr. George Cook; Remarks and discussions by members. In the evening a dinner will be served at the Eagle Hotel, with Dr. Ralph E. Gallinger as toastmaster.

The Health of Pittsburgh.—During the week ending September 14, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chickenpox, 3 cases, 0 deaths; typhoid fever, 80 cases, 9 deaths; scarlet fever, 21 cases, 1 death; diphtheria, 27 cases, 1 death; measles, 3 cases, 0 deaths; whooping cough, 20 cases, 1 death; pulmonary tuberculosis, 7 cases, 4 deaths. During the week ending September 21st, the following cases were reported: Chickenpox, 5 cases, 0 deaths; typhoid fever, 92 cases, 10 deaths; scarlet fever, 18 cases, 0 deaths; diphtheria, 14 cases, 2 deaths; measles, 8 cases, 0 deaths; whooping cough, 14 cases, 3 deaths; pulmonary tuberculosis, 19 cases, 2 deaths.

The Opening of the Philadelphia Medical Schools.—The departments of medicine, dentistry, pharmacy, and pharmaceutical chemistry of the Medicochirurgical College of Philadelphia, began the session of 1907-1908 on Monday evening, September 23rd. Dr. Ernest La Place delivered the address. The opening exercises of the Jefferson Medical College were held on Tuesday, September 24th. The session of the Woman's Medical College of Pennsylvania began on Wednesday, September 25th. The medical department, the dental department, and the veterinary department of the University of Pennsylvania inaugurated their sessions on Friday, September 27th. The sessions of the medical and the dental departments of the Temple College began on Monday evening, September 23rd.

The N Rays.—An exhaustive *résumé* of the literature of the n rays, the physiological rays, and the heavy emission, by Dr. George Flowers Stradling, will be found in the *Journal of the Franklin Institute* for July, August, and September, 1907. Dr. Stradling has reviewed nearly three hundred papers dealing with this form of energy, all of which are arranged in the form of a bibliography at the end of the paper. The conclusion drawn after the review of this mass of material is that the n rays do not exist. The phenomena have been ascribed to errors; to physical factors, such as heat radiation, decay of phosphorescence, and change in the distance of the screen from the observer; to psychological factors, such as suggestion and expectancy; and to physiological factors, principally tiring of the eye.

The Mortality of Chicago.—According to the report of the department of health for the week ending September 21, 1907, there were during the week 618 deaths from all causes, as compared with 548 for the corresponding week in 1906. The annual death rate in one thousand of population was 15.29. The principal causes of death were: Apoplexy, 15; Bright's disease, 48; bronchitis, 5; cancer, 2; consumption, 57; convulsions, 12; diphtheria, 9; heart disease, 41; intestinal diseases (acute), 114; measles, 3; nervous diseases, 25; pneumonia, 42; scarlet fever, 15; suicide, 7; typhoid fever, 14; violence (other than suicide), 27; whooping cough, 2; all other causes, 161. There were 168 deaths of children under one year of age, 70 between one and five years of age, 49 of persons between five and twenty years of age; 233 between twenty and sixty years of age; and 68 over sixty years of age.

The Southern Medical Association. At the annual meeting of this association, held at Birmingham, Ala., on September 10, 11, 12, and 13, 1907, officers for the coming year were elected as follows: President, Dr. B. L. WATKINS, of Birmingham; vice-president, Dr. W. P. McADAMS, of Birmingham; Dr. J. M. L. BROWN, of Mississippi; Dr. F. H. WATSON, of Louisiana; Dr. R. J. HOLDEN, of Florida; Dr. Raymond WALLACE, of Tennessee; and Dr. A. H. POWELL, of Georgia, secretary. Dr. Oscar Dowling, of St. Petersburg, Fla., was selected as the next place of meeting, in the second week of November, 1908. Originally this association was known as the *South Atlantic Medical Association*, and hence the name, but when the society was

reorganized, in October, 1906, the States of Florida, Mississippi, and Louisiana were added and the name of the organization was changed, as above indicated.

Personals.—Dr. Rose Bebb, of Tacoma, has been appointed State bacteriologist by the Washington State Board of Health. Dr. Bebb was at one time employed in bacteriological work in the research laboratory of the New York board of health.

Dr. Lena Hatfield, a graduate of the College of Physicians of Chicago, has been appointed a medical missionary to Foochow, China. Dr. Hatfield will sail early in November to assume work as an assistant to Dr. Ellen M. Lyon, in the Woman's Hospital at Foochow.

Dr. Joseph Marshall, of the University of California, has been appointed professor of surgery in Yale University Medical Department, *vice* Dr. W. H. Carmalt, resigned.

Dr. A. M. Reese, of Syracuse University, has been appointed professor of zoölogy at the University of West Virginia, Morgantown, W. Va.

Dr. Frederick Peterson has returned from abroad and will be in his office, 4 West Fiftieth Street, regularly, after October 1st.

Tuberculosis Work in Pennsylvania.—One million dollars was appropriated by the last Pennsylvania legislature for the use of the department of health, to be expended in the struggle against pulmonary tuberculosis, which is costing Pennsylvania many thousands of its citizens each year. With \$600,000 of the appropriation it is purposed to greatly enlarge Pennsylvania's present sanatorium at Mont Alto, in order that this may be accomplished the sanatorium site and a large adjoining tract have been transferred from the forestry department to the department of health. The whole forest preserve has been carefully surveyed, the soil and water have been tested, at the same time preparations have been going on for the erection of the numerous little open air cottages which will form the main feature of the institution. The remaining \$400,000 of this year's appropriation will be used to establish in every county of the State a special tuberculosis dispensary, where treatment will be given, and from which will be spread out through the neighboring towns a mass of information about tuberculosis and its cure.

The New York Academy of Medicine.—The following programme was arranged for a meeting of this academy, held on Thursday evening, October 3rd, under the auspices of the *Section in Orthopaedic Surgery: The Relation of Biological Research to Orthopaedic Surgery*, by Dr. P. William Nathan; *Pathological Examination of the Blood, Fluids, and Tissues*, by Dr. T. Halsted Myers; *The Oponic Index in Relation to Orthopaedic Surgery*, by Dr. Charles Ogilvy and Dr. T. Homer Coffin; *Skiaigraphy in Orthopaedic Surgery (with stereoscopic views)*, by Dr. F. H. Albee. Discussion by Dr. V. P. Gibney, Dr. James Ewing, Dr. Charles N. Dowd, Dr. Wisner R. Townsend, and Dr. Samuel Lloyd.

Meetings of Sections: The Section in Pædiatrics will hold a meeting on Thursday evening, October 10th.

The Section in Otology will hold a meeting on Friday evening, October 11th.

A meeting of the Section in Dermatology was held on Tuesday evening, October 1st.

A meeting of the Section in Surgery was held on Friday evening, October 4th.

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cations in the Use of the Uterine Curette, by Dr. Ralph Waldo, New York.

The National Association for the Study of Epilepsy.—The eighth annual meeting of this association will be held at the Jefferson Hotel, Richmond, Va., on October 24 and 25, 1907. Addresses will be given at the first session by the governor of Virginia, the mayor of Richmond, and the president of the Virginia State Medical Society. These addresses will be responded to by Dr. Everett Flood, president of the association, and by Dr. William P. Spratling, of the Craig Colony for Epileptics, Sonyea, N. Y. Reports from all States in this country which are now caring for epileptics will be made by the secretary, and the following papers will be presented: The Utilization of Epileptic Labor, by Dr. H. M. Weeks, of Skillman, N. J.; Colony Life of an Epileptic: Social and Religious, by the Reverend J. Duncan McNair, resident chaplain of the Craig Colony, Sonyea; Sewage Disposal and Construction and Work Done by the Filter Beds at Sonyea, by Dr. James F. Munson, Sonyea; Epilepsy: Its Definition, Treatment, etc., by Dr. J. S. De Jarrette, Staunton, Va.; Alcohol as a Primary and Exciting Cause of Epilepsy, by Dr. Thomas C. Fitzsimmons, Wilkes-Barre, Pa.; The Etiology of Epilepsy, by Dr. M. B. Hodskins, Palmer, Mass.; The Systematic Treatment of Epilepsy *versus* Its Treatment by an Occasional Consultation and Prescription, by Dr. William P. Spratling, Sonyea; The Value of Elimination in the Treatment of Epilepsy, by Dr. J. Allison Hodges, Richmond, Va.; Pulmonary Oedema as a Complication of Epileptic Seizures, by Dr. William T. Shanahan, Sonyea; Surgery as a Therapeutic Measure in the Cure of Epilepsy, by Dr. Matthew Woods, Philadelphia, Pa.; Surgical Intervention in the Treatment of Epilepsy, by Dr. H. H. Levy, Richmond, Va.; Injuries to Epileptics, by Dr. A. V. Cooper, Palmer, Mass.; Myoclonus Epilepsy, by Dr. Edward A. Kennedy, Palmer, Mass.; Cranial Nerve Fits, by Dr. L. Pierce Clark, New York City; The Relation of Eye Defects to Epilepsy, by Dr. D. D. Wilcox, Richmond, Va.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending September 28, 1907:

	September 28.		September 21.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	180	23	181	27
Smallpox.....	13	..	13	..
Varicella.....	13	..	13	..
Measles.....	112	2	114	5
Scarlet fever.....	134	3	108	9
Whooping cough.....	18	5	18	4
Diphtheria.....	174	13	212	25
Tuberculosis pulmonalis.....	130	845	143	..
Cerebrospinal meningitis.....	15	10	23	11
Totals.....	991	186	1,014	224

Society Meetings for the Coming Week:

MONDAY, October 7th.—German Medical Society of the City of New York; Utica, N. Y., Medical Library Association (annual); Niagara Falls, N. Y., Academy of Medicine; Practitioners' Club, Newark, N. J.; Hartford, Conn., Medical Society.

TUESDAY, October 8th.—New York Academy of Medicine (Section in Public Health); Medical Society of the County of Schenectady, N. Y.; Practitioners' Club of Jersey City, N. J.; Medical Society of the County of Rensselaer, N. Y.; Buffalo Academy of Medicine (Section in Medicine); Newburgh Bay Medical Society.

WEDNESDAY, October 9th.—New York Pathological Society; New York Surgical Society; Medical Society of the Borough of the Bronx, New York; Alumni Association of the City (Charity) Hospital, New York; Brooklyn Medical and Pharmaceutical Association; Richmond County, N. Y., Medical Society.

THURSDAY, October 10th.—New York Academy of Medicine (Section in Pediatrics); Brooklyn Pathological Society; Blackwell Medical Society of Rochester, N. Y.; Jenkins Medical Association, Yonkers, N. Y.

FRIDAY, October 11th.—New York Academy of Medicine (Section in Ophthalmology); New York Society of Ophthalmology and Genitourinary Surgery; Eastern Medical Society of the City of New York; Saratoga Springs, N. Y., Medical Society.

SATURDAY, October 12th.—Therapeutic Club, New York.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

September 26, 1907.

1. Pulmonary Tuberculosis and the Röntgen Rays, By PERCY BROWN.
2. The Channels of Infection in Tuberculosis, Together With Some Remarks on the Outlook Concerning a Specific Therapy, By THEOBALD SMITH.
3. Separate Nursing and Isolation in Typhoid Fever, By ELLIOTT P. JOSLIN and CHARLES L. OVERLANDER.
4. The Question of "Justifiable Homicide," By CHARLES GREENE CUMSTON.

1. Pulmonary Tuberculosis and the Roentgen Rays.—Brown draws the following conclusions from his observations: The Röntgen rays, through the media of the screen and the photographic plate, are of distinct value in the diagnosis of pulmonary tuberculosis. By virtue of the power given us by the Röntgen rays visually to perceive subtle changes in the thorax, we are often able to recognize the invasion of a pulmonary tuberculous process in an earlier stage of progress than it is to-day possible to do by the sense of hearing or touch. To depend, however, upon the Röntgen method to the exclusion of others, namely, auscultation and percussion, the tuberculin test, or the staining fluids and the microscope, we do little else than proclaim ourselves bigots. If we recognize this new diagnostic agent, and make wise use of it, together with others already given us, employing all energetically for the benefit of the patient, while he is yet in a condition to be cured, we need never reproach ourselves with failure.

2. The Channels of Infection in Tuberculosis, together with Some Remarks on the Outlook Concerning a Specific Therapy.—Smith, of Boston, thinks that the following conclusions are warranted by the investigations upon human and bovine tuberculosis. The coughing consumptive is the chief source of infection. The digestive tract is not the exclusive or even predominating portal of entry for pulmonary phthisis. It is highly probable that most cases are due to inhalation or aspiration. In infants the bacilli probably gain entrance through all portals more easily than later in life, and the disease becomes more easily generalized. There are no rational grounds for believing that latency in infancy plays any appreciable rôle in the disease of later decades, but ingestion probably does play a much more important part in infantile tuberculosis, owing to habits and susceptibility of this period of life, than has been granted heretofore. Bovine tubercle bacilli are found associated with a certain, at present not fully calculable, proportion of cases of abdominal and cervical lymph node tuberculosis in infants and children. There is at present no evidence that bovine bacilli may be transformed and assume the human type in the human body. The discharge of tubercle bacilli into the milk of cows may take place abundantly in udder tuberculosis. In a small proportion of manifestly tuberculous cows without evidence of udder disease, it may take place at times in very small numbers. A reasonable restriction of bovine tuberculosis below the danger limit to man is possible with the aid of tuberculin and segregation, and the removal of clinical cases and of udder disease. An eventually complete elimination can be brought about in this way in any herd, provided other domestic animals, such as pigs, cats, and dogs, are kept under control as possible reintroducers of the infection. The complete elimination of bovine tuberculosis may be hoped for in the distant future. An active cooperation of individuals with municipal, State, and national forces, by exerting a steady pressure and diffusing more knowledge among farmers as to the nature of tuberculosis and the use of tuberculin, may lead to its final disappearance. The factor of bovine tuberculosis in the human malady is not of such importance

that it should be permitted to imperil the proper execution of measures designed to relieve and cure the strictly human disease, or divert attention from it as the chief evil. Serum therapy is at best a temporary palliative method in infectious diseases which are long drawn out, and which must finally be met by the specific resources of the body itself. The need of discriminating power on the part of the practising physician between individual and individual in the application of remedies which stimulate the production of antibodies. He is evidently not going to be eliminated by an advance in medical science. In fact, he must be better trained than ever, especially in the fundamental principles of immunity—a subject quite new but already rich in acquisitions, which may be called the physiology of the infectious diseases. To each human being are given certain talents to husband and develop and not to squander, for therapy cannot add to them. It falls to the lot of the physician to discover during disease the size of those hidden talents, if he can, and to utilize and manipulate them in the best interests of his patient.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

September 28, 1907.

1. Hæmoptysis Due to Tuberculosis, By J. M. ANDERS.
2. Systemic Blastomycosis and Coccidioidal Granuloma, By LUDWIG HEKTOEN.
3. Municipal Regulation of the Milk Supply, By GEORGE W. GOLER.
4. The Methods of Dealing with the Milk Supply of New York City, By THOMAS DARLINGTON.
5. Boston's Campaign for Clean Milk, By JAMES O. JORDAN.
6. The Milk Supply of Washington, D. C., By G. LLOYD MAGRUDER.
7. Some Advances in Renal and Ureteral Diagnosis, By CHARLES LESTER LEONARD.
8. The Surgical Treatment of Ureteral Calculus in the Female, By EDGAR GARCEAU.
9. The Early Diagnosis of Tubal Gestation, By PHILANDER A. HARRIS.
10. The Syncytium, By YVONNE HOUSE BRANSON.

2. **Systemic Blastomycosis and Coccidioidal Granuloma.**—Hektoen observes that systemic blastomycosis and coccidioidal granuloma are caused by closely related varieties of organisms that Ricketts and Ophüls would place under the oïdia. Culturally, these organisms may resemble one another very closely. In the tissues of the infected animal or human being in which both exist as spherical bodies, they present this striking difference; that the organisms of blastomycosis multiply almost wholly by budding, while those of coccidioidal granuloma multiply essentially by endogenous sporulation. Neither forms mycelium in the animal body. Systemic blastomycosis and coccidioidal granuloma resemble each other in many respects, both clinically and anatomically, but at the same time there are certain well marked differences of which the following appear to be constant and distinctive: 1. The nodular lesions of coccidioidal granuloma bear a closer resemblance to the typical, specific tubercle than the nodules of blastomycosis. 2. In coccidioidal granuloma there is marked tendency to involvement of the lymph nodes, in blastomycosis slight. 3. As already stated in coccidioidal granuloma the organisms multiply by endogenous sporulation in blastomycosis by budding. Nothing is yet known concerning the conditions that lead to natural infection with either of these diseases, but human beings once infected appear susceptible, and the apparent infrequency of the diseases may be explainable by assuming that at yet the occasion necessity for infection is infrequent.

7. **Some Advances in Renal and Ureteral Diagnosis.**—Leonard says that the total error of diagnosis in a series of 116 cases has been less than 3 per cent. In the last two cases only one case of error had been reported to him. In this case a calculus was found in

the pelvis of the kidney as well as one diagnosed in the ureter. In this case the examination was made two years previous to the operation. A positive diagnosis of calculus has been made in 106 cases. Of these, thirty-six were renal calculi; of them, thirty were confirmed by the removal of the calculus, four of the patients refused operation, and in two no calculus was found. Seventy cases were of ureteral calculi; of them, forty-three had been confirmed by the passage or removal of the calculus, in twenty-seven the patients had not been operated upon or heard from. In forty-six cases in which an exclusion or negative diagnosis was rendered, the patients were operated upon and the diagnosis confirmed. In seven cases where a negative diagnosis was rendered, operation showed a calculus to be present, while in two cases a mass of crystalline debris was found filling the pelvis of the kidney. This makes a total error of ten cases in a series extending from the formation period of this diagnosis. As has been said, in the last 100 cases the proportion of errors is materially decreased. There were twenty-eight ureteral and nine renal cases. In two renal cases the patients refused operation and in seven the diagnosis was confirmed. In nineteen ureteral cases the diagnosis had been confirmed by the recovery of the calculus. Of the remaining nine cases, some of the patients were too recently examined and others had not been heard from. Of the sixty-three cases in which a negative diagnosis was rendered, forty-two had been confirmed by the subsequent history or operation. In twenty-one cases the subsequent history had not been learned.

8. **The Surgical Treatment of Ureteral Calculus in the Female.**—Garceau states that the choice of routes for the removal of stone in the female below the pelvic brim will depend on the nature of the case. A stone in front of the broad ligament can be removed by vaginal incision or by some operation performed through the Kelly cystoscope. It will be rarely necessary to open the anterior cul-de-sac for any stone situated in front of the broad ligament. Stones situated between the pelvic brim and the base of the broad ligament are more difficult to remove than stones in any other part of the urinary tract. In the female, stones are very apt to become impacted in this situation, being arrested at a sharp turn in the ureter, called by Young the parasacral bend, because it is opposite the spine of the ischium. In both his cases this was the seat of impaction. It has been plainly shown that an extraperitoneal incision will reach stones situated in this portion of the ureter. This operation, however necessitates a long incision through the abdominal wall, and it is not always successful in cases in which there are dense adhesions. In such cases Kelly's method of pushing on the stone toward the vagina through an extraperitoneal incision in the iliac region may make it accessible through the vaginal vault. But cases in which this can be done must be rare. A stone situated directly under the broad ligament and a little behind it may be reached in many ways by the surgeon, of which he devised. The sacral route involves a mutilating operation and has become obsolete. The rectal route will seldom find favor, and then only in those cases in which the stone has practically ulcerated through. Stones situated above the pelvic brim must be attacked through an extraperitoneal incision, and most surgeons will prefer to follow Deaver's rule in these cases, which is to explore the kidney first through a loin incision, make a ureteral sound down the ureter, locate the stone, and enlarge the incision according to need. Current literature has reported a patient in whom a thirty-two year old female had been delivered of a child only a few days before. The subsequent illness was evidently caused by the peritonitis from back and the broad ligament was involved. The stone was plainly felt, was pushed down toward the vaginal vault

and delivered through a vaginal incision $1\frac{1}{2}$ centimetres long and a ureteral incision a little shorter. It was like squeezing a cherry stone out of a ripe cherry. Immediately on delivery the vaginal incision was closed with silver wire sutures. Some hemorrhage occurred in the anterior cul-de-sac, and as it was not desired to take any more time, a few clamps were left on the vessels. The whole operation took ten minutes and the stone was delivered in five minutes. The convalescence was not remarkable and there was no fistula. Subsequent catheterization showed both ureters to be free. The stone in the dry state weighed 7 decigrams, was 1 centimetre long and nearly 1 centimetre wide.

9. The Early Diagnosis of Tubal Gestation.—Harris thinks that a simply presumptive diagnosis of ectopic gestation may be based on the two distinct items of colics and atypical menstruation. If we would know what constitutes an atypical menstruation for any particular individual it is absolutely necessary for us to obtain definite information regarding not only the present atypical, or alleged menstruation, but also of the menstruations preceding it for a term of three or four months. We must also learn the nature, duration, and character of the earlier menstruations, and the ordinary intervals from the beginning to beginning. Inaccurate history taking will lead to incorrect presumptions, if not also to faulty and incorrect diagnoses. Forty-nine out of every fifty cases of tubal gestation present symptoms whereby the condition can be diagnosed with reasonable certainty before the tragic stage is reached. Probably forty-five out of every fifty patients consult a physician in the nontragic stage of the disease. So soon as diagnosis is made operation is indicated, and he believes that the best interests of the patient will generally be subserved by immediate resort to operation whether the patient exemplifies the nontragic or tragic stage of the disease. In dealing with women in the nontragic stage our advice to them should be governed by the knowledge that from one half to two thirds of all cases of ectopic gestation, uninfluenced by operation, eventuate in death, and that if all patients are promptly and properly operated upon, ninety-nine out of every one hundred should recover.

10. The Syncytium.—Laura House Branson writes that the syncytial tissue is of foetal origin; it is in indirect line from the ectoderm or trophoblast. The chorionic villi or parts of them, together with their epithelial covering, may normally circulate in the vascular and lymphatic circulation of their host. It is possible for this circulation to take place during the period of pregnancy from the formation of the chorionic villi to the termination of labor. This epithelial covering of the chorionic villi has the power to proliferate; this proliferation may take place during the entire life cycle of the syncytium and Langhans' cells. The syncytium has a physiological function. If it failed in its physiological function its pathology may prove detrimental both to fetus and host. The syncytium is the prime factor in the production of a peculiar neoplasm whose histology places it in a class by itself, viz., syncytioma malignum. The theory of the syncytium being a prime causative factor in the production of eclampsia, is one that is upheld by recent investigations. The syncytium as a factor in the aetiology of eclampsia is the one cause that can meet all statements made by recent investigations and theories; it occupies the middle ground and meets all theories and requirements with the tested results of intelligent investigations. Hepatic changes are the rule, not the exception, in eclampsia. Malignant neoplasms of pregnancy have an eroding action on the structures of the uterus; this is the nature of the chorionic epithelium covering the villi, normally. Chorionic epithelium is also one of the constituents of these neoplasms pathologically. It is reasonable, there is no doubt that their origin is the same and

that this activity remains in force in the neoplasms. Dr. Branson concludes that the study of the cause of cell proliferation opens up an avenue pregnant with hope; the greater our knowledge of cytomorphoses the clearer will be our understanding of cell proliferation. Cell growth is controlled by certain stimulating and inhibitory influences; the knowledge of these will explain many of the unknown phenomena, and this knowledge may also explain the cause of the retrogressive metamorphoses that we even now attribute to the cell of many neoplasms, particularly to the malignant neoplasms.

MEDICAL RECORD.

September 28, 1907.

1. Obesity, Gout, and Diabetes Mellitus Considered as Diseases of Cell Metabolism Transmissible by Inheritance, By Professor WILHELM EBSTEIN.
2. Is There a Surgical Treatment for Constipation? By CHARLES B. KELSEY.
3. The Therapeutical Value of Apomorphina Hydrochloridum, By EUGENE L. FISK.
4. The Clinical Significance of the Symptom, Headache, By E. CASTELLI.
5. The Relationship of the Life Insurance Company to the Applicant Showing Glycosuria, By T. STUART HART.

1. Obesity, Gout, and Diabetes Mellitus.—Ebstein, of Göttingen, Germany, states that glycosuria, as well as well marked diabetes mellitus, depend in the last analysis upon a defect of the biogens, that is, of the protoplasm, which, however, at the present time cannot be more exactly defined by either microscopical or chemical examination. We know this defect, however, from the effects it produces, i. e., from the influence exercised by the diminished capacity for oxidation. Experience teaches that the latter may not only be transmitted by inheritance, but often may coincide with neuropathic tendencies peculiar to some families. The greater is this deficiency of the protoplasm the earlier and the stronger is its disturbing action in otherwise similar circumstances; at the same time, even a less strongly expressed diabetic tendency may become of import when accidental causes, the so called predisposing moments, give impetus to its action, contributing in their own way to the damage of the protoplasm. The rôle of the pancreas in the origin of diabetes mellitus, he thinks, to be as follows: Because of the failure of its function as a detoxicating organ the cells of the body are injured in such a fashion that they become less active in function, and only serve the ends of internal respiration in a defective manner. The individuals thus affected then fall a prey to all the consequences of this condition. In his opinion, diabetes mellitus is not a symptom of the disease of the various organs, but is a disease *sui generis*, the first cause of which lies in a deficient character of the protoplasm, that is, transmissible by inheritance. In consequence of this defect there arises the anomaly of the carbohydrate metabolism present in this disease. If we may thus call obesity, gout, and diabetes mellitus diseases of cell metabolism, dependent primarily upon a defect of the cells, then it becomes at once clear that each one of them may be traced to changes in the biogens different in localization and in character. That these three diseases are, nevertheless, closely related to each other is no less plain, two of them and sometimes all three often affecting one individual simultaneously. We are far removed at present from being able to imagine satisfactorily the intimate relations between these three diseases—seen in this connection.

3. The Therapeutical Value of Apomorphina Hydrochloridum.—Fisk observes that the effect of apomorphina hydrochloridum, when administered by the mouth, is widely different from the hypodermic effect. Hypodermically, it is a most valuable emetic in doses of $\frac{1}{32}$ to $\frac{1}{8}$ grain, acting speedily, cer-

tainly, and gently, even in cases of narcotic poisoning prior to the stage of coma. Average adult dose is $\frac{1}{10}$ grain. It is also recommended to be tried in all cases where hypnotics or antispasmodics are indicated, in doses preferably somewhat less than the emetic dose, depending upon the tolerance of the individual, i. e., $\frac{1}{10}$ grain or more. When given hypodermically to children or debilitated subjects the possibility of its depressing effects should be borne in mind, and appropriate doses of strychnine simultaneously administered. By the mouth, its centric effects are so uncertain as to render it useless as an emetic and of little value as a hypnotic. The effect is practically limited to expectorant action. Average adult dose is $\frac{1}{8}$ grain, every two or three hours, dissolved in syrup of wild cherry or syrup of lactucarium, with a few drops of dilute hydrochloric acid to insure solution. It does not increase the effect of other narcotics, such as morphine, codeine, or heroin, which may be simultaneously administered when it is desired to lower the excitability of the respiratory centre without checking secretion. Strychnine may also be simultaneously administered in debilitated subjects for its stimulating effect on the respiratory centre and to forestall possible depression, although even in the case of delicate children there is little fear of such depression from the administration of the pure crystalline preparation by the mouth. Apomorphine, like other expectorants of its class, if used at an improper stage, when there is abundant secretion, or pushed to the extreme, may flood the bronchial tubes with mucus and drown the patient in his own secretion, especially if he lacks muscular power to expectorate. Such results, however, are not to be feared from an intelligent use of the remedy. Crystalline apomorphine hydrochloridum should always be specified. There is a slight danger of adulteration with morphine if the drug is not thoroughly washed when manufactured. On general principles, the fresh preparation should be used if possible, but a greenish discoloration of tablets or solutions does not necessarily contraindicate their use, especially if originally prepared from the pure crystalline salt by a reliable drug firm.

5. The Relationship of the Life Insurance Company to the Applicant Showing Glycosuria.—Hart says that the life insurance company owes it to itself and to the applicant that a diagnosis of glycosuria should be carefully and thoroughly made. The presence of a slight glycosuria cannot be positively asserted on the strength of one test. The following tests in the following order are the shortest accurate method of ascertaining the presence or absence of glycosuria: (a) Fehling's test; (b) phenylhydrazin test; (c) fermentations followed by Fehling's test. Many attempts to help a persistent glycosuria by self restricted diet may be detected by the routine use of tests in the foregoing order. No time diabetic is a good risk for his company, and many patients with transient glycosuria may be perfectly good risks. In making such a case the following factors are important: age, and weight, as well as hereditary and should be considered, together with individual tests for the acetone bodies and the use of a standard of two grammes of dextrose, a quantity which may induce a marked excretion of the probable maximum of the following: 1. The Holmér rare cases to be particularly noted in this disease. 2. According to Williamson thirteen per cent. of diabetics show that when administered one of the four glycosides, diffused from the diffusion. 3. According to Minkowski the maximum values are obtained with the latter two preparations to the extent that the working value. 4. Other things being equal a glycosuria after thirty-five years of age is much less likely to be a serious matter than one occurring under this age. 5. And as the statistics are so conflicting this question may be considered it will be necessary to lay it on several days. But the author is particularly strongly convinced that many of these

who have once shown a glycosuria, when individually considered, may be selected as perfectly good risks.

BRITISH MEDICAL JOURNAL

September 11, 1907.

1. The Empirical and Experimental Methods in Medicine, By R. M. SIMON.
 2. The Treatment of Sleeping Sickness and Other Trypanosomiasis by the Atoxyl and Mercury Method, By Sir R. BOYCE.
 3. Two Cases of Poisoning by Weed Killer, By W. A. ALDRED.
 4. A Case of Myelopathic Albumosuria, By W. L. BROWN.
 5. The Eyesight of the Poorer City Children, By H. W. THOMSON.
 6. Synergic Movements of the Eyelids and Mouth, By W. M. THOMSON.
- (Seventy-fifth Annual Meeting of the British Medical Association.)
- Section of Electrotherapeutics.*
7. Ionic Medication, By S. LEDUC.
 8. Papers Dealing with X Rays in Diagnosis, By J. M. DAVIDSON, E. W. H. SHENTON, and others.
 9. Papers Dealing with the Use of X Rays in Treatment, By J. H. SEQUEIRA, A. H. PIRIE, and others.
 10. Papers Dealing with Electrotherapeutics and the Action of Electric Currents, By K. A. W. SALOMONSON, H. L. JONES, and others.
 11. The Use of the Cryptoscope in Operations for Renal Calculi, By A. D. REID.
 12. The Orthodiagraph, By H. WALSHAM and J. F. H. DALLY.
 13. The Use of X Rays, from the Point of View of the General Practitioner, By E. PEARSON.
- Section of State Medicine.*
14. A Discussion on the Coordination of the Public Medical Services, Introduced by A. NEWSHOLME.
 15. On the Necessity of Increasing the Degree of Immunity Against Smallpox, By A. W. GIBBS.
 16. The New Vaccination Order, By T. G. HORDER.
 17. A Discussion on Infant Mortality and the Milk Supply, Introduced by J. KENWOOD.
 18. The Economical Purification of Sewage in Rural Districts, By A. STANLEY.
 19. The Preventor of Post Mortem Putrefaction, By J. C. McWALTER.

2. Sleeping Sickness.—Boyce gives an account of the various researches and studies carried out by investigators connected with the Liverpool School of Tropical Medicine, which have resulted in the treatment of sleeping sickness and other trypanosomiasis by the atoxyl and mercury method. Arsenic was known to be toxic to trypanosomes, but also toxic to the host. Search among arsenical compounds showed that atoxyl, while poisonous to trypanosomes, was much less so to mammals. A second distinct advance was made in treating infected animals, from which the trypanosomes have primarily been driven out of the blood by atoxyl, by a second drug, so as to prevent the recurrences which so often follow atoxyl treatment alone. The general principle underlying such a combined method of treatment by two successive and quite different drugs is that when an infective organism, such as a protozoan, shows two distinct phases in its life history, then these two phases ought to be attacked by separate drugs, and it is not only possible, but probable that a drug which affects the first will not affect the second, and vice versa. The toxic properties of atoxyl are neither those of arsenic nor of anilin, and its therapeutic action is rapid. From this, and its high conductivity, showing high dissociation, the author concludes that it may be regarded as a true chemical antiseptic, and that the principle of its action is to destroy the infective organism by the action of arsenical and anilin radicles. The importance of these new discoveries cannot be over estimated; they may be regarded as the most important discovery in tropical medicine since the discovery of the trypanosome as the cause of sleeping sickness, and the discovery of the trypanosome as the cause of sleeping sickness, and the discovery of the trypanosome as the cause of sleeping sickness.

4. **Myelopathic Albumosuria.**—Brown reports a case of myelopathic albumosuria in a man, aged fifty years, agreeing in all important particulars with the condition as described by Bence Jones and others. The disease usually occurs in men in later middle life, and there is often a period of great weakness and diffuse pains, like those of chronic rheumatism, before the tumors can be detected. There is also marked tenderness on pressure over certain points. The sudden appearance of the tumors is probably due to bursting of the growth in the marrow through the compact tissue of the bone. As regards the albumosuria, it is always associated with disease of the bone marrow. It is probably produced by the changes in the marrow, and is not alimentary in origin.

13. **The X Rays in General Medicine.**—Pearson describes some of the many uses to which x rays may be put, and states that their value is greatly underestimated. Diagnosis: 1. In cases of fracture and dislocation of bones, the x rays should be employed in all but the most simple cases. The taking of skiagrams in these cases is not a simple matter, and the correct interpretation of the shadows is still more difficult. 2. The rays are of great value in the diagnosis of diseases of bones and joints—for example, in the distinctive diagnosis between tuberculous osteitis, periostitis, sarcoma, and exostosis of bone. 3. The distinctive diagnosis between gout and rheumatoid arthritis can usually be made with the help of the rays. 4. In the chest the employment of the rays for diagnostic purposes is most promising. 5. In the abdomen the use of the rays is chiefly confined to the diagnosis of stone in the urinary tract. 6. In the case of foreign bodies, the rays reveal not only the presence of the foreign body, but also its position. Therapeutics: The therapeutical effects of x rays may be classified as follows: 1. X rays cause atrophy of the appendages of the skin. 2. They stimulate the metabolism of tissues. 3. They destroy certain pathological tissues. 4. They possess marked anodyne effects. 5. The possibility of their controlling or altering an opsonic index has yet to be settled. 6. They possess no very definite action in destroying microorganisms. Tuberculous diseases respond most favorably to x rays, lupus vulgaris being the one lesion in which the most brilliant results are attained. Tuberculous glands and joints also respond favorably, but the results have not been satisfactory in the case of pulmonary tuberculosis.

LANCET.

September 14, 1907.

1. The Coordination of Post Mortem Work and Clinical Observation, By E. F. TREVELYAN.
2. Inhalation, By A. FOXWELL.
3. A Statistical Study on the Polymastia of the Japanese, By I. IWAI.
4. Spontaneous Aneurysm of the Popliteal Artery Treated by Extirpation, By H. A. LEDIARD.
5. Actinomycosis of the Appendix, By A. R. SHORT.
6. Two Cases of Acute Tuberculous Cerebrospinal Meningitis, By L. S. WILSON and J. MURIEL.
7. Observations from the Sudan, By L. BOUSFIELD.
8. Irregularity of the Pulse in Diphtheria, By O. H. PETERS.
9. Results in Appendicitis Treated by the Immediate and Complete Operation, By W. G. SPENCER.

3. **Polymastia.**—Iwai has studied polymastia, or the presence of supernumerary mammary glands, as it occurs among the Japanese, and arrives at the following conclusions: 1. Among the Japanese, unlike the Western people, polymastia is generally found above the normal breasts, and most commonly on the anterior wall of the axilla. 2. It is likely that in many cases of polymastia the areolæ of those under the normal breasts are pigmented, and that in males they are more likely to be pigmented than they are in females. 3. According to the result of investigations made up to the present

time, the rate of polymastia is 1.68 per cent. among males, and 5.19 per cent. among females. This fact, and also that it is more common on the left side than on the right, coincide with the results obtained among Western nations. 4. Six is the largest number of glands yet found on one person. 5. It is certain that polymastia is inherited, and in most cases is transmitted from mothers. 6. In the perfect supernumerary mammary glands the secretory process begins at the time of parturition, and sometimes it continues for over six months.

5. **Actinomycosis of the Appendix.**—Short reports five cases of actinomycosis of the appendix, or rather of actinomycotic perityphlitis. A large number of cases have been described, and the affection is probably a widespread one. About five sevenths of the cases occur in men. After puberty every age is equally liable, the disease being most frequently seen between the ages of twenty and thirty years. Young children escape. A large number of the sufferers are in some way connected with farm life or deal with corn. Foreign bodies, apparently carrying the infection, have been found in five cases. It is probable that some cases described as actinomycosis have really been instances of streptothrix infection. Sixty per cent. of the cases of abdominal actinomycosis have their origin in the right iliac fossa. It is seldom that the nature of the original lesion can be determined. Usually a small ulcer forms in the mucous membrane, which tends to spread and deepen and is surrounded by a congested area. In this the mycelium can be detected microscopically. Three types of spread are described: 1. The mucous membrane may be extensively ulcerated, forming the principal if not sole localization of the disease. 2. The wall of the appendix and cæcum may be greatly thickened without perforation or extension. 3. Perforation is the usual sequence. Acute general peritonitis does not result, but abscesses form and track freely in all directions, enclosed by adhesions of very extraordinary density. Further spread takes place by continuity and by vascular metastasis. The number of directions in which the pus may track is extraordinary. It is very common for the sinuses and abscesses to become faecal. Exhaustion from septicæmia is the usual cause of death. Albuminoid degeneration often occurs. As regards symptoms there is an initial period of visceral manifestations, consisting of vague pains in the right iliac fossa, sometimes associated with intractable diarrhoea, which may be mucomembranous in type. The pain may be severe, in which case relapsing appendicitis will probably be diagnosed. There are no local signs. Next comes the stage of tumor formation, followed by that of fistula formation. Abscesses burst or are opened in the neighborhood of the original site, and dark fetid pus is discharged. This stage usually lasts for months, subphrenic or pulmonary abscesses form, and the patient dies from hectic fever and exhaustion. In some cases there is a stage of cicatrization in which the fistulæ close and cure results. Unhappily this is often only temporary. Before perforation has occurred, with the formation of a tumor, the diagnosis can only be made by finding actinomycetes in the stools. The actual confirmation of the diagnosis, of course, depends on such finding of the ray fungus. It is best seen in a thin layer of pus running down inside a test tube, the yellow granules, about as large as a pin's head, sticking to the glass. These should be put on a slide, covered with a coverslip very gently pressed on, and examined unstained. They form transparent areas to the naked eye. Sometimes this affection may resemble tuberculous or malignant disease of the cæcum, but in actinomycosis the mass is larger, more fixed, and there are no obstructive symptoms. It may also be confounded with psoas abscess. The prognosis is much less favorable than it is generally held to be. The relapsing nature and long duration of the disease must always be taken into account.

Many of the so called cures have been watched for but a short time. When extensive sinuses have formed with foetid pus, recovery is nearly hopeless, and the appearance of disease in the liver or lungs is equivalent to a death warrant. The disease is usually miserably chronic and may last for years. Having regard to the very grave outlook, a determined attempt should be made to completely remove all foci of the infection, if the patient comes under treatment soon enough. Unless such removal is quite impossible the surgeon should be prepared to even to sacrifice the cæcum and neighboring bowel, perhaps with the temporary formation of an artificial anus. Merely opening abscesses is futile, unless it is quite impossible to eradicate the disease. Potassium iodide is usually given in large doses, and the wounds may be washed out with diluted tincture of iodine.

LA PRESSE MEDICALE.

September 7, 1907.

1. The Opsonins and the Treatment of Infectious Diseases by Wright's Method, By C. LEVADITI.
2. Hernia of the Diverticulum, By LOUIS MOREL.
3. Treatment (*Cure de Terrain*) of Pulmonary Tuberculosis, By CH. MANTOUX.
4. Diagnosis and Treatment of Præpatellar Hygroma, By A. BROCA.
5. Major Surgery Among the Middle Classes, By R. ROMME.

1. **Opsonins.**—Levaditi describes the theory and technique of opsonins, together with its application in the treatment of staphylococcal infections and tuberculosis. He adds little if anything to the understanding of this subject, which is attracting universal attention at present.

2. **Hernia of the Diverticulum.**—Morel divides hernia of the diverticulum of Meckel into three classes, the chronic, the acute, and the recurrent. The chronic form generally appears as a small inguinal hernia on the right side of a young man, painless, but presenting certain tender points on pressure, and supported with difficulty by a bandage. It may seem to be reducible, while in reality it is not. It forms a source of danger in various ways. The acute form may present itself as a strangulated hernia, or as a hernial phlegmon. The recurrent form is characterized by the recurrence at intervals of attacks of pain and inflammation in the diverticulum. Diagnosis is usually made on operation on the formation of a fistula, or on autopsy, otherwise it is very difficult. The prognosis is serious. Treatment is operative.

3. **Treatment of Pulmonary Tuberculosis.**—Mantoux bases his treatment on a triple form of exercise, muscular, cardiac, and respiratory. He claims that the method is easily carried out and that the results are good.

4. **Præpatellar Hygroma.**—Broca reports a well marked case of housemaid's knee in a child, three and a half years old. The swelling was low down and the pus was evacuated through two longitudinal incisions, one on each side of the patella, with a transverse drain running from one to the other.

September 11, 1907.

1. The Part Played by Mice in the Propagation of Diseases Due to Diplococci and Coli Bacilli, By E. PALIER.
2. Variation in the Structure of the Nervous Cell, By R. LEGRAND.
3. Definitive Diagnosis of Tuberculous Pus.

1. **The Part Played by Mice in the Propagation of Diseases Due to Diplococci and Coli Bacilli.**—Palier's paper is based on his experiments, and also on known facts in regard to pneumonia, a disease in which he considers the principal, if not the only, agent in propagation to be the mouse. He believes that prophylaxis against pneumonia comprehend the extermination of

rats and mice, preferably by incineration, and the construction of sanitary rooms in which a mouse could not easily conceal itself.

2. **Variations in the Structure of the Nervous Cell.**—Legendre says that: (1) The size of the cell is increased during activity, diminished during fatigue; (2) the chromatophile substance is dissolved during activity; (3) alkalies swell, acids shrivel the cells; (4) the chromatophile substance is soluble in dilute alkalies; (5) the neurofibrillæ become swollen after the action of an alkali, and become smaller after that of an acid.

LA SEMAINE MEDICALE.

August 28, 1907.

The Gastric Secretion in Nephritis,

By E. ENRIQUEZ and L. AMBARD.

The Gastric Secretion in Nephritis.—Enriquez and Ambard say that the relations of the gastric secretion to nephritis are very complex, but that they seem to be governed by two factors, the hyperchlorhydria of the organism and the condition of the gastric mucous membrane. Every nephritis, even though latent, influences the gastric secretion. When the clinical symptoms are reduced to traces of albumin in the urine, or a simple arterial hypertension, there is a general hyperchlorhydria which forms an excitant to the gastric secretion, and exaggerates it in the same manner as dechloridation diminishes the same secretion. But another and antagonistic element appears when the nephritis becomes more pronounced. The retention of the chlorides induces alterations in the gastric mucous membrane comparable to those of the renal cells, and it is probable that the hyperchlorhydria aggravates equally the renal and gastric lesions. Then the excitant effect of the salt is overbalanced by its depressant action, and a condition of hypochlorhydria is produced. For the same reason the dechlorhydration which improves the renal lesion improves the gastric, and this explains why dechlorhydration diminishes the hypochlorhydria.

September 4, 1907.

1. Actual State of Our Knowledge Concerning the Mechanism of Immunity, By VICTOR HENRI.
2. Luxation of the Hip.
3. The Cytological Examination of Sputum.

September 17, 1907.

Value of Laboratory Methods in the Diagnosis of Typhoid Fever,

By LEON BLUM.

Value of Laboratory Methods in the Diagnosis of Typhoid Fever.—Blum discusses the various laboratory methods, including hæmoculture, seroreaction, diazo-reaction, and blood count, and finally says that when a judicious clinical observation pleads in favor of a diagnosis of typhoid fever the failure of laboratory methods does not suffice to negative that diagnosis. As a rule, with certain exceptions which are not of extreme rarity the examination into the bactericidal power of the serum is able to confirm the clinical diagnosis.

BERLINER KLINISCHE WOCHENSCHRIFT.

September 8, 1907.

1. The Lung Test in Water and Its Critical Consideration, By H. KATHE.
2. Wassermann's Syphilis Reaction, By E. MEYER.
3. Treatment of Central Albinism of the Optic Nerve, or Syphilitic Origin with Atoxyl, By O. WATERMANN.
4. Immunological Determination of the Toxins of the Pulse, By F. LEBERER.
5. Complications in the Pathology and Treatment of Constitutional Psoriasis, By J. SCHÖN and H. USIG.
6. Concerning the Pathological Adaptation of Psoriasis, By K. A. A. A.
7. Concerning the Action of X-Ray on the Skin of Man, By L. SCHÖNBERG.

1. **The Lung Test in Water.**—Kathe states that the lung test in water is applied to supposedly dead children unreliable as air may have entered the lungs, although the child was then dead. He suggests a new

in which before birth the heart sounds were heard to grow fainter and finally to cease, the child was born dead, no attempts at artificial respiration were made, and yet at the autopsy there were small areas of alveoli which contained air. He believes that the child had made intrauterine efforts to breathe.

2. Wassermann's Syphilis Reaction.—Michaelis concludes from his studies that as a rule Wassermann's reaction proves positive in syphilitics, negative in non-syphilitics. He also confirms, so far as his small amount of material goes, the observation of Citron that the reaction becomes less under the influence of mercury. He questions whether the reaction really indicates the presence of an antibody to the active agent of syphilis, or of its poison.

3. Treatment of Central Affections of the Optic Nerve of Syphilitic Origin with Atoxyl.—Watermann reports ten cases of cerebral syphilis and tabes dorsalis treated with atoxyl, and presents the following conclusions: 1. That in the treatment of central affections of the optic nerve of syphilitic origin atoxyl produced no beneficial effect. 2. That in some cases the administration of atoxyl has a harmful effect upon the vision, such as is never observed in the treatment with mercury.

4. Turgotonographical Determination of the Tension of the Pulse.—Fleischer describes the four methods, palpatory, auscultatory, oscillatory, and graphic, hitherto used to measure the tension of the pulse, and presents a description of an instrument designed to accomplish this purpose more perfectly.

5. Gonorrhœal Pyelitis.—Sellei and Unterberg assert that their investigations have shown that, although the gonococcus is in position to directly cause the pyelitis, yet in the great majority of the cases of this nature the pyelitis is produced by a mixed infection.

7. Radium.—Löwenthal reports a case of chronic articular rheumatism and one of chronic sciatica cured by the use of radium.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

September 10, 1907.

1. Apparatus for the Objective Measurement of the Blood Tension. Also a Contribution to Sphygmotography, By MÜNZER.
2. Torsion of the Appendices Epiploicæ, By KRÜGER.
3. Pachymeningitis Interna Hæmorrhagica, By JAHRMÄRKER.
4. Pathogenesis of Hirschsprung's Disease, By NETER.
5. A New Method for the Treatment of Buboes, By FEIGL.
6. Concerning So-Called Acquired Lymphangioma of the Neck, By DENCKS.
7. A Case of Typhoid Fever Caused by Autoinfection from the Gallbladder Which Ran a Course That Resembled the Picture of Weil's Disease, By GRIMME.
8. Serious Interference with Labor by Spontaneous Fixation During the Final Weeks of Pregnancy, Cæsarian Section, By BRINK.
9. Concerning Methylatropine Bromate in the Eclampsia of Children, By BÖSL.
10. A Case of Spina Bifida Occulta, By BINDER.
11. Concerning the Pathogenesis of Carcinoma of the Stomach With Metastases in the Femur, By ROYER.

12. Concerning the Pathogenesis of the Proliferative Process in the Proliferative and Proliferative Reaction, By DREYER.

13. Concerning the Pathogenesis of the Proliferative Process in the Proliferative and Proliferative Reaction, By ZIEGLER.

14. Mental Vapor Apparatus for the Treatment of Cerebral Disorders, By LANGE.

15. Concerning the Pathogenesis of the Proliferative Process in the Proliferative and Proliferative Reaction, By LANGE.

2. Torsion of the Appendices Epiploicæ.—Krüger reports a case of this rare condition which he met with in a 45-year-old man, whom he operated upon under the impression that he was suffering from a strangulated omental hernia. No hernia was present, and the appendix was found to be twisted and inflamed.

3. Pachymeningitis Interna Hæmorrhagica.—Jahr märker reports two cases, one in a man of sixty-three, the other in a woman of sixty, gives in detail the clinical and the findings on autopsy. From these he states that they should be classed in a new group of diseases under the name with which he has headed his report.

4. Pathogenesis of Hirschsprung's Disease.—Neter asserts that Hirschsprung's disease is dependent on a congenital prolongation of the lower part of the colon, especially of the sigmoid flexure which is, he says, proportionately longer in the infant than in the adult. He reports a case which may be said to present an intermediate picture between that of simple obstinate constipation and the typical one of this disease.

5. New Method for the Treatment of Buboes.—Feigl's new treatment consists in opening the buboes after they have broken down into pus and dressing them with lysol and formalin.

6. Lymphangioma of the Neck.—Dencks is of the opinion that the distinction which has been made between congenital and acquired lymphangioma of the neck cannot be maintained.

7. A Case of Typhoid Fever Caused by Autoinfection from the Gallbladder, which Ran a Course That Resembled the Picture of Weil's Disease.—Grimme reports a case the peculiarities of which are indicated by the title. It was met with in a woman fifty-two years of age, and the diagnosis was made on the fifth day by the Widal test and the discovery of typhoid bacilli in the blood and stools of the patient. The search for the latter was suggested by the results of the agglutination test.

8. Cæsarian Section on Account of Spontaneous Fixation of the Uterus.—Brink reports a case in which the uterus of a multipara was found to be attached firmly to the promontory, and Cæsarian section was rendered necessary.

9. Methylatropine Bromate in the Eclampsia of Children.—Bösl reports a case in which he successfully employed injection of methylatropine bromate to combat convulsions in a child two years of age.

WIENER KLINISCHE WOCHENSCHRIFT.

September 12, 1907.

1. The Heart During and After Scarlatina, By DIONYS POSPISCHELL.
2. One Thousand Lumbar Anæsthesias Produced with Tropococaine, By FRANZ GOLDSCHWEND.
3. Leucæmia and Röntgen Ray Treatment, By FRANZ MAHNERT and E. SCHNOPFHAGEN.
4. Pathological and Anatomical Researches on Primary Intestinal Tuberculosis, By S. CIECHANOWSKI.
5. The Diffusion of Bacteria Through the Walls of the Intestines, By KARL VON KLECKÉ.

3. Leucæmia and Roentgen Ray Treatment.—Mahnert and Schnopfhausen observe that the Röntgen ray is the best of all methods of treating leucæmia. It can well be compared with the use of digitalis in certain conditions of the heart, a permanent cure cannot be produced, but the normal intervals between the attacks can be increased. The disease is suspended for a shorter or longer period; the pathological condition of the blood disappears, rendering the blood normal during the interval; the fever disappears; the general condition of the patient is improved, he feels much better, and an increase of body weight can be registered; spleen and lymphatic glands decrease in size; and pains in the bones disappear. The Röntgen ray cannot be used as prophylaxis, but a daily treatment of the spleen, marrow, and lymphatic glands will produce a quicker removal of the symptoms. In repeated attacks the Röntgen ray will lose its healing influence; the tumor of the spleen, which had entirely disappeared, will return; the glands increase again permanently; the pains in the bones return; the patient loses in weight, his general condition grows worse. This shows that the

healing properties of the Röntgen rays are only temporary; the myelogenic cases seem to give a better prognosis under Röntgen treatment than the lymphagenic. The accidents produced by the rays are in leucæmia less frequent and severe than otherwise, and the dermatitis, when properly treated, never becomes severe. The authors mention Nicolas Senn as the first physician who introduced Röntgen therapeutics in the treatment of pseudoleucæmia and leucæmia.

5. Diffusion of Bacteria Through the Intestinal Walls.—Von Klecké reports the experiments conducted in the pathological laboratory of the university at Cracow under his supervision by K. Rogozinski, which prove that there is normally a permanent resorption of bacteria from the intestines by the mesenteric glands of animals, especially microbes belonging to the family of *Bacterium coli*. Wrzosek conducted experiments on forty-seven animals and birds (guinea pigs, dogs, rabbits, cats, and pigeons). The microbes were introduced into the intestinal canals, and were demonstrated in the mesenteric glands, the liver, spleen, kidneys, the bronchial glands, lungs, muscles, and marrow. The microbes were such that do not usually exist in the air, *Bacillus prodigiosus*, *Bacterium kilense*, *Bacillus viduaceus*, and *Bacillus pyocyaneus*. The author is of the opinion that the microbes are carried into the blood circulation by way of the chylous vessels through the thoracic duct.

ARCHIVES OF PÆDIATRICS.

September, 1907.

1. Some Points in Infantile Tuberculosis, By L. E. HOLT.
2. Chylothorax in Children, By D. H. SHERMAN.
3. Symptoms of Typhoid Fever in Infancy and Childhood, By O. M. EDWARDS, JR.
4. Review of Recent Efforts to Improve New York City's Milk Supply, By L. R. WILLIAMS.
5. Rheumatic Carditis in Children, By J. M. PATTON.
6. Imperforate Anus in Which the Rectum Communicated With the Bladder, By C. A. E. CODMAN and J. H. JOYSON.
7. A Case of Multiple Abscesses and Superficial Gangrene of the Tongue, By N. GUERINOTTE and P. C. CAMBERLIN.

1. Some Points in Infantile Tuberculosis.—Holt thinks this condition in infants has not been sought with sufficient thoroughness. It is a very common disease in infants as has been proved by systematic search for bacilli in children who have been exposed to infection, and by the tuberculin test. Of sixty-seven cases which came under the author's observation, the diagnosis was determined by the bacilli in the sputum in fifty-four, by post mortem findings in ten, by bacilli in the spinal fluid in one (tuberculous meningitis), by reaction to tuberculin in one, and by typical clinical symptoms in one. All but five of these patients were under two years of age. The method of obtaining the mucus for examination consisted in irritating the pharynx with a spoon or tongue depressor and catching the sputum coughed up immediately after irritation. This was done as the usual method of obtaining sputum in many types of the disease. The intestinal lesions were infrequent and insignificant, showing that the intestinal tract is not very vulnerable to tuberculosis in early life. The value of the spinal fluid for diagnostic purposes is shown in the fact that in such cases cases of tuberculous meningitis are usually found in connection with tuberculous bacilli in all of them. The bacilli were the more abundant in the fluid removed at a late period of the disease. The cells in the spinal fluid were usually mononuclear. It is recommended that the bacilli should be sought in sputum and tuberculin reaction given when a tuberculous exposure has been proved.

2. Chylothorax in Children.—Sherman states that true chylothorax is usually in the acute or subacute form. About thirty cases have been reported, thirteen

of them in children. The effusions may be milky or creamy, and are divided into chylous, or true chyle, chyliform, and latecent or nonchylous. The last of these is milky and probably due to emulsified albumen. The chyliform has, in addition to the albumin, fat from degenerated cells. The true chyle gets its color from a very fine emulsion of fat. In order to be chyle the milky effusion must satisfy the following conditions: 1. Its color must come from a minute emulsion of fat. 2. It must become clear when sodium hydrate is added if shaken with ether. 3. It must show unusual fats introduced into the body. 4. It must have a similar fat percentage in several successive aspirations. 5. It must contain few cells, the lymphocyte being the dominating one. 6. It must contain lecithin and cholesterol. The diagnosis in the author's cases rested upon the following: 1. Late appearance of the effusion after an accident. 2. Higher fat percentage than usually accepted for chyle. 3. Though sugar was absent, its absence was not deemed essential. 4. Complete aspiration was effective. In about one half the cases reported in children recovery took place.

3. Symptoms of Typhoid Fever in Infancy and Childhood.—Edwards states that the type of this disease in children and infants differs from that in adults. The symptoms depend (1) upon the vital activity of the typhoid virus and its effects upon the body, (2) upon the individual reaction of the patient. Under two years of age the disease is rare, and its diagnosis is difficult. Its duration is shorter in infants than in older children, and its symptoms are all less marked. Its duration in young children is shorter than in adults, and the temperature is usually lower. The pulse is accelerated, but low in comparison with the same temperatures in other diseases. Cardiac weakness, typhoid bronchitis, abdominal pain and distention, vomiting, diarrhoea, splenic enlargement, abdominal eruption, and headache are usually well marked. The disease must be distinguished from the following: Febrile gastroenteric diseases, tuberculous and epidemic cerebrospinal meningitis, acute general miliary tuberculosis, malaria, influenza, scarlet fever, and the exanthemata.

4. A Review of the Recent Efforts to Improve New York City's Milk Supply.—Williams reports the following recommendations from the commission appointed by the mayor to investigate the milk situation: 1. Provision should be made for one hundred additional competent country inspectors, with suitable rules for those who produce the milk supply. 2. Also for twenty-five additional inspectors in New York, five additional bacteriologists, and five additional chemists. 3. Dairies and milk shops should be graded by a system of score cards. 4. Cans and bottles should be so labeled that infected milk can be traced. 5. The sale of milk direct from the cans should be permitted only when cans are covered and iced. 6. The sale of skimmed milk should be permitted, but only in plainly labeled receptacles. 7. Milk depots for modified and pasteurized milk for feeding babies should be increased. 8. The health department should instruct the people as to the care and use of milk in the home by suitable circulars and otherwise. 9. The health department may require efficient sterilization or pasteurization of milk which is unsafe for consumption as raw milk, such milk to be promptly cooled to 40° F. and placed in sterilized retainers, with aseptic precautions, and sold with full disclosure of the nature and degree and time of pasteurization.

REVUE DE CHIRURGIE.

1. Chylothorax in Children, By Sherman and Landon.
2. A Review of the Recent Efforts to Improve New York City's Milk Supply, By Williams.
3. Symptoms of Typhoid Fever in Infancy and Childhood, By Edwards, Jr.
4. Some Points in Infantile Tuberculosis, By Holt.
5. Imperforate Anus in Which the Rectum Communicated With the Bladder, By Codman and Joyson.
6. A Case of Multiple Abscesses and Superficial Gangrene of the Tongue, By Guerinotte and Camberlin.

1. **The Semilunar Line of Spigel.**—Terrier and Lécène state that that which was described under the name of the semicircular or semilunar line by Spigel, the Dutch anatomist who taught at Padua at the end of the fifteenth century, is not the same as that which is described by certain modern authors. It is therefore an undoubted historical error to denominate as Spigel's line the more or less semicircular line which marks the origin of the flat tendon of the *transversus abdominis* muscle. Furthermore, Spigel's original description is anatomically inexact, for according to his description the three great abdominal muscles become tendinous, in front, at the same level. It is therefore desirable to abandon forever in anatomical and pathological nomenclature the term *semicircular line of Spigel*, which tends to perpetuate an error, both historically and anatomically.

2. **Wounds of the Gallbladder.**—Conteaud reminds his readers that such wounds call for emergency operations, like the rupture of the urinary bladder or a wound of the liver. The only contraindication to operation when such a wound is suspected is extreme shock or some other equally grave condition. The operation in almost all cases must be an exploratory one. Abdominal section will expose the entire injured region, enable one to remove blood clots, bile, fecal matter, etc. An independent incision is preferable to enlargement of the original wound, and the method which is customary with Kehr is the one which the author prefers. The incision should begin at the xiphoid cartilage extend vertically in the median line, to within two fingers' breadth of the umbilicus, it is then turned to the right dividing the inner half of the rectus muscle upon that side and then extended vertically downward four or five fingers' breadth. With this incision, a sand bag being under the small of the patient's back, the contents of the right side of the abdomen are freely exposed. An injury of the gallbladder having been found, the viscus is resected if the injury is very extensive, or closed with two layers of catgut sutures if not extensive, the latter being the operation of choice. The sand bag should be removed before the close of the operation to facilitate the coaptation of the edges of the abdominal wound.

3. **Congenital Subluxation of the Wrist.**—Estor suggests as a suitable explanation for this condition, which is also known as Madelung's disease, that it is caused by a congenitally relaxed condition of the lower radioulnar articulation, which is plainly evident from early infancy in some cases, while in others it only becomes apparent during adolescence as the result of accidental traumatism, or ordinary work. Redard refers to it as a deformity of the wrist resulting from disturbance in the growth and function of the cartilages at the lower extremity of the bones of the forearm. By other writers it has been considered of nervous, or rachitic, or of traumatic origin. In cases in which it causes serious disturbance of function it will demand surgical interference. The deformity as well as the functional disturbance will be overcome by suitable osteotomy of the ulna, in preference to such an operation upon the radius.

4. **Myoele, Especially Myoele from Simple Aponeurotic Rupture.**—Pichon states that the treatment of such ruptures may be palliative or radical. The former consists in reducing the displaced muscle, in cessation of functional use, and in the application of suitable bandages. The results of such treatment except upon the leg, have not been satisfactory, as they may cause pain, edema, and varices. The radical treatment consists of a free incision of the skin and cellular tissue, following the long axis of the tumor. The aponeurosis having been exposed, it must be resected, if it is

freshened. If the muscle is found to be ruptured, the distended portion of it may require resection to prevent recurrence. If the protrusion of the muscle is slight, simple suturing of the edges of the aponeurosis over it will suffice. If the protrusion is extensive resection may be necessary, the muscle being divided in two, longitudinally, thus producing the minimum of mutilation. The suturing should be with silk or catgut, each tissue being separately sutured, a pressure bandage applied, and rest imposed for eight days, when the dressings may be removed, and the use of the part be gradually resumed.

Proceedings of Societies.

AMERICAN PÆDIATRIC SOCIETY.

Nineteenth Annual Meeting, held in Washington, on May 7, 8, and 9, 1907.

The President, Dr. B. K. RACHFORD, of Cincinnati, in the Chair.

(Concluded from page 616.)

Myxœdema.—Dr. GEORGE N. ACKER, of Washington, presented a female child, eight years of age. She had an attack of diphtheria at the age of nine months. She attended school and was very bright. She had occasional attacks of bronchial catarrh. During the first year of her life she grew eight inches in height. She had been treated with thyroid extract, one grain being given every other day. When its use was stopped the absence of the treatment was made apparent.

The Symptoms of Status Lymphaticus in Infants and Young Children.—Dr. JOHN HOWLAND, of New York, said in this paper that the majority of these patients died suddenly and were first seen by the pathologist, as they often had no symptoms to warrant the calling in of a physician. The cases were marked by the unusual enlargement of the thymus gland. Those on which this paper was founded were those of children presenting at autopsy thymus glands weighing over 15 grammes. In 495 children examined, the average weight of the gland was 6 grammes. It usually diminished in size after the second year. The autopsy findings were constant. A few hemorrhages might appear in the gland. All the lymphoid tissue of the body was hypertrophied, the spleen was enlarged and Peyer's patches in the intestine and the solitary follicles showed changes.

The symptoms were many. There might be sudden death during an operation, either from shock or from the anæsthetic. Some died during the administration of antitoxine. The child became cyanosed, dyspnoea came on, and the child turned over and expired. Some of the cases thought to be due to overlying in bed were no doubt cases of lymphatic diathesis. Tracheal obstruction was worthy of notice in these cases.

There was also a class of cases in well nourished children who become ill very soon, showing marked respiratory symptoms, such as cyanosis, dyspnoea, cough, scattering râles, and great weakness. The pulse was fair at first and then altered in quality; the temperature ranged from 104° to 107° F., and when lowered by medication it rapidly returned to the high degree. These symptoms lasted for from thirty-six to forty-eight hours; the pulse became slower and slower and the child died. The important symptoms were dyspnoea and cyanosis, accompanied with high temperature without any apparent organic change. The prolonged cases with gradual onset were hard to diagnose. Although there were cyanosis, dyspnoea, and perhaps cessation of breathing, there were no pronounced lung symptoms.

The dyspnoea in these cases came and went, and it was hard to believe that any obstruction could appear

and disappear so suddenly. Operative measures had been undertaken to relieve it. Other causes of death in these cases than had been mentioned were merely hypothetical. The toxicity of the enlarged gland had been tested by crushing it and injecting the fluid into the peritoneal cavity of two kittens without bad result.

Dr. BLACKADER, of Montreal, had had a case of this kind in the child of a physician. The symptoms were dyspnoea, cyanosis, and elevated temperature. The child was very irritable and hard to control. Upon being called to see the child he found it with fever, dyspnoea, and an appreciably enlarged thymus gland. It died in twenty-four hours after his second visit. The case was no doubt one of thymus asthma. The autopsy showed an enlarged thymus gland, but no evidence of pressure on the trachea. The gland weighed from 18 to 20 grammes.

Dr. THOMAS MORGAN ROTCH, of Boston, said that this was a subject to be considered at great depth. The practitioner did not recognize these cases. He had had a number of cases of sudden death in which he could get no autopsy, and they might have been due to this cause, as no other could be assigned.

Dr. S. McC. HAMILL thought there was something in the toxicity of the enlarged thymus. He would like to know if any of these cases diagnosed clinically had ended in recovery. The cases in the newly born were usually severe and for the most part fatal.

Dr. HOWLAND said that there had been no cases of recovery except those due to obstruction.

A Study of the Early Conditions of Osteomyelitis in Young Children by the Roentgen Ray.—Dr. ROTCH said in this paper that the x ray had greatly improved our knowledge of osteomyelitis and other diseases of the bones in general. Osteomyelitis was a most important disease of the bones in early life. The rapid onset and destruction of the bone made it equal in importance to appendicitis. An early diagnosis should be made. For this purpose the x ray was of immense value. Osteomyelitis might be caused by the streptococcus, pneumococcus, or typhoid bacillus. It was admitted that it was quite hard to make a positive diagnosis early. It might be single or multiple and acute or subacute. The knee was most frequently affected, and the long bones at their extremities were the seat of the greatest destruction. The first changes took place in the periosteum, which underwent a marked thickening. There was also a condensation of the marrow of the bones. In the acute or subacute cases the bones showed the condition less plainly than in the chronic condition. It was too late for the diagnosis in the chronic condition, for the harm had already been done. Osteomyelitis was not uncommon, but was often overlooked. Some patients got well.

It was important to say that the x ray pictures should be read by an expert, for there were many points which the ordinary practitioner could not see from these plates.

Dr. S. S. ADAMS, of Washington, said that Dr. Rotch's paper showed that physicians were as competent to diagnose cases of this sort as the surgeon. The physician should use every means at his command for diagnostic purposes, especially when the condition was in doubt. Many diseases were diagnosed in the laboratory, which cut out the clinical diagnosis.

Dr. F. C. CONANT, of Chicago, had been glad to hear Dr. Adams's remarks. We as physicians were competent to diagnose these cases.

Dr. L. L. LAFORCE, of New York, stated that cases of osteomyelitis were not infrequent in young children.

Dr. MARCO said that he did not want to be understood as being opposed to the surgeon's diagnosis, and the work of the laboratory, but wished to emphasize

the correctness of the physician's diagnosis. He believed strongly in the value of the surgeon's diagnosis. We must all work together in medicine. One branch could not exist without the other, and no one branch was any better than another. He wished to call attention to the fact that osteomyelitis might easily obscure a fracture and mentioned a case in support of this view.

Some Conclusions from Our Knowledge of the Proteids of Milk.—Dr. THOMAS S. SOUTHWORTH, of New York, read a paper in which he said that all milks some time ago were considered the same. The smallness of the size of the curds resulting from the use of different milks was the determining factor as to its value. We did not know the exact amount of caseinogen or proteid in human milk and cow's milk, but we were aware that there is a difference. Cow's milk was without doubt the best substitute for human milk. The curdling of milk in the stomach was very much like the process of making cheese. The curd held the fat and soluble proteids *en masse*, and they did not dissolve. Alkalies sometimes delayed or prevented the curdling of milk. It was the paracaseinogen, which was tough and hard, that made cow's milk hard to digest.

The President's Address, on Pseudomasturbation in Infancy.—In considering this subject the president had included the cases under his observation and also a number which had been supplied to him by different members of the society at his request. He had gone back to the period of development of the genital organs in both the male and the female. As most of these cases by far occurred in females, he had paid special attention to the development of the genitalia in them. The labia majora and minora and clitoris were developed from the mesoderm. The bladder and external genitalia are developed early. At birth the clitoris was almost as large and sensitive as at a much later period. The internal organs, for instance the uterus and ovaries, were not developed so early. The close relation of the bladder, rectum, ovary, and clitoris in a psychical manner was further enhanced by the intimate relation of the nervous system. True masturbation did not begin before the age of ten years. Pseudomasturbation occurred on an average beginning at the fourth month. Of the cases represented in this paper, to the number of forty-eight, four were in males and forty-four in females. The cause of this great difference was the fact that the genital organs of the female, because of their apparent hidden position, were not given the attention they should receive. It was a frequent thing in the male to push back the prepuce and remove the collected material; not so with the female, who was often allowed to go for an indefinite period without any internal cleansing or without even cleaning the accessible outside parts. The clitoris was much more exposed to irritation in infancy than it was later on. Pin worms, fissures, and constipation were other factors in the etiology. Under the head of causative agents might be placed habit. The excitation might be local or accidental, so that a slight excitability might produce pseudomasturbation. It might well be classed among the 'habit neuroses.'

Environment was another predisposing factor. Children surrounded with impure air, suffering with malnutrition, and uncleanliness, were prone to become addicted to this habit. Heredity with its accompanying train of nervous symptoms, and also illness from exposure, malnutrition, and infection added to the number of cases already given.

The direct cause was an excitability of the genito-urinary organs. In 1876 Jacobi called the attention of the profession to the fact that any irritation of the genito-urinary organs might cause a degree of nervous habit in the young. His teaching has generally been followed. The cause of the habit is usually a local

large extent upon the reflex excitability of the individual. The average physician frequently overlooked this reflex excitability. It had been suggested that the changes found in the genitalia after this act was discovered might be the result of the act rather than the cause. One point of special importance in the aetiology was the highly acid condition of the urine. In addition to the causes given might be added colitis, irritation of the rectum, and eczema of the labia.

The prognosis was good. Of a series of fifty children, twenty-five were cured, seventeen were improved, and two showed no improvement. As a rule pseudomasturbation in children under two years of age would cease under proper treatment. There was no connection between pseudomasturbation and the true masturbation of later life. He did not think there was any relation between pseudomasturbation and epilepsy.

Close attention must be paid to the infant, the napkin being removed as soon as it was soiled, the wet clothes removed, and care taken to dry the parts and apply a dusting powder. It was advisable to keep the child in an upright posture rather than on its back. To accomplish this end the use of the go-cart was preferred to that of the carriage. In children over two years old mild punishment should be practised, and moral suasion employed in older children. In the more severe cases mechanical restraint could be resorted to. One method was to fasten the heels of the child to the mattress, keeping the feet separated, in order to prevent any irritation of the genital organs. Another plan was to use a soft leather napkinlike device, which enabled the child to be held more securely in one position. The double thigh splints advised by some were very severe. As the reflex factor was the most important, we should examine the clitoris and if necessary strip back the hood. The acidity of the urine should be treated medicinally. For this condition sodium benzoate and tincture of belladonna might be used. The bromides might be given in those cases which were aggravated at night. Treatment must be kept up for a long time, possibly for four or five years. Keep the individual out of doors, give codliver oil and arsenic, correct constipation and gastrointestinal disturbances, and institute a daily morning bath.

Dr. A. JACOBI, of New York, said that most boys masturbated at some time. The fact that the infants got over the masturbation showed that it was not a deep seated condition. The effect of the excitement had not the same result in all individuals. He did not think he could adopt the word pseudomasturbation. The act of masturbation in the young child showed the same symptoms and signs as in the older person, the redness, the perspiration, the great weakness, and exhaustion. He cited a case of masturbation in an infant of a physician. The mother was indignant at the diagnosis and was very pointed in her remarks. The father agreed with the doctor, and after proper methods and treatment had been instituted the patient was relieved of the convulsions and was healthy again. In another case a baby afflicted with cough due to paralysis of the uvula caused by diphtheria came under his observation. The child would have convulsive twitchings, have a tendency to perspire, and would stare with the eyes. This would keep up for a few minutes when in an exhausted and weakened condition it would cease.

Dr. L. EMMETT HOLT, of New York, had seen forty-six cases in private practice and been struck with the great frequency of the mental effects in most cases. They were the cause of the masturbation rather than the effect. We should not alarm the parents about these cases. It was important to recognize them early. He had not been very successful in curing the condition by stripping back the preputial adhesions of the clitoris, and had given it up.

dent that the females were more often affected, and that the trouble was due to local irritation. It had only been of late that he had believed that infants masturbated. The habit of buttock and thigh rubbing was associated with neurotic children. He cited a case of a young girl of eight years who had the habit of rubbing the parts after horseback riding. Her movements were accompanied by a tic movement in the face. Local irritation was the cause of this act. His advice was to loosen the preputial adhesions and prevent thigh rubbing.

Dr. CHARLES G. KERLEY, of New York, thought that the subject should be divided into two—that of infant masturbation and that of masturbation in older children. The treatment, prognosis, and results were very different in the two cases. He showed a diagram of a device in the form of a thin strip of steel, about twelve inches long and well padded, to either end of which was fastened a piece of covered lead so arranged that the legs might be kept apart.

Dr. J. PARK WEST, of Bellaire, O., reported a case of a child of a few months old who was afflicted with thigh rubbing and who was entirely cured by attention to the prepuce.

Book Notices.

Surgery of the Genitourinary Organs. By J. W. S. GOULEY, M. D. New York: Rebnan Company, 1907. Pp. x-531. (Price, \$3.)

This work does not purport to be a textbook on genitourinary diseases. It is a collection of informal, charmingly written essays on selected topics in this province of surgery. They show in all places the master hand of one whose experience gives an almost Hippocratic authority to his utterances.

In an introductory chapter the author acquaints us with the history, methods of manufacture, manner of employment, etc., of catheters, bougies, and sounds. The accidents of catheterism, chronic urethritis, strictures, retention of urine, enlarged prostate, and diseases of the bladder form the subjects of other essays, while the last three deal with lithotomy and lithotripsy.

The beginner in urology, as well as the advanced student, will find in these talks—for this is what they really are—much food for reflection. Standing a little aside from the swifter modern current of urological work, Gouley speaks in these pages as he would to his younger pupils, warning here, admonishing there, instructing in another place. His book will retain its peculiar didactic value long after the present generation of urologists have laid down their cystoscopes to give way to their successors.

Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Erkrankungen des Urogenitalapparates. Herausgegeben von Priv.-Doz. Dr. ALBU, Berlin; Professor Dr. R. DU BOIS-REYMOND, Berlin, etc. Religiert von Geh. Med.-Rat Professor Dr. M. NITZE, Berlin; Dr. S. JACOBY, Berlin. Nach Nitzes Tode unter Mitwirkung von Professor Dr. A. KOLLMANN in Leipzig. I. Jahrgang: Bericht über das Jahr 1905. Berlin: S. Karger, 1906. Pp. 342.

This is the latest addition to the very useful and very comprehensive annuals which cover the various fields of medicine and which appear in Germany under various titles. The present volume, as its very cumbersome title witnesses, is devoted to the progress of urology in 1905. During its preparation the world lost one of the foremost urologists of our times, Max Nitze, who was editor in chief of the annual. A portrait of the deceased and a biography therefore have been included in the volume, which was issued under the editorial supervision of Kollmann, of the dilator who will con-

tinue as editor in chief of succeeding issues. With him will be associated in the next volume Albarran, Fenwick, von Frisch, Kümmel, and Young (of Baltimore).

The arrangement and treatment of the subjects in this volume correspond to those usually found in other *Jahresberichte*. Under each subject heading is a list of articles, the numbers of which refer to numbers appended to authors' names in the text. The articles are then considered in smaller groups, a brief summary being given of each.

The work embraces all branches of urology, beginning with anatomy, physiology, biochemistry, etc., and passing on to the pathology and treatment of diseases of the kidneys, bladder, prostate, urethra, etc., and of the female urogenital organs. A complete subject index and a list of authors is appended.

The book may be recommended to those who wish to have in a condensed form the current literature of urology for 1905. The only criticism which it deserves turns on the too great predominance of German articles and the neglect especially of French current literature. This, however, will no doubt be remedied in the issue for 1906.

Johns Hopkins Hospital Reports. Volume XIII: Studies in Urological Surgery. Volume XIV: Studies on Hypertrophy and Cancer of the Prostate. Baltimore: The Johns Hopkins Press, 1906.

This is the second volume of these reports which contains contributions on genitourinary surgery, under the editorial charge of the associate professor of that branch at Johns Hopkins. The volume contains three articles, all signed by Hugh Young, on prostatic hypertrophy, on rectourethral fistulae, and on the early diagnosis and radical cure of cancer of the prostate, respectively.

The first 484 pages are devoted to a detailed description of Young's operation and to histories of 145 cases of operation by the author. The results shown in this report are certainly most satisfactory, the mortality being but 4.3 per cent., and the occurrence of complications only exceptional. The work is one of the most important contributions to the surgery of the prostate that have appeared in this country. The technique of the operation as described here is practically the same as that already detailed in Young's former publications. After the operation, however, he draws the levatores ani muscles together and sutures them to each other in front of the rectum with a single suture of heavy catgut. This suture prevents the unsupported rectum from giving way at stool, etc., thus avoiding the occurrence of a necrotic pressure spot when a gauze pack presses against the weakened spot. This is an important and useful addition to the author's technique.

The second article deals with new procedures for the prevention of rectourethral fistulae, and considers the above described method of dealing with the perineal muscles more in detail.

The third and last article deals with the method of radical cure for cancer of the prostate, which the author has described in 1904. It consists in removing the whole organ with the help of the ligatures and the removal of the vesicles. The reported cases, on the whole, bear out the author's contention that the operation is successful in cases where the tumor is not too extensive. The patients are left with complete incontinence. The time of observation in many of the cases is too short for a definite conclusion as to the long-term results.

The author's conclusions are given in Volume XIII, already referred to. In this volume, after Dr. Young's report on cancer of the prostate, and with reference to cancer of the bladder, the following conclusions are given: "The treatment of cancer of the bladder in this country."

BOOKS, PAMPHLETS, ETC., RECEIVED.

A Text-Book of Mental and Sick Nursing. Adapted for Medical Officers and Nurses in Private and Public Asylums. By Robert Jones, M. D., B. S. Lond., F. R. C. S. Eng., F. R. C. P. Lond., Resident Physician and Superintendent of the London County Council's Asylum, Claybury, etc. With an Introduction by Sir William Job Collins, M. D., M. S., B. Sc. Lond., F. R. C. S. Eng., M. P., D. L., J. P., Vice-Chancellor of the University of London, etc. London: The Scientific Press Limited, 1907. Pp. 222. (Price, 3s. 6d.)

The Use of Suprarenal Glands in the Physiological Testing of Drug Plants. By Albert C. Crawford, Pharmacologist, Drug Plant Investigations. Washington: Government Printing Office, 1907.

Diseases of the Genitourinary Organs and the Kidney. By Robert Holmes Greene, A. M., M. D., Assistant Professor of Genitourinary Surgery, Medical Department of Fordham University, etc., and Harlow Brooks, M. D., Assistant Professor of Pathological Anatomy, University, and Bellevue Hospital Medical School, etc. With 292 illustrations. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 530.

Plasma und Zelle. Erste Abteilung. Allgemeine Anatomie der lebendigen Masse. Bearbeitet von Prof. Dr. Martin Heidenhain in Tübingen., Erste Lieferung: Die Grundlagen der mikroskopischen Anatomie, die Kerne, die Centren und die Granulalehre. Mit 276 teilweise farbigen Abbildungen im Text. Jena: Gustav Fischer, 1907. Pp. 506.

Verhandlungen des Vereins süddeutscher Laryngologen, 1907. Herausgegeben im Auftrage des Vereins vom Schriftführer Dr. med. Felix Blumenfeld, Wiesbaden. Würzburg: A. Stuber, 1907. Pp. 478.

Index Catalogue of the Library of the Surgeon General's Office, United States Army. Authors and Subjects. Second Series. Vol. XII, O—Periodicals. Washington: Government Printing Office, 1907.

The Teachings of Thomas Henry Huxley. By Irving Wilson Voorhees, M. S. (Princeton), M. D. (Columbia). New York: Broadway Publishing Company, 1907. Pp. 85.

Populär Psychiatrie des Sokrates redivivus. Gespräche über den kleinen Verstand. Von Dr. H. Schäfer, Oberarzt a. D. der Irrenanstalt Friedrichsberg in Hamburg. Würzburg: A. Stuber, 1906. Pp. 151.

Miscellany

Ionium.—Professor B. B. Boltwood, of Yale University, reports in the last issue of the *American Journal of Science* his discovery of a new radioactive element, which he has named ionium. He says, in part: "Strong evidence has therefore been obtained of the existence in the uranium minerals of a new radioactive element, which emits both alpha and beta radiations, which produces no emanation, and which resembles thorium in its chemical properties. It is without doubt a disintegration product of uranium and is in all probability the immediate parent of radium. The name 'ionium' is proposed for this new substance, a name derived from the word 'ion.' This name is believed to be appropriate because of the ionizing action which it possesses in common with the other elements which emit alpha radiations. Further experiments are in progress, which it is hoped will determine the exact nature of its properties and chemical behavior of this new body."

Surgery at Casablanca.—The only center of up to date civilization on the coast and almost wanton barbarism in the interior of Morocco at the present moment cannot fail to strike the most casual observer, as he enters the city. The contrast between the child is establishing his hospital, which contains the

judge the efficacy of a remedy by its violence. For wounds, abscesses, rheumatism, and such like ailments a redhot iron is the popular remedy. The "thebib," or doctor, receives a fee of about a penny per operation; but a rich Moor, if the cauterization brings definite results, will cheerfully go as far as rod., and possibly present the skilful practitioner with a sheep or pair of shoes. Sores are annointed with fresh butter, a sweet smelling plant called "schih" being added as an antiseptic and to cover the odor of suppuration. Henna powder is also used for sores and abscesses. If a bone be only partially fractured, the surgeon first completes the breakage. He then wraps the limb in a kind of wool, prepared like cotton wool, and usually smeared with a white of egg and henna, the dressing being changed daily.

Accident in Removal of a Large Thyroid Tumor.—Wells, of Pyeongyang, Korea, describes the following case: A patient came to the hospital presenting a neck which was enormously enlarged, breathing being difficult. The tumor, which was diagnosed as an enlarged thyroid, was somewhat movable and a little larger than one's double fists, and it looked as if removal would not be difficult. The difficulty in breathing made the local anæsthetic not only preferable, but the only kind which could be advised, though it was expected that some pain would necessarily follow. The work proceeded properly, though it seemed at one time as if it would be impossible to get the tumor out without involving the trachea, it was so firmly imbedded and so very adherent. By carefully using fingers only it was removed from the trachea, and so out. Bleeding was free, of course, but mostly venous. The large cavity filled up rapidly with blood, and the author grasped several places with forceps. Suddenly the woman gasped, struggled, and stopped breathing. Artificial respiration did no good, and, with staring eyes, blue lips, and every appearance of death, she quivered and then was quiet. The three doctors (two happened in as visitors) pronounced the woman dead. The husband, standing near, was told she was dead, and went out crying. Dr. Wells then concluded to remove the artery forceps, bleeding having completely stopped, and fix the body up for removal. There were perhaps a dozen artery forceps altogether. On removal of the forceps to their surprise and delight they noted that the woman was coming to and quietly resumed breathing. The respiration rapidly became normal, the patient went on to complete recovery, and the work was a success. The author is of the opinion that he grasped the pneumogastric nerve.—*Medical Record*, September 14, 1907.

New York City Sanatorium for Consumptives.—The first municipal sanatorium for consumptives in this country, which New York city opened at Otisville in June, 1906, with accommodations at that time for six patients, has now been developed into an institution where ninety patients are being cared for this summer. From the character of the structures in use, the visitor may already gain a very fair view of what this splendid city undertaking will be when completed. Instead of a large single building or several connected buildings such as it is proposed to erect on Staten Island, the plan at Otisville is to have a number of detached small cottages, chacks, and portable houses accommodating each from four to fourteen persons. As the city has purchased 1,200 acres for the sanatorium, these structures can be placed so that each will have about it plenty of land, although none of them will be so far separated from the others that they will not be within convenient distance of the central administration building. This building is now in course of construction, and when completed will take the place of the present old farm house which is being used as a reception cottage. The new

house will be two stories high and will contain, in addition to the administrative offices, an infirmary, an operating room, and a laboratory. Another building that will be a model of its kind will be the cow barn and creamery, where every known device to insure cleanliness of cows and milk is to be put into use. The present herd of fifty tuberculin tested cows, which supplies the institution with all the milk now consumed, will be cared for in this building, as well as a large number of additional cattle, as the need for the purchase of these develops. Extensive water works are also being pushed forward to convey spring water obtained on the hills back of the sanatorium buildings to a central pumping station. Three single story shacks of attractive appearance are also well under way and will accommodate when completed fifty-two more patients than are cared for in the buildings now in use, which consist of two cottages, four portable houses, three tent houses, and one farm house.—From a circular of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending September 27, 1907:

Smallpox—United States.			
Places.	Date.	Cases.	Deaths.
California—San Francisco	Sept. 1-7.	4	
Delaware—Delaware Breakwater Quarantine	Sept. 24.	1	1
	From S. S. Vienna, from Tagal, Java.		
Iowa—Ottumwa	Sept. 14.	1	
Kentucky—Louisville	Sept. 6-12	1	
Kentucky—Owington	Sept. 8-14.	1	
Louisiana—New Orleans	Sept. 8-14.	1	
Michigan—Detroit	Sept. 1-14.	1	
Michigan—Saginaw	Sept. 1-14.	4	
Minnesota—Stillwater	Aug. 1-31.	3	
Ohio—Cincinnati	Sept. 6-13.	1	
Utah—Salt Lake City	Aug. 1-31.	3	
Washington—Spokane	Aug. 1-31.	2	
Wisconsin—Milwaukee	Sept. 8-14.	2	
Smallpox—Foreign.			
Africa—British South Africa.			
Kimberly	Aug. 1-31.	1	
Austria—Vienna	Aug. 24-31.	23	6
China—Chefoo	Aug. 3-10.	1	
China—Shanghai	July 28-Aug. 10.	3	70
	Cases among foreigners; deaths among natives.		
France—Paris	Aug. 26-31.	4	1
Greece—Piræus	Aug. 26-31.	1	
India—Calcutta	Aug. 4-10.	1	
Mexico—Agua Calientes	Sept. 1-7.	3	4
Mexico—Mexico City	Aug. 11-17.	4	7
Portugal—Lisbon	Aug. 24-31.	5	
Russia—Moscow	Aug. 18-24.	2	
Russia—Warsaw	Aug. 4-10.	1	
Spain—Valencia	Aug. 25-Sept. 1.	22	1
Turkey in Europe—Constantinople	Aug. 25-Sept. 1.	1	
Turkey in Asia—Bagdad	Aug. 3-10.	1	Present.
Cholera—Foreign.			
China—Amoy	July 21-27.	1	1
China—Amoy (Kulangsu, native city)	July 21-27.	3	Present.
China—Shanghai	Aug. 10.	3	90
	Cases foreign; deaths native.		
India—Bombay	Aug. 6-20.	60	60
India—Calcutta	Aug. 1-10.	15	15
India—Madras	Aug. 10-16.	2	1
India—Rangoon	Aug. 1-10.	1	
Russia—Astrachan District	July 11-25.	123	
Russia—Astrachan District	Aug. 22-25.	19	
Russia—Baku District	Aug. 22-25.	1	
Russia—Zasav District	Aug. 22-25.	12	
Russia—Yaman Standiza	Aug. 19.	1	Present.
Russia—Baku	Aug. 25.	2	2
Russia—Leningrad	Aug. 26.	2	
Russia—Muklen	Aug. 25.	6	
Russia—Nakhichevan	Aug. 25.	12	8
Russia—Nizhni-Novogorod	Aug. 26.	2	
Russia—Saratov, Government District	July 16-Aug. 4.	50	10
Russia—Simbirsk	July 16-Aug. 25.	20	92
Russia—Stavropol	July 28-Aug. 6.	3	

<i>Yellow Fever—Foreign.</i>			
Cuba—Cienfuegos	Sept. 18-24	4	1
	Total from Aug. 3-Sept. 24	54	15
Cuba—Habana	Sept. 24	1	
Cuba—Santa Clara	Sept. 18	1	
Cuba—Jovellanos	Sept. 24	1	1
<i>Plague—United States.</i>			
California—San Francisco	Sept. 18-25	13	8
	Total from Aug. 12-Sept. 25	42	25
<i>Plague—Foreign.</i>			
China—Amoy	July 21-Aug. 3	3	3
China—Nankin	city, estimated 20 deaths daily		
China—Fouchou	Aug. 3		Present.
China—Fochoo, Hinghua sub-	Aug. 3		
urb	Aug. 3		Epidemic.
India—General	July 27-Aug. 3	2,548	1,957
India—Bombay	Aug. 7-20	1	30
India—Calcutta	Aug. 15-22	4	
India—Rangoon	Aug. 3-10		29
Mauritius	July 21-Aug. 10		27

* Cases mainly from vessels.

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the seven days ending September 25, 1907:

ANDERSON, J. F., Passed Assistant Surgeon. Detailed to represent the Service at the thirty-fifth annual meeting of the American Public Health Association, Atlantic City, N. J., September 30 to October 4, 1907.

BILLINGS, W. C., Passed Assistant Surgeon. Granted leave of absence for one month, from October 1, 1907.

CLARK, T., Passed Assistant Surgeon. Directed to proceed to Toledo, Ohio, for special temporary duty, upon completion of which to rejoin his station at Philadelphia, Pa.

FOX, CARROLL, Passed Assistant Surgeon. Directed to proceed to San Francisco, Cal., reporting to Passed Assistant Surgeon Blue for special temporary duty.

GRUBBS, S. B., Passed Assistant Surgeon. Granted leave of absence for two days, from September 26, 1907.

GUITERAS, G. M., Surgeon. Granted leave of absence for fifteen days, from October 16, 1907.

HALLETT, E. B., Acting Assistant Surgeon. Granted leave of absence for one day, September 20, 1907.

HUME, LEA, Acting Assistant Surgeon. Granted leave of absence for twenty-one days, from September 12, 1907.

HURLEY, J. R., Assistant Surgeon. Directed to proceed to San Francisco, Cal., reporting to Passed Assistant Surgeon Blue for special temporary duty.

KEATLEY, H. W., Acting Assistant Surgeon. Granted leave of absence for two days, from September 17, 1907, under paragraph 210 of the Service Regulations.

KIMMET, W. H., Acting Assistant Surgeon. Granted leave of absence for thirty days, from September 16, 1907.

KORN, W. A., Passed Assistant Surgeon. Leave of absence granted for two months, from September 21, 1907, amended to be effective October 5, 1907.

McLAUGHLIN, A. J., Passed Assistant Surgeon. Leave of absence granted for two months, from July 1, 1907, amended to be effective from July 6, 1907.

MILLER, CHARLES, Pharmacist. Granted leave of absence for fifteen days, from October 10, 1907.

OAKLEY, J. H., Passed Assistant Surgeon. Granted three days' leave of absence; directed to proceed to Seattle, Wash., for special temporary duty, upon completion of which to rejoin his station.

PORTER, J. Y., Sanitary Inspector. Granted leave of absence for fifteen days, from September 20, 1907.

PORTER, D. F., Passed Assistant Surgeon. Granted leave of absence for fifteen days, from October 1, 1907.

RODMAN, J. C., Acting Assistant Surgeon. Granted leave of absence for four days.

ROYSTER, W. L., Acting Assistant Surgeon. Granted leave of absence for four days, from September 20, 1907, under paragraph 210 of the Service Regulations; granted leave of absence for seven days, from September 20, 1907.

RYDER, L. W., Pharmacist. Granted leave of absence for four days, from September 17, 1907, under paragraph 210 of the Service Regulations.

SAFFORD, M. V., Acting Assistant Surgeon. Granted leave of absence for three days, from September 13, 1907.

SCHERESCHEWSKY, J. W., Passed Assistant Surgeon. Detailed to represent the Service at the thirty-fifth annual meeting of the American Public Health Association, Atlantic City, N. J., September 30 to October 4, 1907.

WARD, W. K., Passed Assistant Surgeon. Granted leave of absence for seven days, from September 16, 1907, under paragraph 191, Service Regulations; granted an extension of leave of absence for seven days, from September 23, 1907.

Promotions.

Assistant Surgeon R. H. CREEL, commissioned as a passed assistant surgeon on September 17, 1907, to rank as such from August 5, 1907.

Assistant Surgeon R. E. EBERSOLE, commissioned as a passed assistant surgeon on September 17, 1907, to rank as such from August 7, 1907.

Boards Convened.

A board of medical officers was convened to meet at Seattle, Wash., for the examination of four aliens. Detail for the board: Passed Assistant Surgeon J. H. Oakley, Chairman; Passed Assistant Surgeon M. J. White; Acting Assistant Surgeon F. R. Underwood, Recorder.

A board of medical officers was convened to meet at New York, N. Y., for the physical examination of candidates for appointment as cadet engineer in the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon H. W. Wickes, Chairman, and Assistant Surgeon R. B. Scofield, Recorder.

A board of medical officers was convened to meet at Newport News, Va., for the physical examination of candidates for appointment as cadet engineer in the Revenue Cutter Service. Detail for the board: Assistant Surgeon G. L. Collins, Chairman, and Acting Assistant Surgeon A. C. Jones, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending September 28, 1907:

ARTHUR, W. H., Major and Surgeon. Appointed a member of a board of medical officers, to meet at the General Hospital, Washington Barracks, D. C., for the physical examination of such field officers of the Army as may be ordered before it.

EASTMAN, W. R., Captain and Assistant Surgeon. Leave of absence extended thirty days.

FIELD, P. C., Captain and Assistant Surgeon. Granted thirty days' leave of absence.

FLAGG, C. E. B., Captain and Assistant Surgeon. Relieved from duty at Vancouver Barracks, Wash., and, upon the expiration of present leave of absence, ordered to proceed to Fort Huachuca, Ariz., for duty.

FREEMAN, P. L., First Lieutenant and Assistant Surgeon. Ordered to Fort Riley, Kas., for duty.

LEWALD, L. T., First Lieutenant and Assistant Surgeon. Granted fourteen days' leave of absence.

MASON, C. F., Major and Surgeon. Ordered to proceed to Fort Washington, Md., and thence to Fort Hunt, Va., on inspection duty.

PIERSON, R. H., First Lieutenant and Assistant Surgeon. In addition to present duties at Fort Mason, Cal., ordered to report in person to the commanding general, Department of California, for duty as attending surgeon at San Francisco, Cal.; ordered to report in person at the Army General Hospital, Presidio of San Francisco, Cal., for examination for advancement, on October 9, 1907.

PORTER, RALPH S., Captain and Assistant Surgeon. Ordered to report in person to the commanding general, Department of California, for duty as attending surgeon at San Francisco, Cal., for examination for advancement, on October 9, 1907.

RYDER, L. W., Pharmacist. Granted leave of absence for four days, from September 17, 1907, under paragraph 210 of the Service Regulations; granted leave of absence for seven days, from September 20, 1907.

RYDER, L. W., Pharmacist. Granted leave of absence for four days, from September 17, 1907, under paragraph 210 of the Service Regulations.

- Grounds, N. J., on October 8, 1907, for the examination of such captains of the Ordnance Department as may be ordered before it for promotion.
- SMITH, L. L., First Lieutenant and Assistant Surgeon. Granted seven days' leave of absence, when relieved from temporary duty at Fort Monroe, Va.
- WHITMORE, E. R., Captain and Assistant Surgeon. Assignment to duty in the Philippine Islands revoked. On arrival at San Francisco, Cal., with the 18th Infantry, ordered to report at the Army General Hospital, Presidio of San Francisco, Cal., for observation and treatment.
- WILSON, W. H., Major and Surgeon. Appointed a member of a board to meet at Sandy Hook Proving Grounds, N. J., on October 8, 1907, for the examination of such captains of the Ordnance Department as may be ordered before it for promotion.
- WINTER, F. A., Major and Surgeon. Appointed a member of a board of medical officers to meet at the General Hospital, Washington Barracks, D. C., for the physical examination of such field officers of the Army as may be ordered before it.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending September 28, 1907.

- ANGWIN, W. A., Assistant Surgeon. Detached from the *Scorpion* and ordered to the Naval Hospital, Norfolk, Va.
- BUNKER, C. W. O., Assistant Surgeon. Appointed an assistant surgeon, from September 21, 1907.
- COLE, H. W., Assistant Surgeon. Detached from the *Alabama* and ordered to the Naval Training Station, Newport, R. I.
- DEAN, F. W. S., Passed Assistant Surgeon. Detached from the Navy Yard, New York, N. Y., and ordered to the *Alabama*.
- DORSEY, B. H., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from March 2, 1907.
- FIELD, I. G., Surgeon. Detached from duty with the Marine Band, Houston, Texas, ordered home, and granted leave for six weeks.
- GRAYSON, C. T., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from June 28, 1907.
- HALE, G. D., Assistant Surgeon. Appointed an assistant surgeon, from September 21, 1907.
- HAWARD, A. B., Assistant Surgeon. Appointed an assistant surgeon, from September 21, 1907.
- HOLEMAN, C. J., Assistant Surgeon. Appointed an assistant surgeon, from September 21, 1907.
- LAWRENCE, H. F., Assistant Surgeon. Appointed an assistant surgeon, from September 21, 1907.
- MCLEAN, N. T., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from June 28, 1907.
- MAY, H. A., Assistant Surgeon. Ordered to the Naval Hospital, Norfolk, Va.
- OHNSORG, K., Surgeon. Commissioned a surgeon, from June 16, 1907.
- TAYLOR, E. C., Passed Assistant Surgeon. Ordered to the Naval Hospital, New York, N. Y.
- TAYLOR, J. S., Surgeon. Commissioned a surgeon, from October 7, 1906.
- The following assistant surgeons and acting assistant surgeons have been detached from their present duties and ordered to report in Washington, D. C., to attend a course of instruction at the Naval Medical School: Assistant Surgeons H. A. Garrison, R. Hayden, S. L. Higgins, O. V. Huffman, and F. W. Smith; Acting Assistant Surgeons F. P. W. Hough, L. W. McGuire, and K. C. Melhorn.

Births, Marriages, and Deaths.

Married.

Thursday, September 26th, Dr. Jesse Harper Brown and

DICKESON.—BAKER.—In Philadelphia, on Friday, September 20th, Dr. Morton Phelps Dickeson and Miss Alice Smith Baker.

HODGSON.—DUNDAS.—In Philadelphia, on Thursday, September 26th, Dr. Francis Henry Hodgson, of Schenectady, N. Y., and Miss Mary Young Hessellus Dundas.

MILLER.—WATKINS.—In Takoma Park, D. C., on Wednesday, September 18th, Dr. Archibald Lewis Miller and Miss Elsie Myalma Watkins.

MOREHOUSE.—STAMEY.—In Champaign, Illinois, on Wednesday, September 18th, Dr. James A. Morehouse and Miss Daisy Stamey.

MOXEY.—SPERLING.—In Philadelphia, on Wednesday, September 25th, Dr. Albert Frankish Moxey and Miss Clara Adeline Sperling.

SCHROEDER.—PECK.—In New York, on Wednesday, September 11th, Dr. Frederick Schroeder and Miss Sadie Jane Peck.

SMYTH.—BULKLEY.—In Norfolk, Connecticut, on Saturday, September 28th, Mr. Nathan Smyth and Miss Kathleen Bulkley, daughter of Dr. L. Duncan Bulkley.

TATE.—MCLUNE.—In Longmont, Colorado, on Wednesday, September 18th, Dr. Arthur Tate, of Denver, and Miss Jennie McClune.

WARNER.—RANDELL.—In Washington, D. C., on Thursday, September 26th, Dr. Richard A. Warner, United States Navy, and Miss Mary A. Randell.

Died.

APPLEBY.—In Washington, D. C., on Friday, September 27th, Dr. James F. R. Appleby, aged sixty-seven years.

ATWATER.—In Hartford, Connecticut, on Sunday, September 22nd, Dr. W. O. Atwater, aged sixty-three years.

AYRES.—In Brooklyn, N. Y., on Saturday, September 28th, Dr. Rebecca Jane Ayres, aged fifty-five years.

BECK.—In Green Bay, Wisconsin, on Saturday, September 21st, Dr. H. M. Beck, aged fifty-two years.

BROKAW.—In St. Louis, Missouri, on Friday, September 20th, Dr. Frederick Van Lieu Brokaw, aged seventy-three years.

CANDIDUS.—In Brooklyn, N. Y., on Wednesday, September 25th, Dr. Pantaleon Candidus, aged seventy-six years.

CARNEY.—In Hot Springs, Arkansas, on Sunday, September 22nd, Dr. William J. Carney, aged fifty-four years.

DANIEL.—In Waltham, Massachusetts, on Tuesday, September 24th, Dr. Vivian Daniel, of Watertown, aged forty-two years.

EDWARDS.—In Laneville, Virginia, on Sunday, September 22nd, Dr. Lemeul Edwards, aged eighty-eight years.

EVANS.—In Wallack's Point, Connecticut, on Wednesday, September 25th, Ellen James Hoe, wife of Dr. S. M. Evans.

FLOWERS.—In New Orleans, Louisiana, on Saturday, September 14th, Dr. E. W. Flowers, aged forty years.

FONES.—In Bridgeport, Connecticut, on Friday, September 20th, Dr. Civilion Fones, aged seventy-one years.

HEGERTY.—In Dundee, Illinois, on Monday, September 16th, Dr. Henry R. Hegerty.

KLECKNER.—In Millinsburg, Pennsylvania, on Friday, September 20th, Dr. James Kleckner.

MAYNARD.—In Philadelphia, on Friday, September 20th, Dr. William Maynard, aged seventy-two years.

SCHORSE.—In Milwaukee, Wisconsin, on Thursday, September 19th, Dr. Richard Schorse, aged twenty-nine years.

SINGER.—In Chester, Illinois, on Wednesday, September 18th, Dr. W. E. Singer, aged eighty years.

SPRUELL.—In Leadon, England, on Thursday, September 19th, Dr. John Spruell.

STANLEY.—In St. Paul, Minnesota, on Sunday, September 23rd, Dr. Gertrude Stanley, aged forty-two years.

WELLS.—In Warrick, Long Island, on Thursday, September 26th, Dr. Eben Wellwood, aged forty-nine years.

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Original Communications.

THE DIFFERENT FORMS OF HYPERCHLORHYDRIA.

*Their Clinical Differentiation and Dietetic Medicinal Treatment.**

BY PAUL COHNHEIM, M. D.,
Berlin, Germany.

Hyperchlorhydria is not an independent disease. It is a symptom of various diseases of the stomach, just as albuminuria, vomiting, or headache are symptoms of a great variety of affections.

We speak of hyperchlorhydria when the total acidity of the Ewald-Boas test breakfast exceeds 70. Many authors, for instance Schutz (*Wiener medizinische Wochenschrift*, Nos. 46 to 49, 1906), who use a test breakfast consisting of 300 c.c. of water (instead of 400 c.c.), and 40 grammes of white bread, assume hyperchlorhydria in cases only in which the total acidity is 75 or more.

In all cases of hyperchlorhydria the total acidity, three hours after the Riegel test dinner, amounts to perhaps one third more than one hour after the Ewald-Boas test breakfast. The test breakfast, however, generally suffices for the diagnosis of the hyperchlorhydria.

A distinction has always been made between hyperchlorhydria, i. e., the secretion of an excessively acid gastric juice, and hypersecretion, i. e., the secretion of an excessive amount of a normally acid gastric juice. According to recent experimental investigation by Bickel (*Münchener medizinische Wochenschrift*, 1906, No. 32, p. 1082), the above mentioned distinction does not seem to be correct. It is most probable that the original gastric juice has always one and the same concentration. It varies only in amount.

Concerning the clinical manifestations of hyperchlorhydria it is first of all to be remarked that it may, throughout the entire course, give rise to no subjective symptoms. In diseases of the intestine in which a test breakfast has been given, one occasionally finds a very high degree of acidity without the slightest trace of gastric discomfort. I found a total acidity of 110 in a man who suffered from sigmoiditis and proctitis with erosions of the mucosa. Almost all obese persons and heavy smokers have hyperchlorhydria. It does not necessarily follow, however, that they suffer from subjective disturbances.

On the other hand, the so-called hyperacidity comprises cases when the gastric juice has a not

normal or subnormal acidity. It follows, therefore, that hyperchlorhydria *per se* is not the cause of the symptoms, but that it is a symptom of the primary disease.

At the present time we classify five varieties of hyperchlorhydria. I shall attempt, as briefly as possible, to consider their distinctive diagnostic points. This is very easy in many cases, in others, almost impossible.

1. *Hyperchlorhydria Occurring in Acid Gastritis.* This is the most frequent form and occurs chiefly in men. The causes are usually evident: Excesses in eating, smoking and chewing, beer and wine drinking, using pungent and irritating foods, together with irregular and hasty eating. Anatomically, one finds in such cases, hypertrophy of the parietal cells. In women, acid gastritis is less common for evident reasons. I observed a case, however, in an actress who likewise had indulged in beer and cigarettes to excess.

The disease often remains latent for many years and then suddenly actively manifests itself after the patient has gone to heavy excesses in eating and drinking.

The most important subjective symptoms are, burning in the epigastrium, œsophagus, and throat, which is often referred posteriorly to the region between the scapula and, anteriorly, to the sternum. Warm drinks (milk, tea, etc.), and alkalies, alleviate the burning sensation, while white wine, champagne, smoking, cold beer, and pastry increase it. Pain generally occurs two or three hours after eating, when the secretion is at its maximum, and again in the night between 12 and 3 o'clock, when the stomach is about empty.

Objective symptoms are, hyperchlorhydria and vomiting of acid gastric juice a few hours after eating, especially after the principal meal of the day. The total acidity of the testbreakfast frequently amounts to 110. I have never seen it over 120, but in testdinners, often as high as 150 to 160. As a rule one finds mucus mixed with the stomach contents; in the fasting condition the stomach contains only pure gastric secretion.

The therapy is divided into the ætiological and the symptomatic.

(a.) *Ætiological. Forbidden:* Beer, tobacco, white wine, spices, raw meats, pastry, and greasy foods.

Recommended: White bread, golden loaf, light bread, stews, vegetables (except radishes), white meat, soups, fruits, lemonade, soda water, and red wine. Of the mineral waters the most suitable are Karlsbad Mühlbrunnen, Neuenahrer Sprudel, Vichy, and Marienbad. A Muesli (1906) is given before

* Incorporated from the original manuscript by Dorothy Hughes, M. D., in the *Journal of the American Medical Association*, Chicago, 1907.

meals; in severe cases, two or three beakers of the warm water in the morning if constipation exists. If diarrhoea is present, the mineral water is to be given hot. Poor patients may use the artificial salts dissolved in either warm or hot water.

(b.) Symptomatic. Alkalies with or without the addition of belladonna according to whether moderate or intense pain exists. I give as an antacid to patients with normal bowels, sodium bicarbonate or sodium citrate. If constipation exists I give, instead, magnesium carbonate or ammonium phosphate; in cases of diarrhoea, calcium carbonate or, calcium phosphate. Of each of these mentioned alkalies I give one teaspoonful, three times daily, about an hour after eating. If the patient suffers severe burning or pain, $\frac{1}{8}$ to $\frac{1}{6}$ grain of the extract of belladonna is to be added to each dose of the antacid given. The saliva produced by chewing hard bread crusts and the use of chewing tablets also serve to alleviate pain and burning.

For the after treatment I generally employ one cup of the milk of almonds (emulso amygdalarum dulcium), one half hour before meals. The finely emulsified almond oil covers the inflamed mucosa and also diminishes the secretion of hydrochloric acid.

II. *Hyperchlorhydria Occurring in Ulcer and Stenosis of the Pylorus.*—This form occurs in both sexes with equal frequency, since ulcer and the resulting benign stenosis of the pylorus is very frequent in the chlorotic and climacteric periods of the female sex.

In men, ulcer and stenosis of the pylorus are frequent complications of the above described acid gastritis. Ulcer also occurs primarily in syphilis, and from traumata of the epigastrium, etc. Besides cicatrices, stenosis of the pylorus can be caused by spastic contraction of the pylorus and by perigastric adhesions (for instance, after cholelithiasis). In relative, i. e., moderate stenosis of the pylorus or duodenum, gastrosuccorrhœa occurs, and in stenosis of high degree, stagnation of the ingesta, with isochychmia (Einhorn). In simple ulcer of the pylorus without stenosis there is usually spasm of the pylorus.

The diagnosis is easy, even in the absence of hæmatemesis or melæna. In ulcer there is always epigastralgia, sometimes (one to three hours) after eating. Characteristic of epigastralgia are severe crampy, burning, boring, cutting pains in the epigastrium which radiate around either side to the back, especially after eating hard foods. The appetite is good. The patient often, however, fears to eat. In relative pyloric stenosis there is pain, and the fasting stomach contains from 25 to 100 c.c. of gastric juice, early in the morning before breakfast. In absolute stenosis there are gnawing pains and vomiting of food which was eaten the previous day. Stagnation of the ingesta is found in the morning before eating. In all cases there is naturally a hyperchlorhydria of high degree and sensitiveness to pressure in the pyloric region.

The therapy concerns the primary affection, i. e., either ulcer or stenosis. The hyperchlorhydria disappears with the removal of the cause.

In recent ulcer (up to six months) the best results are obtained from silver nitrate. A tablespoonful of a $\frac{1}{4}$ per cent. solution (0.5 to 200) in a wine glass of distilled water is given three times a day

fifteen minutes before eating, and continued several weeks. In old ulcer, a teaspoonful of bismuth subnitrate in 200 c.c. of water is given in the morning before breakfast; in ulcer of the pylorus with spasm, three times daily, 25 grammes of olive oil before meals, and finally, in ulcer following acid gastritis, Karlsbad water or salts. In gastrosuccorrhœa and isochychmia lavage of the stomach is to be performed every morning, until the hypersecretion and pain disappear.

Diet. Only nonirritating, bland foods are allowed, exactly as in acid gastritis. In the beginning of the treatment the diet should be limited to soups and milk.

III *Hyperchlorhydria Caused by Chronic Constipation.*—In many cases of chronic constipation one finds a hyperchlorhydria, especially in constipation due to a spastic condition of the colon.

There is no gastric pain, but only fullness and pressure when the intestine is distended. The pains which occur are entirely independent of eating. They have their origin in the colon, and are associated with mucous colic and flatulence.

In this form of hyperchlorhydria the intestine, and not the stomach, is to be treated. The patient is given a laxative diet: Milk sugar, kumyss, sour milk, butter milk, cream, coarse breads, sweet fruits, and fruit sauces, small amounts of meat, and above all, vegetables (flatulent vegetables, such as cabbage, are forbidden). Physical treatment, such as gymnastics, massage, bath, and electricity, is a necessary adjunct.

If such a treatment succeeds in regulating the bowels the symptoms of hyperchlorhydria disappear.

IV. *Hyperchlorhydria Occurring in Neurasthenia and Hysteria.*—This form of hyperchlorhydria is a secretory neurosis dependent upon a disturbance of the nervous system. Actual pain never occurs, only fullness and pressure after meals. The motility is normal, the stomach never containing foods or secretion in the morning before breakfast.

The diagnosis is easy and is always to be made when a patient has hyperchlorhydria unassociated with pain or constipation.

The treatment is to be directed toward the primary disease. One prescribes, therefore, the fattening and rest cure of Weir Mitchell. Following this treatment the complaints of the patient cease.

V. *Hyperchlorhydria Occurring in Gastric Crises.*—This occurs paroxysmally in tabes dorsalis. The patients have severe pain with vomiting of excessively acid gastric juice. The attacks last a few days. Between the paroxysms the patients are quite free from gastric complaints.

The diagnosis is easy. In all patients who suffer from periodical vomiting, the physician must always think of the gastric crises of tabes.

The therapy is to be directed toward the primary disease. If syphilitic infection has occurred not longer than six to eight years previously, one prescribes mercury, otherwise, the iodides.

Summary.—In the organic form pains exist (gastritis, ulcer, stenosis); in the functional only pressure and fullness (neurasthenia, constipation).

The proper treatment of the various forms varies as widely as the aetiological factors. It is, therefore,

absurd for certain authors to recommend, for instance, a meat diet, and others a vegetarian diet. One must direct the entire treatment as well as the diet to the primary disease, for instance, in hyperchlorhydria following ulcer, semiliquid foods are indicated; on the other hand, hyperchlorhydria following habitual constipation should be treated by a coarse diet, etc.

Only by strict individualization can one produce a cure and obtain permanent results.

39 ORANIEBURGERSTRASSE.

THE MOSETIG BATISTE.

A Useful Addition to the Armamentarium of the Hospital.

BY CHARLES-P. NOBLE, M. D.,
Philadelphia.

The ordinary rubber tissue, the so called rubber dam of the dentist, is so friable that its field of usefulness is very limited; and the heavier rubber cloth commonly used for draw sheets on beds is so thick and ill smelling that its usefulness is likewise restricted. It is also very difficult to sterilize the heavier oil cloths satisfactorily, the usual method of soaking them in solutions being far from ideal. In Europe, batiste has been used for a long time, not only to take the place of rubber dam and heavy rubber cloth, but also for many purposes for which these rubber tissues are not adapted.

Under the influence of Billroth, the so called Billroth batiste was extensively employed as a protective covering for the purpose of keeping patients dry during operations; and the improved Mosestig batiste is used for this purpose very largely in Europe to-day. The chief advantage of the Mosestig batiste is that it will withstand sterilization in the pressure sterilizer for at least ten sterilizations. Owing to this fact, I was most favorably impressed with it, when I first saw it used in Europe; and, therefore, I had a quantity of it imported into the United States, to employ it, more particularly, instead of the ordinary rubber apron, which is such a dirty appurtenance of every operating room. It is also very useful as a cloth to put around the necks of patients who are vomiting from ether or from other causes, to protect the pillows and bedding; and, on account of its lack of odor and of the flexible character of its tissues, it is far more satisfactory than is any other material that can be employed for this purpose.

It is very much used in Europe for abdominal surgery, more especially in intestinal anastomosis, to assist in shutting off the peritoneal cavity from the incised bowels. Körte, particularly, employs it extensively in this way.

As this material is but little known in the United States, I feel that I am doing a favor to my surgical confrères in calling their attention to its merits.

1509 LOCUST STREET.

♦♦♦

Otitis Media—Owing to the fact that the main entrance to the pharyngeal opening of the Eustachian tube is on a lower level than the floor of the nasal cavity, acute nasal catarrh is attended with the risk of involvement of the tube, and of other trouble. Hence any sudden rise of temperature in an infant during the course of coryza should awaken the suspicion of commencing otitis media. *The International Journal of Surgery.*

VARIETIES OF TUBERCULOSIS ACCORDING TO RACE AND SOCIAL CONDITION.*

BY WOODS HUTCHINSON, A. M., M. D.,
New York.

(Concluded from page 620.)

This brings us to the question, are there any such differences in susceptibility among the various white races under civilized conditions as lend color to the possibility of a greater or less degree of acquired immunity upon their part? In my judgment, there are. At all events, the differences in susceptibility, as shown by the death rate, to this disease are extraordinarily wide and striking. As shown by the admirable reports of the United States Census Bureau on the mortality among immigrants of foreign birth and those born of parents of foreign birth, we have an extraordinary series of degrees, ranging all the way from the Irish, with 339.6 deaths per 100,000 living, down to the Polish Jews, with 71.8 per 100,000, a difference, as will be seen, of nearly 500 per cent. in favor of the Jews. Even this is an unfair comparison to the Jew, inasmuch as a much larger percentage of the total Irish population of the United States are in the open country or in the suburbs of our large cities than of the Jewish population. This is proved by a comparison of the rates for New York city, where the Irish rise to the astonishing mortality of 645.7, whereas the Jews only increase to 76.72, making the discrepancy nearly 900 per cent. It cannot be stated that this is in any way due to physical environment, for not only do both races live under almost identical conditions as to housing, but they are to be found side by side in the same wards, with the same extraordinary disproportion between them. In the most densely populated Jewish wards in New York city the rate rises, according to Dr. Fishberg's calculations, to 163, while the Gentile inhabitants of the same wards, generally Irish-American, show a rate of 565 per 100,000. A similar condition is found to obtain in Chicago, according to Dr. Sachs, where the Jewish mortality in the most overcrowded and congested Jewish ward was 164 per 100,000, while the non-Jewish inhabitants of the same ward showed a tuberculous death rate of 502.

That the race actually possesses this high power of resistance is shown by clinical observation. Although the mortality from tuberculosis is exceedingly low, the morbidity is not. All observers in our city dispensaries, Dr. Walsh and Dr. Flick in Philadelphia, and Dr. Miller in New York, inform me that while there are many Jewish consumptives, the disease runs a mild and exceedingly chronic course, lasting even for decades and often terminating in recovery. Miss Brand also comments upon this fact in her *Social Conditions*, and I have been struck by it in my own personal experience.

Only two environmental influences can be brought forward to explain this extraordinary discrepancy. One of these is alcohol, the other the laws of Moses, neither of these are in any way adequate. As regards alcohol, while it is perfectly true that the Jews are essentially a sober and temperate people, yet they are steady and persistent consumers of moderate amounts of malt liquors, wine, and spirits, day in and day out the whole year through.

*Read before the third annual meeting of the National Association for the Study and Prevention of Tuberculosis, May 8, 1907.

Moreover, this habit extends to the women and children, in the former almost invariably, and in the latter, in greater degree than in almost any other race; and if, according to the unanswerable logic of the prohibitionists, a man who will be made drunk by five glasses of beer is, after he has taken one glass one fifth intoxicated, then it can be readily seen that two glasses of beer per diem (a very moderate allowance for the temperate Jews), would amount to fourteen glasses of beer, or two and one half "drunks" per week, an average "excess" even greater than that of their Irish neighbors. The Jews have been users of alcohol since the dawn of history, and yet have the lowest death rate from tuberculosis, and the lowest percentage of criminality and pauperism of any race upon the face of the earth. Their Irish and American neighbors in the congested city wards are greatly addicted to alcoholic excesses, but it is hardly probable that they actually take 25 or 30 per cent. more alcohol during the course of a year than do the sober, industrious, temperate Jews. If it is the alcohol that is responsible for the difference, it is not the amount, but the way in which it is taken—in other words, the man who drinks it—that counts.

As to those venerable survivals, the laws of Moses, interesting and admirable as they are in themselves, they can hardly be fairly said to have any important bearing upon this problem. In the first place, because practically their only provision which would affect the spread of tuberculosis is that relating to the inspection of meat. Three government commissions have now reported upon this question, one after another, English, German, and Danish, and all agree that the actual risk of communication of tuberculosis through meat is exceedingly small. Moreover, the *shochet*, or ceremonial inspector of the Jewish slaughter houses, is not a rabbi, as is frequently loosely stated, but a much more humble functionary of the church, whose intelligence corresponds more closely to that of the janitor, or sexton, of a Christian congregation. He is generally a man of integrity and of good average intelligence, but he is not even in the crudest degree or sense a sanitary expert. Nor would the characteristics which are laid down in the Jewish ceremonial law as rendering a meat *treife*, or unclean, exclude any but comparatively well advanced cases of tuberculosis. In fact, nearly all the Jewish physicians and all my friends among the more intelligent class of Jews, and rabbis with whom I have talked, frankly admit that the laws of Moses in this respect, are essentially ceremonial, and not hygienic, and except in some minor details of washings and sweepings, have little practical effect upon the health of the Jewish people.

Their prohibition for instance of the meat of certain animals is frankly admitted to be a pure case of taboo, and without any substantial hygienic basis.

The only line along which it seems to me an explanation of this striking variation in susceptibility is likely to be found is that of an acquired immunity on the one hand, and the absence of opportunity to acquire such immunity upon the other. Both of these conditions exist.

The Jew has, for nearly 2,000 years past, been, through no choice of his own, chiefly a dweller in cities—professor of the ghetto. Only those who

could adjust themselves to the unfavorable features of this environment, chief among which are of course the infectious diseases have survived, for at least sixty or seventy generations past. The result has been the acquisition of a degree of immunity against not merely tuberculosis, but nearly all other infectious diseases; with a general death rate in the most congested parts of the slums barely equal to that of the open country districts of the same land.

I am perfectly well aware that the majority of Jewish physicians, as also a majority of my many friends among the intelligent Jews with whom I have discussed this subject, will vigorously oppose this conclusion. Even the figures which I have quoted as to the death rates in the congested wards of Chicago and New York were collected by Jewish physicians for the special purpose of showing that tuberculosis was exceedingly common among the Jews and that they possess no specific immunity against it whatever. Both Dr. Sachs and Dr. Fishberg seemed convinced that they had demonstrated their contention when they succeeded in showing that the death rate among the Jews in the most poverty stricken and congested districts of New York and Chicago was almost equal to that of the total registration area of the United States, viz., 163 per 100,000 of the Jews, as against 173 per 100,000 in the total registration area, entirely overlooking the fact that the rate for the Gentile residents of these same wards and districts ranged from 495 to 565 per 100,000. The reason for this singular attitude is an interesting one. It is based upon a settled and unshakeable conviction on the part of these exceedingly intelligent and well read men, which I have discussed with them by the hour, that there is no such thing as a Jewish race, but only a Jewish church; that the only thing which binds the Hebrew peoples together is their religion and not their race. That the Russian Jew is as different from the Spanish Jew, and the German Jew from the Italian as are the other natives of these respective countries. Granted this—of course any contention that a racial immunity of any sort is possessed by Jews all over the world, is inherently absurd, and must be combated as such.

In the case of the Irish, we have a precisely opposite state of affairs. Since the dawn of history, they have occupied a country, three fourths of whose population is rural, and that scattered in isolated cottages or in the smallest of villages. Two thirds of the urban population, such as it is, is of a different blood, Scotch or English. The majority of our Irish immigrants come from the poorest and most godforsaken districts of the country, the famous bog regions. Here they live scattered about in little lonely *shielings*, coming into no close house contact with any of the hated Saxons; and, as Dr. McCrindle, one of the head inspectors of the local government board, recently said: "In these thinly settled bog and hill districts consumption is very rare."

In 1864 the death rate in Ireland from tuberculosis was the lowest in the three kingdoms, which made it the lowest in Europe. Since that time it has been steadily increasing, and has now reached a mortality of 16 per cent. of all deaths, as compared with about 9 per cent. for England and 10.6 per cent. for the United States. In other words, we have a race, vigorous, hardy, industrious, intelligent, born pioneers, and empire builders, whose

only failing is an occasional fondness for the seductive *potheen*, having been little exposed to tuberculosis in the past, and showing a perfectly frightful susceptibility to it as soon as brought in contact with it, under overcrowded conditions, in spite of the fact that as a rule it makes high wages, is well fed, and shows a high average of stature and general physical vigor and beauty.

Not only have the Jews the advantage in the slums, but they retain that advantage elsewhere. In the U. S. Census of 1890, Dr. Billings made a careful study, embracing some 60,600 Jews, chiefly of the wealthier and more comfortably situated classes, who showed the almost incredibly low tuberculosis mortality of 22 per 100,000.

Another striking case in point is the well known one of our American negroes, so admirably presented last year by Dr. Jesse T. Jones. Brought against their will from a country where, until the coming of the white man, tuberculosis is believed to have been unknown, they were placed first of all in a rather favorable rural environment, well fed, well clothed, and rudely but comfortably housed, in a mild climate, which allowed them to make up for any sanitary defects in their dwellings by spending a large share of their time out of doors. As long ago as 1822, their death rate began to equal that of the white, viz., nearly 400 per 100,000 living. This was followed by an apparent decline, yet never below the 400 mark, but succeeded by a marked increase after their liberation from slavery, it rapidly mounted to their present pitch of nearly 700 per 100,000 (as shown by the records of the city of Charleston, S. C.), carrying them ahead of all other races resident of the United States, except the Indians. This bad eminence now shows signs of declining. But their death rate for the entire registration area from this disease is still 485 per 100,000, greater than that of any white race by nearly 50 per cent., and in New York city, it still reaches over 500 per 100,000 living.

In other words, as soon as the nonimmunized negro began to leave his scattered rural life, and to live in the crowded and closely packed suburbs and slums of the larger cities, he began to fall a victim to tuberculosis, just as the Indian has done upon his reservations, although not to so high a degree. It is perfectly true that this slum element is often drunken, dirty, shiftless, and improvident to a degree, and that all these causes are contributive towards his high mortality, not merely from tuberculosis, but from all diseases; but that they are sufficient to account for a death rate more than three times that of the surrounding white population, is, I think, hardly tenable. Both race and environment have, I think, contributed to this condition of affairs, and fortunately it makes little difference from a practical point of view to which factor we attach the greater weight, as the admirable studies of Dr. Jones, published in the last volume of our *Transactions* clearly show that negroes, although the negroes respond almost as readily to treatment and sanitary improvement as it does among the whites.

The same, I am led to say, appears to be true among the Indians, except in a few of the most virulent forms of the disease. In both these races,

DEATH RATE FROM TUBERCULOSIS PER 100,000 LIVING IN VARIOUS RACES AND NATIONALITIES IN THE U. S.



there appears to be good ground to believe that the worst is over and that the tuberculous death rate is showing a tendency to diminish under intelligent sanitation and care.

So far, I have been dealing with the susceptibility of various races and nationalities to this disease. Are there any data tending to suggest that similar difference, though less of course in degree, exist between different social conditions or localities in our native born white Americans? I believe that there are and it is chiefly for the purpose of eliciting more of such data from those who may be in a position to give them, that I have presented this paper.

The first thing that seriously called my attention to this question was a conversation which I had with the very intelligent actuary of a fraternal insurance organization in Oregon. I was engaged in the task of establishing under the auspices of the State Board of Health a small, open air, camp sanatorium for the treatment of tuberculosis, and was trying to induce his order to support one or more beds for the benefit of its own members. The question of the length of time that the cases would be likely to be under care, or treatment, came up, and he remarked, somewhat to my surprise: "But, of course you know, Doctor, that a man with tuberculosis on the north Pacific coast doesn't live more than half as long as he would in the east," and he brought forward a number of data from his own experience in the organization to support the fact.

By an odd coincidence, a couple of days later, a young girl came into my office to inquire about admission to the sanatorium, in what a careful examination led me to class as a well developed third stage of the disease. In inquiring into her history, she declared that she had only been sick four months. I supposed that this was only an illustration of the well known blindness of the consumptive as to her own condition, but was astonished to find upon careful inquiry of her mother and teacher that she had been in school, at work, and apparently in perfect health until within about four months of the time I saw her. This reminded me of two or three somewhat similar experiences in the previous year or so, which I had at the time merely put down as accidental exceptions, and on turning to my case records, I found six cases which I had seen within the past two years in that same locality, all of which had advanced with such striking rapidity as to reach the third stage in three or four months, and several of which had died within a year from the first appearance of the symptoms. The poor young girl verified my previous experiences and unfavorable predictions with melancholy accuracy; and by the time the sanatorium was open, was so weak that she was unable to leave her bed, and died a few weeks later, after an illness all told of barely seven months.

This experience set me to inquire among my colleagues and study the cases which came into the new sanatorium with special reference to this point, with the surprising result that of the ninety-three cases examined for admission during the first six months, not less than forty-three were of this rapid and peculiar type.

I reported my findings to the local medical society, with the result that the majority of the younger

practitioners recognized the type and gave me additional instances of its occurrence under their observation. The older men, with one or two exceptions, were firmly convinced that tuberculosis in Oregon was just the same as tuberculosis anywhere else. As the matter concerned a public institution, some report of the discussion found its way into the public prints, and several of the editors promptly corroborated the statement of my insurance expert, and stated that it had been a matter of common observation among the older inhabitants how much more rapidly consumption appeared to run its course in Oregon and Washington than in the east. Last I should be accused of libeling this most healthful and charming section of the country, I might say that the frequency of the occurrence of tuberculosis is no greater, and in my experience not so great as in the east, but that when it does appear, it seems to be more rapid in its course.

I then sent out letters of inquiry to some twenty of my colleagues in the profession in Oregon and Washington, and from them received reports of thirty-two cases which appeared to agree in the main with the characteristics of this type. All of these cases gave clear histories of having originated on the Pacific coast, or on the inland plateau of the Columbia river, a considerable number having been born in this region, and all but four or five patients having resided there for a number of years.

The characteristics marking this form of the disease, are:

1. Rapid course.—The patients usually first came under observation in what not only appeared to be a well advanced third stage of the disease, but what was proved to be so by a fatal termination occurring within a few months or even weeks. The average period from first departure from perfect or normal health discoverable on most careful cross examination was five months. The average duration from beginning of the disease to death in the eight fatal cases which came under my own observation was a little under eight months. The rapid mortality of the type may be graphically illustrated by the fact that of the thirty-six patients admitted to the sanatorium eight were dead within six months.

2. Exceedingly weak and rapid pulse.—This was a most noticeable characteristic in all but a small percentage of the cases observed. The pulse ranged from 105 to 145, and in one case reached 165 a few weeks before death. The average pulse rate of the thirty-six patients on admission was 120. Not only was the pulse rapid, weak, with a peculiar running gait and easily compressible, but so characteristic was it that I am coming to regard it as almost diagnostic in itself. The first sound of the heart in these patients is defective to such a degree as to give an almost embryocardiac "tic-tac" character to the heart sounds.

As I have previously reported,² the heart gives every evidence of being not merely defective in vigor, but decidedly undersized; the apex lies from one to three centimetres nearer the midsternal line than normal, while the right border of cardiac dullness, instead of extending a finger's breadth or more to the right of the sternum, barely reaches the border of that bone.

3. Peculiar type of temperature.—The tempera-

²The Heart in Tuberculosis. *Medical Record*, March 3, 1906.

ture had rather a low maximum, frequently only reaching 99° to 99.5° F. in the afternoon, but falling markedly below normal in the early morning; in fact, subnormal temperature is more constant in this form of tuberculosis than hypernormal. In a number of these cases, the thermometer readings confused the diagnosis on account of the fact that the usual afternoon test in suspicious cases would show a temperature of barely 98.6° F., or at the outside 99.2° or 99.3° F., and hence the impression would be given that there was no fever. In fact, the first patient of this kind that I saw deceived me completely for nearly a week, until I had an early morning reading taken, and found that my patient with an afternoon temperature of 99° F. had a morning temperature of 96° F. From this time on I was most careful to have a morning reading taken at 8 o'clock or earlier. In this way I discovered that these patients, in spite of their usually rather low afternoon elevation of temperature, had a very wide daily range of temperature variation. The average in the thirty-six sanatorium cases was minimum 96.5° F., maximum 101.1° F., thus giving them an average daily range of nearly 5 degrees. Individual cases were even more striking. In some patients there would be an almost persistent complaint of chilliness, with blueness of the lips and finger nails all day long, with a morning and midday temperature of from 95° to 97° , suddenly rising for a very brief period in the afternoon to 101° , 102° and even in a few cases to 104° . At the other times the temperature would be subnormal in the morning and barely normal at the highest maximum in the afternoon. One strikingly rapid and typical case had actually a range in one day of 10 degrees, from 93° F. in the morning to 103° F. in the afternoon. This patient, a young man of twenty-one, went from full work, full weight, and perfect health to death in a little less than four months. Morning temperatures of 96° , 95° , and even 94° F. were by no means uncommon.

4. Rapid infiltration.—This affected apparently the surface of both lungs, beginning at the base of the right apex and soon appearing in a similar position on the left side and, without waiting for cavity formation, rapidly extended over the surface of both lungs, front and back, until it involved from one half to two thirds of the entire chest area.

The dullness was of a peculiar character, not like that of complete consolidation, but with a tympanitic, boardlike resonance of so high a pitch as almost to escape observation, until it was carefully compared with the noninfiltrated area of the lung or with a normal chest. The difficulty of recognition was increased by the fact that moist râles were seldom present. Pleuritic friction sounds were almost unknown, and instead of rough bronchial breathing the first sign was a simple diminution of all the breath sounds, with slightly roughened and markedly prolonged expiratory murmur. There was a singular absence of all signs of cavity formation until within a few months, or even weeks, of the fatal termination. When this did occur they took the form of diffuse, coarse, bubbling râles with slight whistling and occasional amphoric sounds, involving two or three bronchular areas, or a patch about the size of the palm of the hand, most com-

monly in the neighborhood of the base of the right, or left apex in front, and in the area opposite the root of the spine of the scapula.

In the three fatal cases in which we were able to secure autopsies, we found these signs to be due, as we suspected during life, to a group of small cavities varying in size from that of a pea to that of a cherry, and which turned the affected areas of the lung into a tissue resembling a coarse bath sponge. In only three out of the whole series of cases were there clear signs of the formation of any cavity above the size of a tangerine orange. At autopsy, the lungs were found to be changed into a spongelike growth sparsely dotted with grayish and black tubercles and honey-combed with small cavities. The infiltration consisted of a light cream colored fibrous exudate rapidly becoming caseous. So completely infiltrated and so firm were the lungs that there was great difficulty in lifting them out of the chest through the sternal gap.

5. Marked infrequency of pulmonary hæmorrhage.—Only four of the patients developed or gave histories of any hæmoptysis, and when this did occur it was usually small in amount and unimportant in effect. This was the more striking because other cases in the camp showed a marked tendency to hæmorrhage, one of which resulted fatally, three others lasted for short periods, and the patients lost large amounts of blood.

6. Infrequency of cough.—Most misleading to laymen, and, I regret to say, to a considerable percentage of professional observers, was the remarkable infrequency of cough, in some cases extending to an absolute absence in early stages until one third of the surface of the lung had been involved.

In one of the fatal cases, for instance, the disease was diagnosed for the first two months as "walking typhoid" by the attending physician. Six other patients were treated until the border of the third stage as neurasthenics; three others were treated for dyspepsia; another, on account of a tuberculosis nephritic complication, was treated for Bright's disease. In only a few of the cases was the cough sufficiently frequent or severe to be seriously annoying, and in those chiefly in the last few weeks of life, the character and amount of expectation, of course, corresponding. In the early stages, the sputum being exceedingly scanty in amount, tenacious and grayish in color, there was often great difficulty in obtaining enough for examination, and, when it was obtained, two or three, and in some cases five or six, successive examinations were necessary before even a single bacillus could be discovered. In fact, in over 50 per cent. of these cases tubercle bacilli could not be discovered in the sputum until the stage of cavity formation developed. In five of the series, two of which terminated fatally, we never succeeded in discovering a clearly recognizable tubercle bacillus.

The cause of this increased rapidity and apparent virulence of the disease was a puzzling problem. There appeared to be no reason to suspect that the bacillus itself was of a more virulent strain, much as the disease has probably been contracted in every instance from individuals coming from the east with the ordinary common type of the disease. One or two of my colleagues had been present during

tum from native cases to inoculate rabbits and guinea pigs, and they were unable to give me any evidence, showing that the disease ran a more rapid or virulent course in these subjects than customary.

The influence of climate might almost be ruled out of the question, for the region from which the patients came contained specimens of almost every climate and elevation in the United States, ranging from the moist sea-level of the coast up to the dry bracing climate of eastern Oregon, Washington, and Idaho, with cold winters, hot summers and elevations from 3,000 to 6,000 feet.

The only other factor would be the question of the blood of the persons involved, and the extent to which they and their ancestors had been exposed to the disease; and here is one feature which is fairly constant for all these cases. It is emphatically a disease of farmers, as five sixths of the cases came from country districts, which contain only three fourths of the population.

The population of this particular part of the world, central and northern California, Oregon, and Washington, outside of the great cities, is a singularly uniform one as to blood and descent, and one of the most purely American that I have ever seen. Most of them are the descendants of pioneers, who have taken anywhere from one to four generations to reach the coast from Kentucky, Virginia, the Carolinas, and Tennessee by way chiefly of Indiana and Missouri. They lived a vigorous outdoor life and were magnificent physical types, having been but little more exposed to the diseases associated with over-crowding for from two to five generations, than have so many Indians. What lends further color to this possible explanation is the striking similarity in type, both in rapidity, fatality, and symptoms between the disease in the descendants of pioneers and that which we have already observed among the Indian tribes.

Like the disease in the Indians, this rapid and virulent type among the pioneers and their descendants, responds readily to the open air treatment, and a number of these patients made rapid and up to last reports, permanent improvement, in our little open air camp.

At the time that it first occurred to me, now some two years ago, that it might be the lack of acquired immunity on the part of pioneer blood, I was not aware of the actual mortality from tuberculosis in those pioneer breeding states, Kentucky, the Carolinas, Virginia, etc. I merely made a mental note that I would write to some of my colleagues in those States and find out whether this type of the disease and fatality existed there. Like many other good resolutions, this was never carried out; but a couple of months ago, on taking up this subject in the libraries, I was greatly interested to find in the admirable paper of Miss Lillian Brent on Social Conditions and Tuberculosis, published in the *Handbook on Tuberculosis of the Charity Organization of New York*, a statement of the death rate from tuberculosis in proportion to all deaths in the United States, with this very group of States actually heading the list. The ten highest names upon the list contain Tennessee, Kentucky, West Virginia, Virginia, Indiana, South Carolina, together with their daughters, Oregon and California. With their low percentage of urban population, their equable climates

and the vigorous outdoor life lived by the large percentage of their inhabitants it is one of the most singular anomalies of which I know in statistics. And, of course, while it is only a suggestion, whether the high death rate from tuberculosis is not due to some such lack of acquired immunity on the part of their populations, I am utterly at a loss to account for it. The percentage of negro blood is certainly not adequate, for with the exception of Virginia and South Carolina, they are exceeded in this respect by almost every other southern State.

I have also seen scattered cases of a rapidly fatal form of tuberculosis in my own practice in Iowa, Nebraska, and Michigan, and several of my colleagues in the middle west have recalled similar instances, when the matter was brought to their attention. I was also greatly interested to find that British practitioners in both South Africa and in Australia comment upon a rapidly fatal type of the disease which appears among the native born colonists. This lack of immunity on the part of rural populations would also account for the fact which has long puzzled us—that even with all the tremendous influence exercised upon the spread of tuberculosis by overcrowding and its attendant conditions, the death rate in our largest cities has only been two or three per thousand in excess of that in the country districts.

Its acquisition by city dwellers helps to explain the excellent results secured in our modern dispensaries for tuberculosis right in the slums, especially among Jews, Italians, and city bred English or Americans.

Conclusion.

To sum up I believe that the evidence already available is sufficient to justify the following tentative conclusions as a basis for further investigation.

First, that races during the process of citification acquire an appreciable degree of immunity to, or increased resistance against tuberculosis.

Second, that classes and social status of the same race appear to acquire varying degrees of a similar immunity.

Third, that such race and class acquirements when present in our patients may be of real value in estimating probable resisting power and making a prognosis.

Fourth, that in the fight against tuberculosis we have at least one of the great forces of nature on our side, and that the remarkable ascent represented by the contrast between a tuberculous death rate of 2,488 per 100,000 in the Sioux Indians and one of 71.8 per 100,000 in the Polish Jews is a most encouraging indication of the extent to which we may hope to raise the resisting power of the race in future.

38 EAST FORTY-NINTH STREET.

MALARIAL FEVERS OF CUBA,

With Special Reference to the Malignant Hemoglobinuric Form.

BY CHARLES C. JACOBS, M. D.,

New Orleans, La.

Malaria manifests itself with variable activity in all sections of Cuba, no part being entirely free from it. Nevertheless, the virulent or malignant forms are apparently confined to limited areas.

Of course the work and researches of Ross, Big-nami, Grassi, Bastianelli, and others, as to the propagation and spread of the disease, make it almost superfluous to discuss it from this point, except in so far as concerns the causes and treatment of the malignant forms.

If we yet persist in holding to the miasma and bad soil aspect of the question, we lose ourselves in an endless discussion of theories without fixed bases, in all of which the mosquito (anopheles) has not been absolutely eliminated. The mosquito doctrine cannot be combated by the statements of apparently spontaneous outbreaks of this disease.

The fact that inundated districts, where stagnated water remains for weeks and months (as almost yearly at Roque, Matanzas, and El Cobre, Santiago), have epidemics of malaria that sweep through the whole population, that was practically free from it, has in the past given rise to statements of spontaneous origin from soil pollution. Other outbreaks are always related with great works of clearing, excavation, and grading—as construction of railroads or cultivation of large, new tracts of land. It has been asserted that malaria has presented itself *de novo* in these localities.

Mr. D. E. Hutchings, in the English journal *Nature*, states that he knew of a medically authenticated case of malaria having been caused by fresh earth having been carried past a window in buckets by coolies. Dr. Ross makes the following remarks on this statement: "Which fact was medically authenticated—the fact that the patient suffered from malaria, or that his malaria was caused by the earth carried past in buckets? I can understand the first being certified to by a doctor, but scarcely the second. How did the doctor prove that the fever was produced by the earth in the buckets? It seems to me that the only way in which he could have done so in a trustworthy and scientific manner would have been to infect a second person by having the buckets carried past a second time. I doubt whether such instances—and we see hundreds of them in the press—will bear close examination." (*Mosquitoes*, by Howard.)

In all these instances careful inquiry shows that the anopheles mosquito was previously present; perhaps existing in very small and not noticeable numbers, owing to unfavorable conditions. But on the arrival of the laboring forces, two new elements are to be considered. First, the excavations, ditches, etc., where water accumulates and stagnates from the rains and small streams from springs, dammed back by embankments, making breeding places for great numbers of mosquitoes. Second, the laborers themselves, brought in numbers, attracted by the work. The men preferred for this work, the usually so called acclimated, are generally inhabitants of malarial districts. Almost all these are not the individuals already infected, who perhaps have not as yet been permitted, or those having the antibodies, who have left their former locations because their health has been undermined and their earning capacity reduced. Having brought these elements together, we have the outbreak.

During the summer of 1899, while on construction work on the Cuba Eastern Railroad, two outbreaks occurred where there had for months pre-

viously been no malaria were traced to several laborers who joined from an infected locality. These camps were twenty miles from any town, and a strict watch was kept on all the men. There was little or no communication, and men never left the vicinity of camps on account of the revolution then existing. In the beginning of the fourth week the first cases appeared, and in six weeks from the time the infected laborers were sent out 50 per cent. of the men had been attacked. There was no malaria for miles around these camps, a careful investigation was made in all the families, the country being sparsely settled.

Dr. Isodoro P. Agostini, bacteriologist for the laboratory and superintendent of the hospital of infectious diseases, Sanitary Service, Santiago de Cuba, who was surgeon of the Santiago division of the Cuba Railroad in 1902, makes similar statements relative to his observations at that time.

Furthermore, we note that during the hottest periods, especially the last few weeks of late summer, the disease increases and notably diminishes during the winter months, when the cold north winds blow. Still the cool season is so short that in the country districts it is fairly common in both its chronic and acute forms during the whole winter season.

With the exact knowledge of the true cause of malaria we may to-day estimate the value of the so called predisposing conditions. These are only such as favor the inoculation of the individual previously free from the disease.

The predisposition of races, so much discussed up to recent times, has resolved itself into the fact that persons living continuously in malarial regions acquire more or less resistance against infection. It seems now to be true that under equal conditions the negro is less susceptible than the white, especially as to the pernicious or malignant forms. The researches of Thayer, Hewettson, and others in the United States, Koch in Africa, and Agostini, Guiteras, Coronado, and Agramonte in Cuba, appear to bear out this conclusion.

As to age, we can say that no one is exempt from infection, although children in general are more liable than adults, this being explained in part by the predilection of the mosquito for the fine skin and the opportunity to bite unmolested, afforded by the profound sleep of small children. In Koch's observations in New Guinea and East Africa he noted that almost all young children were infected with malaria, although many of them ceased to show any acute symptoms after several years. The children of greater age, immunized by repeated infections, failed to show any form of plasmodia in the blood. He believes that this immunity is only acquired by those who never take quinine.

The Italian authorities speak of congenital immunity and immunity of entire families, but the cases cited are too few to sustain the argument. It is as yet a fact that all attempts at artificial immunization have failed.

Sex makes no difference, but the male is more susceptible than the female, working in places where he is most exposed to bites, while the women working about the smoky kitchens (open hearth fires for all the poor class) are much less so.

Persons who have been exposed to malaria and

rain, mental worries, etc., are potent factors in bringing on prostration after infection has occurred.

The cities, towns, and villages have little malaria as a rule at the present day, due to sanitary measures adopted for extermination of mosquitoes and general lack of breeding facilities for anopheles.¹ The few cases of malaria in the village could all be easily traced, the individuals having passed some time in the country just previous to being taken sick.

I was attacked myself (tertian form) after living at the place seven weeks, but traced the infection to having passed an evening in a construction camp, where I slept for several hours without using a mosquito bar; anopheles were numerous, and there were a number of malarial cases in camp. For purposes of observation, no treatment was taken for six full days, and I allowed myself to be bitten continuously, as the mosquitoes were very numerous in the afternoon and early evening in all parts of the house. Living in the house were three other persons, one a Spaniard, fresh from the Peninsula, an American from a nonmalarial northern section of the States, and a young Cuban. No bars were used, and they were constantly exposed to the mosquitoes. Up to the time of leaving, fully six weeks after recovery, no one had signs of malaria, demonstrating that no anopheles were bred in the locality. This would show that it is not usually a disease of cities and towns, although at the close of the Spanish-American war (1898), malaria was the scourge of all the large cities and towns. This was due to the great neglect of general sanitation. Water holes existed in many streets, plugged sewers caused rain-water to remain standing for many weeks. Adding to this the starved *reconcentrado* population, forced in from the country, we had a fruitful combination for the propagation of both the mosquito and the malaria.

Malignant Forms.

The simple comatose and intermittent hæmorrhagic forms do not seem to be common nor is the hæmoglobinuric, except in certain limited localities.

Although as a whole these forms are classed as malignant, pernicious, estivoautumnal and typically tropical, we know that they are not exclusively confined to this zone. At the present time, all these forms are probably not more than one fourth as frequent as the simple tertian. In nearly eight years' residence in Cuba in different parts, only three comatose and one simple hæmorrhagic case came under my notice.

An extremely pernicious form of tropical malaria is that which begins with a rapid destruction of the red blood corpuscles, severe jaundice, and hæmoglobinuria. Amongst us it is known under various names: *Febbris biliosa hæmoglobinurica*, fever of black urine and hæmoglobinuric fever. It has been

described in the past by several French and English physicians, and more recently by German physicians in Africa and New Guinea (*Handbuch der practischen Medicin*, von Dr. W. Ebstein und Dr. J. Schwalbe, 1901, v. p. 542).

Not only do the red blood cells (always small in number) which have been invaded by the plasmodia suffer destruction, but the whole blood undergoes grave changes. Due evidently to the action of the toxic products elaborated in the blood by the parasites, the hæmoglobin separates from the blood cell and breaks up and dissolves in the plasma, rapidly establishing a condition of hæmoglobinæmia. Later a great part of the red cells are completely destroyed in such a manner that even the stroma of those that have previously lost their color disappears, and the number of red cells is reduced to a half or even one fourth of the normal. Then follows a decomposition of the blood similar to that produced by acute poisoning with arseniuretted hydrogen, or phosphorus.

The hæmoglobin dissolved in the plasma is carried to the liver and converted into bile pigment, and on account of the great amount only a small portion can pass through; the excess is stagnated in the biliary canaliculi and reabsorption takes place, causing the intense jaundice. When the amount of dissolved hæmoglobin in the blood plasma is so great that the liver cannot take care of it, the hæmoglobin passes to the kidney and mixes with the urine, producing hæmoglobinuria. Clinically we find as an expression of this type of malaria febrile forms which alone show an intense jaundice, while in others the fever is accompanied by jaundice and hæmoglobinuria.

The findings of Dr. Agostini, Dr. Coronado, Dr. Guiteras, Dr. de Jongh, and others in Cuba, conform in general with those of the European writers.

All cases are persons who have previously suffered from malarial fevers and whose natural resistance has been diminished. The disease usually begins with rather alarming paroxysms which are rapidly followed by a high and irregular temperature. The majority of cases show from the beginning very grave general symptoms; restlessness, anxiety, intense headache, extreme weakness, while the pulse is small and feeble. Jaundice declares itself early, usually during the first twenty-four hours. Spleen and liver are congested and enlarged, and the liver is painful on pressure. The spleen enlarges rapidly and at times to great size. The urine is at first dark (described by Schwalbe as color of Burgundy wine) and finally a dark or blackish brown, having a greenish tinge by reflected light, due to the dissolved hæmoglobin. The sediment contains brown detritus, and leucocytes that have taken up the hæmoglobin in the form of red granulations. As a consequence of the impoverished blood from loss of hæmoglobin and red cells, a pronounced anemia supervenes in a few days. Frequently there is bilious or bloody vomit, and the intestinal discharges contain a large amount of bile. In many cases a true acute nephritis presents itself, with symptoms of uremia and suppression of urine. In others the heart becomes extremely weak, ending in complete collapse. Delirium and coma may intervene, terminating in death between the eighth and fourteenth day. In favorable

¹ One of them, *Anopheles*, larvae observed while growing to adult, three species of the genus *Culex* and the common *Stegomyia fasciata*, one belonging to the genus *Anopheles* was found. These had all been collected at various times from June to October 1, 1906, and from a great number of places in all sections of the island of about one hundred individuals. There were no apparent mosquitoes here, and the larvae were taken exclusively from the rain-water pipes, and waterways, etc. From numerous larvae taken from artificial receptacles (except ditches) I collected in addition to many sections of Cuba, from 1904 to October 1, 1906, and was indebted to the genus *Anopheles*. It is positively stated by a number of authorities, though, that anopheles will breed in tubs and other artificial receptacles. I have observed that this sort of a natural place is at hand, but I have never seen a successful observation of more than one year.

cases, as in other forms of pernicious malaria, the recovery is rapid. The fever ceases almost suddenly, the jaundice and hæmoglobinuria disappear, though the albuminuria may persist for several weeks. Some mild cases have been noted where the hæmoglobinuria appears and disappears simultaneously with the paroxysms.

Plehn expresses the opinion that hæmoglobinuria is frequently produced in malaria by quinine. He saw hæmoglobinuria present itself at various times, slight and severe, a few hours after the administration of this remedy. He infers from this that under the influence of the malarial parasites the red corpuscles suffer alterations that make them unable to resist the action of the quinine. Robert Koch, who out of sixteen cases of this type of malaria could demonstrate the presence of the parasite in but two cases, believes that the disease is a quinine intoxication in persons who have an idiosyncrasy against this drug.

But as to why this idiosyncrasy should manifest itself so easily and frequently in the tropics and subtropics and is never observed in temperate climates is a matter the observers fail to explain. Both Koch and Plehn state that quinine is absolutely contraindicated in hæmoglobinuric fevers, while on the contrary Stendal recommends the use of large doses, even up to 8.0 grammes daily. Cuban writers, and many, in fact all, practitioners interviewed as to this treatment, firmly held to the opinion that quinine and calomel purgation was the only treatment, and their results certainly bear out this view.

The prognosis is always doubtful and must vary according to the place and endemic character of malaria. In certain localities the majority recover, while in others the death rate is high, but I find that where most deaths occur there has been a variation in treatments or the cases reach the physician too late.

In 1903 a severe form of hæmoglobinuric malaria developed at Daiquiri, a mining town of 1,300 to 1,500 inhabitants, on the south coast, about twenty miles from Santiago. To show the almost exact conformity with descriptions of American and European authorities the general symptoms averaged from the clinical histories of some hundred and forty-seven actual cases are given. A large number of these histories were kindly furnished me by Dr. de Jongh, surgeon of the port of Daiquiri. The laborers were divided into two groups, one working on the hillsides where a brook crosses the valley, while the other worked on the low beach where the waters from both the brook and rains remained stagnated. From January to the end of August, the first group gave eight cases of hæmoglobinuric fever and the second thirty cases; only three cases occurred in August. The fever always presented itself in individuals who had suffered frequent attacks of the intermittent or estivoautumnal forms. Never had it occurred in strong men who never before had malaria. The attack began with a severe chill, lasting from fifteen to twenty minutes, fever 40° C.; urine stained and containing hæmoglobin of a "black blood color." In many cases the first symptom was hæmaturia, which was followed by hæmoglobinuria. There was pain in all joints and great anuria. In six hours vomiting set in and in some

cases even earlier. The vomited matters were described as at first slightly bilious, later (in about twelve hours) containing much bile and taking the yellowish apol shade. The vomiting was almost uncontrollable, persisting in the graver cases up to four days after fever had terminated. Usually six hours after onset the patient presented a general jaundice, the graver the case the more severe was the jaundice; the color being always more marked than in yellow fever. The urine contained great quantities of hæmoglobin. Heat and nitric acid test precipitated large amount of albumin. Respiration was labored, the muscles of thorax and abdomen entering strongly into the act. Hiccough was very frequent. The pulse was small, filiform, frequent, and did not conform in relation to temperature. The spleen increased one third in size. The liver was enlarged and painful on pressure. Complete anuria appeared in fatal cases. Cases not coming under treatment during the first twelve hours were always fatal.

Hæmoglobinuric fever is not a recent manifestation in Eastern Cuba. It has been known for many years in the vicinity of Daiquiri, but it is unknown at Juragua, which is about nine miles closer to Santiago. A careful search of the records of the Civil Hospital at Santiago does not show one case. The list of deaths for that city show one death during August, 1903, from this form of malaria; it occurred in a woman, recently landed from Puerto Rico.

The records of the hospital under the charge of Dr. de Jongh, at Daiquiri, for the past six years show 147 cases diagnosed as hæmoglobinuric malaria, with sixteen deaths. These records are correct as to number of actual hæmoglobinuric cases, the simple hæmaturic form being so stated as a separate form:

Cases, Deaths.		Cases, Deaths.	
1901.....	26	1	17
1902.....	31	2	8
1903.....	52	7	13
			3

That this form of malaria is endemic in certain parts of Cuba is proved by various writers from that country who have made careful observations. It has prevailed to a greater or less extent in the vicinity of Nipe Bay, on the northern coast (eastern part) for many years, and during the summer of 1906 there were many cases and a large death rate, due no doubt to the large number of laborers brought there for new plantation work.

There is conclusive evidence that this is also the true hæmoglobinuric malaria, but owing to lack of time I was unable to get reliable information as to number of clear cases and the death rate.

Conclusions

That the mosquito (genus *anopheles*) is the only means of transmission of the disease.

That the anopheles does not breed in artificial receptacles (buckets, tubs, etc.) habitually, and that it will disappear from localities where the natural breeding places are destroyed.

That the negro is less liable than the white.

That the hæmoglobinuric form of malaria is due to toxins produced by continued presence and large number of plasmodia, because not one case is noted that had not suffered from several previous malarial attacks. (Plasmodia have been demonstrated in but few cases, tending to give rise to the belief that the

phate 1 gramme, by mouth. Temperature normal during the day, and continued so until July 10, when he was discharged.

CASE IV.—F. V., native of Spain, thirty-nine years old, white, male, married, hospital nurse.

Antecedents.—He had had frequent attacks of malaria in the past. Spleen was enlarged, liver tumefied.

January 16, 1903.—Severe chill, followed by bad headache. Urine red wine color, containing large quantity of hæmoglobin; heat and acid test precipitated albumin. Temperature 37° , pulse 100, respiration normal. 1.50 gramme of quinine sulphate was administered by mouth. Six hours later temperature was 36.3° , urine normal.

January 17.—Bilious vomiting in the early morning; temperature was 37.2° , pulse 106. Urine contained small quantity of hæmoglobin. Quinine hydrochlorate was administered in a gramme dose hypodermically. In four hours temperature was down to 36.3° , and urine was normal.

The patient improved continuously and was discharged on January 20, 1903.

CASE V.—P. F., native of Puerto Rico, twenty years old, white, male, single.

Antecedents.—He had suffered from frequent attacks of malaria. Liver and spleen were enlarged.

June 18, 1903.—He had a severe chill, lasting twenty-five minutes. Urine black red, charged with great amount of hæmoglobin, and containing a large quantity of filamentous sediment. On admission to hospital he had a temperature of 40° , pulse 160, vomiting large quantities of greenish yellow fluid. Urine contained large quantity of hæmoglobin and albumin. The whole body and conjunctivæ were a dark yellowish green, that reminded one of black jaundice. He saw everything as if tinged with yellow. Bilious diarrhœa. Spleen and liver were considerably enlarged. Quinine hydrochlorate, 2 grammes, was administered hypodermically. A drink of antiemetic was given, also ice. Temperature maintained itself at 41° during the day and night. Vomiting persisted. The quantity of urine diminished, becoming darker and more albuminous.

June 19.—A hypodermic injection of quinine hydrochlorate, 1 gramme, was administered in the morning. Two hours later the temperature had gone down to 38° . At 4 p. m., temperature rose to 40° ; persistent hiccough and anuria. Patient was bathed with lotion of aromatic vinegar. At 6 p. m., another hypodermic injection of 1 gramme of quinine was given. Temperature descended to 38° , but vomiting persisted. Temperature continued high until morning of 20th.

June 20.—Temperature 37° , pulse 90, urine normal, and color disappearing from body. Vomiting continued to some extent until the 23d, when patient was given small quantities of broth. He was discharged June 30, 1903.

CASE VI.—F. P. M., native of Spain, twenty-five years old, white, male; single. Admitted July 14, 1903, at 3 p. m., presenting severe jaundice of whole body and conjunctivæ. Temperature, 41° ; pulse, 190; respiration, 29. Urine contained hæmoglobin and was charged with albumin. There was great congestion and enlargement of spleen and liver, both were painful on pressure. He vomited greenish fluid, and bowels were constipated. Colic, biliousness, and anorexia were administered hypodermically. Large quantities of tepid water were given by mouth. Calomel, 1 gramme, in three powders, was given half hour.

Antecedents.—Patient had had in 1901 a severe hæmoglobinuric fever in January, 1903, lasting two days. In April, 1903, he had an attack of fever took Winter on the boat, and was better the same winter. On morning of July 13, 1903, he had a severe chill, followed by fever, and noted that his urine was a light red color like wine. He thought it was ink, and paid no atten-

tion to it, feeling better in the afternoon. At night he had another chill and high fever, vomiting bitter substances. On the morning of the 14th, urine became very dark; he vomited, and the fever increased. After calomel he was given enemas of glycerin and asafetida.

July 15.—Temperature 40° in morning. A hypodermic injection of 1 gramme of quinine was given. He also received cocaine 0.04 gramme; strontium bromide 2.0 grammes in 160.0 grammes of water, tablespoonful every hour; Fowler's solution, 1 drop every two hours; ice and ergotine. He was sponged with aromatic vinegar. Enemas of glycerin. Urine diminished during the day, hæmoglobin increased and jaundiced color accentuated. He saw objects yellow color. Calomel, 1 gramme in three powders, was given during afternoon. He complained of severe pains in the abdomen. Temperature fluctuated between 39° and 41° during the day. At 9 p. m. another hypodermic injection of 1 gramme of quinine was given. But the vomiting was uncontrollable; the stomach tolerated nothing.

July 16.—Morning temperature, 37° ; pulse, 100; respiration, 29; his anxiety was great, and hiccough persisted. A drop of blood, very liquid and reddish yellow in color, oozed from spots where mosquitoes had bitten. Urine was greatly diminished in quantity. Hæmoglobin was diminished. Vomiting was less persistent and lighter in color and less copious. Quinine, 1 gramme, given hypodermically. At 11 a. m. he had a chill; great anxiety; temperature, 40° . Vomiting ceased. Urine was suppressed. Temperature remained up to 40° . At beginning of night another hypodermic injection of 1 gramme of quinine was given. At 10 p. m., temperature was 37° . Catheter was passed, but only 60 grammes of black, albuminous urine was obtained.

July 17.—Morning temperature, 37° ; pulse, 125; respiration, 38. Great anxiety; his intelligence was clear, and patient foresaw his end; severe epistaxis. blood was very liquid and did not coagulate, the color was yellowish red. No urine was passed, but 15 grammes of turbid urine were taken by catheter free from albumin and hæmoglobin. Vomiting had ceased. Temperature maintained itself between 35° and 36° . Liver and spleen were very painful. Hiccough was persistent. At 10 p. m. slight convulsions, loss of consciousness. Patient died at 12 m.

THE INDICATIONS FOR THE MASTOID OPERATION.

*With Special Reference to the Value of the Differential Blood Count and of the Bacteriological Examination of the Aural Discharge.**

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In bringing this subject before your consideration, I am well aware that I could not interest you by discussing it from a purely otological standpoint. I shall therefore discuss the subject from the point of view of the general practitioner and general surgeon, and shall leave the otologist out of the question as much as possible.

The indications for the mastoid operation in the vast majority of cases are so evident that no special skill is necessary in order to determine the necessity of operation. The superior, as you know, upon a certain eminence, over the mastoid, enters at a point just behind the superior attachment of the auricle, corresponding to the mastoid antrum, or tenderness over the tip of the mastoid, at the insertion of the styloid process, or tenderness over

teriorly, over the mastoid emissary vein. Rarely we have absence of tenderness in these regions or tenderness over the anterior face of the mastoid—a symptom which can only be elicited by putting the finger into the external auditory canal, and pressing backward on the anterior mastoid surface. Still more rarely, we find the mastoid practically normal, but that there is some tenderness just above the superior insertion of the auricle, at the posterior root of the zygoma. The occurrence of œdema over the mastoid process, while frequently significant of mastoid inflammation, is more usually characteristic of a furuncle, involving the posterior wall of the canal. The mere presence of œdema over the mastoid, therefore, should not be taken as an evidence of mastoid involvement without a careful inquiry into all the symptoms and a thorough examination of the ear. The presence of a fluctuating swelling over the mastoid process naturally indicates that there has been a suppuration within the mastoid cells, and that the abscess has evacuated itself spontaneously through the cortex. In this connection it should be mentioned that occasionally, while there will be no swelling over the mastoid process, yet there may be a tumefaction just over the posterior root of the zygoma, and this tumor may either be hard and brawny or, upon palpation, may give signs of fluctuation. In three or four instances out of nearly one thousand mastoid cases seen in practice I have found this the only evidence of mastoid suppuration, and yet operation has revealed extensive destruction of the mastoid process. Cases of this character, therefore, in which the zygomatic cells are particularly involved, should always be remembered. Quite frequently we find in cases of mastoiditis a rather diffuse swelling beneath the sternomastoid muscle. This swelling is brawny to the feel, and seldom gives any sign of fluctuation. It is an indication of the rupture of a mastoid abscess through the mastoid tip into the digastric fossa beneath the sternomastoid muscle. It goes without saying that at the present time mastoiditis is ordinarily recognized before rupture through the cortex takes place, and consequently it is only in the neglected cases, or only in cases where the disease progresses with unusual rapidity, that any external tumefaction over the mastoid is present.

The general practitioner, therefore, must rely upon palpation of the mastoid as the sole physical sign leading him to suspect an involvement of this region. While it would seem that the presence or absence of mastoid tenderness could be determined without difficulty in any given case, this determination is not always made with ease. In the case of extremely nervous patients, or in the case of children, the least pressure about the inflamed ear may apparently cause pain. Ordinarily, if the patient's attention is distracted, while at the same time firm pressure is made over the mastoid, the surgeon will be able to determine whether or not the mastoid is painful. The location of the tender points is of considerable value in making a diagnosis. For instance, in the last four or five years I have found tenderness over the mastoid tip present in almost every case of acute middle ear inflammation. This tenderness usually persists for two or three days, and may be exquisite during the first twenty-four or thirty-six hours. It then usually disappears in

the simple, uncomplicated cases of acute middle ear inflammation.

Tenderness over the mastoid antrum is a much more significant symptom of actual involvement of the mastoid. This tenderness may be present at the very inception of a severe acute middle ear inflammation, and may persist for a few hours or two or three days, in spite of free drainage of the middle ear. Tenderness in this region is always to be regarded with suspicion, but if the ear has been freely drained by incision, the presence of tenderness alone does not constitute an indication for operation upon the mastoid during the first twenty-four or forty-eight hours of the disease. I assume, of course, in such a case that the patient is not suffering any spontaneous pain, and that the temperature does not point to sepsis. Persistent tenderness over the mastoid, either over the antrum or over the tip, is always to be regarded with suspicion. For instance, a degree of tenderness which would not indicate the necessity for operation on the third day after an acute otitis, if present on the seventh or eighth day, in spite of free drainage of the middle ear, would be an indication for operation. So, also, would be a recurrence of mastoid tenderness, and by that I mean—given an acute case in which the mastoid was tender for the first twenty-four hours after free incision of the drum membrane—when the tenderness disappears at the end of two or three days, in spite of free drainage, and then recurs and becomes more and more pronounced. This can only mean involvement of the mastoid process, and the condition must be dealt with by prompt operation. The temperature in cases of mastoiditis is exceedingly deceiving. In not a few instances occurring in adults I have seen the temperature absolutely normal, although a careful record of the temperature had been made every four hours, and yet on opening the mastoid I have found it entirely disintegrated and the cells filled with pus and granulation tissue. In children an elevation of temperature is much more common than in adults, and a persistent elevation of temperature, with moderate remissions, is characteristic of mastoid involvement in younger subjects, provided, of course, there is a suppuration of the middle ear.

The value of the blood count as a means of determining the necessity for operation in doubtful cases has, I think, been much overestimated. I have before me the records of twenty-four cases operated in at the New York Eye and Ear Infirmary during the past few months. All of these cases presented acute symptoms at the time of operation. In seventeen cases a simple mastoid operation was performed, in one of the cases both mastoids being opened. In six cases a radical operation was performed, owing to the fact that the acute symptoms occurred in a patient already suffering from a chronic middle ear suppuration. In one case the mastoid suppuration had involved the cranial cavity, and an epidural abscess was found at the time of operation.

In going over the blood count of these cases, the highest leucocytosis, in an uncomplicated case, was 25,200, with a polymorphonuclear count of 64.2 per cent. In this case there was very little mastoid tenderness, very slight discharge from the ear, and the patient simply complained of severe pain, which pre-

vented him from sleeping at night. The mastoid operation was performed and the entire mastoid process was absolutely destroyed. Here we see that the blood count did not help us, in the slightest, in making our diagnosis. In other cases the leucocytosis ranged from about 6,000 to 20,000. In no case did the polymorphonuclear proportion reach 80 per cent. in uncomplicated cases. In two cases, one of which was complicated by a burrowing abscess of the neck and later by cerebellar abscess, the leucocytosis was 33,600, with a polymorphonuclear proportion of 84 per cent. In another case, of double mastoiditis, complicated by suppuration of the supraclavicular glands and later involvement of the lateral sinus, which necessitated excision of the internal jugular, the polymorphonuclear count during the period of glandular involvement was sometimes slightly over 80 per cent., while the leucocytosis in this case ranged at various times from 17,000 to 30,000.

This series of cases taken at random would seem to show that increase in the polymorphonuclear count did not occur in cases of acute otitis media, with mastoid involvement, with sufficient frequency to make it valuable as a diagnostic measure. In cases, however, where there is an involvement either of the glandular structures, of the intracranial structures, or of the viscera, the polymorphonuclear percentage almost invariably rises, and whenever I find a case of doubtful mastoiditis, with a high polymorphonuclear percentage, I am rather inclined to suspect some visceral complication, such as a pneumonia, rather than to believe that the blood change is due to the process within the ear. A case seen in consultation a short time ago brings out this point very forcibly. A boy, seven and a half years of age, was suffering from an acute middle ear suppuration, requiring incision of both drum membranes. The temperature was 104.2° F. at the time of the incision. The temperature fell during the next twenty-four hours to between 101° and 102° F., and then suddenly rose to 104° F., and later to 105° F. The temperature remained at this elevation for several days, there usually being a fall to 102° or 103° F. at some time during the day, generally during the morning. The blood count showed over 84 per cent. of polymorphonuclear cells, with a leucocytosis of about 29,000. There were some slight pulmonary signs upon the left side, hardly sufficient, in the opinion of some of the consultants, to warrant a diagnosis of pneumonia. Owing to the condition of the lungs I decided not to operate on the mastoid. The child made an absolutely uneventful recovery, the temperature falling about the fifth day, the pulmonary symptoms disappearing, and the otitis running an entirely uncomplicated course. I might say in this connection that when the pathologist examined the blood and read the history of the case he was inclined to think that the change in the blood was due to the mastoid suppuration.

I also have the records of ten cases of acute otitis media, not operated in, and in which a blood count was made. Here the leucocytosis varied from 6,000 to 19,000, and the polymorphonuclear proportion from 60 per cent. to 81 per cent. All these patients made a perfect recovery after simple incision of the drum membrane, and did not require any mastoid operation.

It seems to me, therefore, that an examination of the blood fails to throw much light upon the cases of simple mastoid involvement. Where the process has advanced so far as to involve either the meninges or the brain substance itself, I believe that the blood count may be of value, as evidenced in the one case of cerebellar abscess which I have mentioned. I have found this condition present also in other cases of brain abscess which have come under my observation, and it is a sign which we would ordinarily expect. It is interesting to note, however, that in one of the cases reported, namely, a case of recurrent mastoiditis, operated in—the patient subsequently died of meningitis—that a blood count in this case—made after the symptoms of meningitis were fairly well developed—showed a leucocytosis of only 12,400, with a polymorphonuclear percentage of 67. In a similar case observed last year the blood count was negative, although meningitis was suspected, and the patient subsequently died of this disease. These cases will be spoken of later.

It is interesting to study also the value of the bacteriological investigation of the aural discharge in these cases. During the past seven months I have made records of thirty-seven cases of acute otitis in private practice, and in which there has been a bacteriological examination. Out of these thirty-seven cases, in eight cases the smears were negative, indicating a very mild congestion of the middle ear, with an effusion of serum. In eight cases the infection was due to staphylococcus, in ten cases to *Streptococcus capsulatus*, in two to latent streptococcus, in three to streptococcus, two of these occurring as a mixed infection, two to pneumococcus and streptococcus, two to pneumococcus, and two to pneumococcus and staphylococcus.

Out of these thirty-seven cases, seven came to mastoid operation. In two of these the infection was due to mixed streptococcus and pneumococcus infection. In one, the discharge was not examined. In the fourth, the infection was staphylococcus, in the fifth it was *Streptococcus capsulatus*, and in the sixth case the discharge from the ear showed *Streptococcus capsulatus*. It should be stated that in the fifth case there was no discharge from the ear at the time of the diagnosis of mastoiditis, the culture having been made directly from the pus evacuated from the mastoid, and this showed *Streptococcus capsulatus* alone. In the seventh case the discharge from the ear showed mixed infection with streptococcus.

The consideration of these cases would seem to show that where the bacteriological examination of the middle ear discharge is either negative or shows only staphylococcus infection, mastoid complications are not apt to occur. This should not be taken as an invariable rule, as I have seen cases of extensive mastoid involvement from a simple staphylococcus infection.

The *Streptococcus capsulatus* is ordinarily considered as an exceedingly virulent infection, and one which is apt to give rise to extensive destruction of the bone. In the series of private cases, although there were ten cases of *Streptococcus capsulatus* infection, only two of these came to mastoid operation, and in one, as before stated, there was no discharge from the ear at the time the diagnosis of

mastoid involvement was made. The other case was one which progressed with great rapidity to a fatal issue. The *Streptococcus capsulatus* infections have been considered particularly virulent by the otologists, and it has been the opinion of a number of men that when this germ is present the mastoid should be opened very early, even although the classical symptoms of mastoid involvement may be wanting. I can only say that eight of these cases made a perfect recovery after early free incision of the drum membrane.

These statistics would argue, therefore, that in cases where the drum membrane is incised early and free drainage from the middle ear obtained in the early stage of the middle ear inflammation, this drainage will be sufficient, in the majority of cases, to effect a complete cure.

The clinical history in these cases of middle ear suppuration with mastoid involvement is usually sufficiently typical to enable one to make a diagnosis. In certain instances, however, the mastoid symptoms are extremely obscure, so that extensive mastoid involvement may take place and yet not be discovered until late in the course of the disease. I have in my records two cases of this character seen during the past year.

CASE I.—One occurred in a man, sixty-eight years of age, who, about three months before I saw him, suffered from a mild attack of gripe, which confined him to the house for a few days. During this period he had slight pain in the right ear for one night. When seen the next morning by his physician, a little sero-sanguinolent discharge was found in the right canal. The pain had entirely disappeared and no treatment for the ear was prescribed. There was no further discharge from the external auditory canal, and the patient soon became, to all intents and purposes, entirely well. The only symptom of which he complained was great impairment of hearing upon the affected side. Two months after recovery from his attack of gripe, as he was coming to New York on a pleasure trip, his physician advised that he consult me on account of the impairment in hearing. On examination of the right ear I found the external auditory canal extremely narrow, owing to a sinking of the upper and posterior wall. Only a small portion of the drum membrane could be seen, and this was normal in color. The hearing on this side, for sharp sounds and for the whispered voice, was very much reduced. There was slight thickening of the soft tissues overlying the mastoid, but no definite edema. Firm pressure over the mastoid elicited a slight amount of tenderness, both over the antrum and over the tip. From the history of the case the sinking of the upper wall of the canal, the profound deafness, and the slight mastoid tenderness, I insisted upon opening the mastoid at once. This was done in the presence of the patient's physician, and about half a drachm of thick pus was evacuated from the mastoid. A bacteriological examination of the pus showed a pure culture of *Streptococcus capsulatus*. The man made an uninterrupted recovery.

The preceding case illustrates how we may occasionally have infection of the mastoid following a middle ear infection, and in which the symptoms of middle ear inflammation are so slight as to attract but little attention, either on the part of the patient or on the part of the physician.

CASE II.—A second case of this kind came under my observation at the New York Eye and Ear Infirmary, concerning one, some second middle age, and who gave a somewhat similar history. He had had some pain in

both ears about six weeks before I saw him. When he presented himself at my clinic, both drum membranes were intact, and aside from being lustreless, they appeared fairly normal. In this patient there was considerable swelling on both sides of the neck, just beneath the sternomastoid muscle. There was slight edema over the mastoid tip. Pressure over the tip of the mastoid and over the sternomastoid region elicited pain. This man had no elevation of temperature and, aside from the feeling of discomfort in the neck, complained of nothing. Incision of both drum membranes was performed, despite their almost normal appearance, and on examining the smears, *Streptococcus capsulatus* was found. Both mastoids were operated on, and both were found filled with pus. In both instances rupture through the cortex had taken place beneath the sternomastoid muscle.

CASE III.—In a third case there was no elevation of temperature, only a very moderate amount of middle ear inflammation, and for a period of ten days there was absolutely no tenderness over the mastoid. The patient simply complained of spontaneous pain in the mastoid region which prevented him from sleeping. Later, slight tenderness on firm pressure developed over the mastoid. The blood count in this case was entirely negative. On operation, the entire mastoid process was found completely destroyed. The germ in this instance was *Streptococcus capsulatus*.

These cases serve to demonstrate how easily an extensive infection of the mastoid may be overlooked if we depend upon any one symptom, such as local tenderness, which was absent until the very late stages in all of these cases, or severe inflammation of the ear, which was absent in every one of these cases. The blood count made in one of these cases in which severe destruction was found was absolutely negative. It is only by a careful study of the combined symptoms and signs that a diagnosis in doubtful cases can be made.

So much for the obscure, or what may be called "latent" cases of mastoiditis, that is, cases in which both the aural and mastoid symptoms are not well marked, and in which the invasion is exceedingly slow. Contrast these histories with three other cases, two of which occurred in private and one in hospital practice.

CASE IV.—The first case was that of a woman about sixty years of age, of an exceedingly neurotic temperament, who, forty-eight hours after complaining of some slight pain in the right ear, was seen with a temperature of 104° F. The patient had had some symptoms of grip a few days previous to the otitis. When I saw her there was marked bulging of both drum membranes, which were freely incised. At this time the breathing was extremely rapid and the pulse weak and rapid, but a careful examination of the chest by two expert clinicians—one a member of this society—failed to reveal any signs of pneumonia. Both drum membranes were incised, and a smear from the exudate of the right ear showed *Streptococcus capsulatus*. The smear from the left ear was negative. The temperature fell immediately after incision, but rose again at the end of twenty-four hours, and on the evening of this day the right mastoid was opened by one of my colleagues, as I was out of the city. During this interval the patient had had a severe chill, preceding the abrupt rise in temperature. When I saw the case there was absolutely no mastoid tenderness on either side. Just prior to the mastoid operation, my colleague informed me that very deep pressure elicited a slight amount of tenderness. At the time of the mastoid operation the mastoid cells were filled with pus, the lateral sinus was exposed and contained a septic clot.

The temperature fell abruptly after the operation, only to rise again on the second day to 105.5° F. The blood count at this time showed a polymorphonuclear percentage of over 80, with a high leucocytosis. Owing to the fact that the signs in the chest were not conclusive, I believed that the clot had extended to the internal jugular, and removed the jugular from just below the omohyoid muscle to the base of the skull. Bacteriological examination of the clot in the jugular showed that this was sterile. The walls of the vein were not examined. In the meantime, the smears from the left ear showed *Streptococcus capsulatus*. The patient died five days after the drum membranes were incised, with well marked signs of pneumonia.

In this case undoubtedly the pneumonia was the cause of death. It is reported, however, to show how rapidly an acute otitis may involve the mastoid and extend to the intracranial structures. In other words, seventy-two hours after the patient first complained of pain in the ear the mastoid was opened and extensive destruction was found, with involvement of the lateral sinus. This may well be called a fulminating case.

CASE V.—In the same category I might mention the case of a patient about forty years of age who, after an attack of grip, suddenly developed pain in the right ear and over the region of the right frontal and maxillary sinuses. The frontal and maxillary sinus inflammation ran a typical course, and gave rise to nothing but passing discomfort. The drum membrane was incised about six hours after the pain was first complained of, the bacteriological examination showing a mixed streptococcus and pneumococcus infection. A blood count was not made in this case. Within twenty-four hours after the pain began in the ear, the right side of the face became swollen, particularly over the region of the parotid gland. This swelling, you will, of course, understand, was entirely independent of the coexistent inflammation in the maxillary and frontal sinuses, which was only moderate in degree. This pain over the parotid region persisted in spite of various local applications, and the parotid gland became swollen and tense. The discharge from the ear continued free for about eight days, when there began to be signs of imperfect drainage. The mastoid was not tender for the first four days of the middle ear inflammation. After this time, slight mastoid tenderness was observed. The tenderness began at the tip of the mastoid, and was at first supposed to be due to the mild parotiditis which was present. In view of the early date at which the drum membrane was incised, this parotiditis was supposed to be coexistent and not secondary to the middle ear inflammation. Ten days after the drum membrane was opened the mastoid tenderness was sufficiently pronounced to warrant operation. A small amount of pus was evacuated from the mastoid cells, the parotiditis subsided, and the patient made a complete recovery. On opening the mastoid, the cells at the tip were found to be very extensively developed and very thin walled. The peculiar anatomical condition of these cells explains, I think, the early swelling in the parotid, which was undoubtedly due to a secondary infection from the middle ear and mastoid. Here the symptoms due to the mastoid involvement were exceedingly rapid.

CASE VI.—In a third case which may be classed among the fulminating cases, may be mentioned one occurring in hospital practice, where a man entered the hospital, complaining of severe pain in both ears, of about twelve hours' duration. Both mastoids were exceedingly tender at the time of admission. The temperature was moderately elevated. Both drum membranes were incised freely, and there was free dis-

charge from both ears. I operated upon the patient on the day after admission and found both mastoids broken down, the lateral sinus being exposed upon the right side. Later, this man was attacked with enlargement of the supraclavicular glands upon the left side, requiring excision, and a sinus thrombosis upon the right side, necessitating excision of the internal jugular. The patient ultimately made a perfect recovery. Here the otitic symptoms had antedated the mastoid symptoms by only a few hours, and yet extensive mastoid destruction was found.

We, therefore, find from these three cases that we have a series of cases which may properly be called "cases of fulminating mastoiditis." Prompt operation in these cases will be followed by cure unless some visceral complication is present. Among the late sequelæ which may follow cases of this character, I may report one case occurring in private practice two years ago:

CASE VII.—The patient was a woman suffering from suppuration of the left middle ear ten years previous. About eight weeks before I saw her she had an attack of grip, with pain in the left ear, followed by discharge. When called in consultation, the left drum membrane was perforated, there was a thick purulent discharge from the left ear, and the left mastoid was excessively tender. As the perforation through the drum membrane did not thoroughly drain the tympanic cavity, a free incision was made in the drum membrane. The smear from the discharge showed *Streptococcus capsulatus*. Two days later the mastoid tenderness not subsiding, the mastoid was opened and found to be completely broken down. During the operation the lateral sinus was exposed and accidentally torn. This patient did perfectly well for six weeks, at which time the mastoid wound had almost entirely healed. During this period she had absolutely no elevation of temperature, and aside from the fact that she did not gain in flesh after the operation, presented no abnormal symptoms.

A month after the operation, and following a dressing, the temperature rose to 100° F. One month and one day after the operation, while sitting in a chair, she suddenly became aphasic, and the temperature rose to 102.5° F. On the next day the patient was seen by several consultants, including a prominent neurologist, who thought that the condition was due to thrombosis of a branch of the middle cerebral artery, supplying Broca's convolution and the Island of Reil, and gave as his positive opinion that the condition was in no way connected with the ear. Ophthalmoscopic examination was negative. A blood count showed 84 per cent. of polymorphonuclear cells, with a leucocytosis of 11,400. The temperature ranged from normal to 102° F. for about one week, then dropped to about 100° F., and although the aphasic symptoms did not improve, the general conditions seemed to be rather better. During this interval she was seen by a prominent surgeon, who was inclined to think that there might be a brain abscess, although he was not positive on this point. The blood count throughout the illness showed a leucocytosis varying from 11,000 to 17,000 and a polymorphonuclear count varying from 79 per cent. to 85 per cent., the highest percentage being 85, which was reached on two occasions, and the lowest being 79. I was inclined to the opinion that we had to deal here with a brain abscess, but owing to the opinion of the other gentleman, did not operate upon her until the day before death. Two nights before this occurred the patient had had a severe chill, and the temperature rose to 101° F. It fell, however, on the next day to normal. On the day before the operation the temperature was normal, although the patient complained of a good deal of headache. She, however, was fairly ras-

tional and recognized relatives during the day, but in the evening the temperature suddenly began to rise, she complained of severe headache, and on the morning before death the temperature was 104° F.

I performed an operation immediately, and found an abscess in the region of the inferior frontal convolution and the Island of Reil. The patient was in a practically hopeless condition when put upon the table, as there was evidently a complicating meningitis present. An examination of the abscess cavity showed a large abscess in the frontal lobe, and one which could not possibly have developed in the length of time during which the patient was suffering from cerebral symptoms. My impression was that we had here to deal with a latent abscess, which developed ten years before, and which became reinfectd at the time of the acute otitis. Had an earlier operation been performed upon this patient I think that she might have recovered. In view of the fact that the only symptoms which we had to guide us were the blood count and the slight fluctuations in temperature, it was a question whether operation would have been advisable. This was certainly the opinion of my colleagues who saw the case with me repeatedly during the time that the patient was suffering from cerebral symptoms. This, I think, may be well styled a case of "latent intracranial suppuration following middle ear suppuration."

Two other cases which have come under my observation at the hospital demonstrate that even although a most thorough mastoid operation is performed, intracranial suppuration may occasionally occur.

CASE VIII.—In one of these cases the patient suffered from an acute otitis, with some mastoid symptoms. All mastoid tenderness cleared up after free incision of the drum membrane and rest in bed. The patient left the hospital, after being observed for about ten days, practically well. There was only a very slight discharge from the ear, the perforation in the drum membrane had almost healed, and all mastoid tenderness had disappeared. About ten days later she returned with severe mastoid tenderness. The mastoid was opened, and was found to be completely disintegrated. The woman then made, apparently, an excellent recovery, leaving the hospital again between two and three weeks after the operation, with the wound almost entirely healed. A few weeks later she came back complaining of headache and fever, and the temperature at the time of admission was, as I remember it, about 102° F. The mastoid wound was healing perfectly well, and was represented by a small granulating area. The temperature fell to normal after one or two days' rest in bed, and the blood count gave absolutely no evidence of any intracranial complication, the polymorphonuclear count being about normal. The patient remained in the hospital several days and seemed absolutely cured. One evening, after talking with the other patients, she suddenly complained of severe pain in the head, and the temperature rose to 104° F. I saw her the next day, and she had all the characteristic symptoms of meningitis. The lateral ventricle on the affected side was drained, but the meningeal symptoms continued, and the patient died about two days after the operation from suppurative meningitis. The infection in this case was streptococcus.

CASE IX.—In another similar case seen this year the mastoid had been operated on at another institution in this city. As the wound was not healing well, a second operation was performed at the New York Eye and Ear Infirmary. After the wound had almost entirely healed, the patient was readmitted, complaining of pain in the head and back, with a temperature of 102° F. The blood count was normal, aside from a slight increase in the number of leucocytes. Symptoms

of meningitis developed, lumbar puncture was done, and streptococcus infection found. In this case the fourth ventricle was drained, and the patient died of meningitis about thirty-six hours after the operation.

It is rather curious that in these cases of meningitis the blood count gave no evidence of the condition.

While these last three fatal cases show that the mastoid operation, no matter how successfully conducted, may not, in every case, guard the patient against intracranial infection, I would say that the statistics of mastoid operation are, on the whole, very satisfactory. Out of forty-nine cases operated in between September and April of these last twelve months, there have been but two deaths. One occurred from pneumonia and one from meningitis. The unusual cases related before have been taken from my case books, which cover a number of years' practice.

Just a word about the mastoid operation in children. In consultation some time ago with a prominent paediatrist of this city he told me that in many cases he found marked symptoms of mastoiditis which subsided either spontaneously or with the use of cold applications. Moreover, he made to me a statement which was rather astonishing, that the mastoid operation in young children was followed by extremely unfavorable results. Of the last forty-nine patients operated on, seven were under one year of age. In many of these cases the mastoid suppuration had been extensive. There has not been a single death in the seven cases.

17 WEST FORTY-SIXTH STREET.

OBSERVATIONS UPON NEPHROLITHIASIS WITH VAGUE SYMPTOMS.

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The correct interpretation of pathological kidney conditions, especially unilateral ones, requires, as a rule, a more than ordinary diagnostic acumen on the part of the physician who besides being well trained must be equipped with special knowledge and experience in this particular field. The most difficult chapter, though, of renal pathology is beyond doubt the diagnosis of renal and ureteral calculi. Every one of the many objective or subjective symptoms of nephrolithiasis described in textbooks, if considered alone for itself or if not corroborated by other evidence, may lead to diagnostic errors. Even in the presence of more than one characteristic symptom (pain, presence of blood in urine, palpable and sensitive kidney, cystoscopic findings, etc.) an exact diagnosis is often impossible, and a wrong diagnosis in a given case may occur in spite of large experience and a long and careful observation. Certain unilateral kidney lesions (beginning tuberculosis, incipient stage of a neoplasm, a hydronephrosis without a palpable enlargement of the kidney) connected with colicky pains, hæmorrhage, and temporary ureteral obstruction, cannot be distinguished, under certain conditions, from nephrolithiasis. Only two symptoms, direct palpation of one or more calculi in the kidney or ureter, and a distinct and characteristic shadow on a radiographic plate give direct evidence of the presence of one or several concretions in the upper urinary tract. The former of

these symptoms is obviously very rare, so that the latter one must, at the present state of our knowledge, be considered one of the most important, if not the most important, diagnostic aid in nephrolithiasis. The following case may serve as a good illustration for the truth of this contention:

CASE I.—The patient was a well educated business man of fifty-three years. His family and previous history was unimportant, though an attack of gonorrhœa at the age of twenty years deserves mention, which, according to the patient's statement, ended in recovery after short duration. About three years prior to his first visit to my office the patient was seized with a severe chill and consequent fever. The patient had no recollection of any pain in the abdomen or along the urinary tract connected with that chill. Prior to this attack and later on a troublesome pollakiuria directed the patient's attention to his bladder; various and prolonged treatments for his so called bladder trouble seemed to effect a gradual decrease in frequency and urgency of micturition, while the urine always for many years back appeared turbid and full of mucus.

At his visit the patient complained of a gradual decline of his sexual powers, which was the main and only reason for consulting me.

The appearance of the well preserved, somewhat corpulent man was good. Upon examination nothing abnormal except a myocarditis and slight arteriosclerosis was ascertained. Examination of the urinary organs revealed very cloudy urine portions, the cloudiness, as microscopically ascertained, being due to the presence of abundant pus cells. The prostate appeared not to be enlarged to the palpating finger. The urethra showed no stricture, but the cystoscope revealed besides the picture of a chronic cystitis a patulous ureteral orifice on the left side from which a turbid fluid and at times white flakes emanated into the bladder. The kidneys could not be palpated, owing to the patient's general obesity. No pain in either kidney region could be elicited by palpation, and upon close questioning the patient denied ever having experienced any pain in the region of his urinary tract. The microscopical examination of the kidney urine of the left side showed simply pus cells in abundance.

Upon these findings a chronic left sided pyelitis and possibly pyonephrosis was diagnosed and renal lavage of the left side at stated intervals, together with the usual dietary and remedial régime was instituted. When after several weeks' treatment no change in his symptoms was noticeable, the patient was persuaded to enter the German Hospital for an accurate observation and more thorough investigation of his case. Here the daily quantity of urine was found to be between 1,500 and 1,800 c.c., temperature and pulse rate were always normal, and the patient's general condition was good. A functional test of kidney urines gave the following result:

Right Kidney.	Left Kidney.
Sugar after 1 c.c. of $\frac{1}{2}$ per cent. phloridzin injection: = 1.9	= 0.4
Cystoscope = 175	= 0.75
Urea, 0.009.	0.004 to 1 c.c. of urine.
Microscopical examination: A few red blood corpuscles (due to traumatism of ureter catheter).	Leucocytes in abundance.

Inoculation with the urine of the left side into a guinea pig was negative as regards suspected tuberculations. An x ray picture of both kidneys revealed the presence of several distinct shadows on the left side, which were interpreted as calculi. A nephrotomy on that side revealed a rather large kidney which as soon

as it was freed from its fatty capsule showed the presence of calculi, which had pierced the kidney substance so that they protruded over the kidney surface. The organ opened in the centre revealed numerous large calculi of the shape of the renal calices which were removed. The kidney pelvis was enlarged and contained several smaller concrements which were washed away. Since the kidney seemed to possess a fair portion of comparatively healthy tissue, the organ was closed with a few sutures, care being taken to effect thorough drainage of the kidney and its pelvis.

The patient rallied well from the operation, but early the next morning grave uræmic symptoms set in, under which the exitus occurred thirty hours after the operation.

The weight of the calculi removed from the kidney and its pelvis was 18.7 grammes (over half an ounce): they varied in size from a small bean to a walnut, and some of them represented the exact cast of the renal calices in which they probably were lodged for many years. All concrements were phosphates.

It is well known that large concrements may exist a long time in the upper urinary tract without being recognized, and that they occasionally are found at post mortem examinations of subjects that never had presented any symptoms pointing to an affection of the urinary organs. Several such cases have been published in the American literature during the last few years, although I failed to find the record of a similar case like the one just described where at two or three different places the pointed and rugged concrements had pierced through the kidney substance. It goes without saying that the removal of these irregularly shaped, many angled, foreign bodies, firmly lodged in the renal parenchyma, was fraught with difficulty, and at times only possible by fragmentation of the larger concrements. The hæmorrhage incidental to the removal of these sharp pieces was rather profuse and may in a measure have been responsible for the patient's collapse after the operation.

In this connection I wish to report another case which resembles the one just described, in that it offered none of the classical symptoms generally described in textbooks as characteristic of nephrolithiasis.

CASE II.—A travelling salesman, of thirty-five years, presented himself at my office with an acute gonorrhœal urethritis. The spontaneous discharge at the meatus showed numerous gonococci. The patient admitted a suspicious intercourse several days prior to his visit and upon closer questioning stated that he had suffered several attacks of acute gonorrhœa during the last eight or ten years, the last one of which resulted in a left sided pyelitis for which pelvic lavage repeatedly was used by several urologists without apparent benefit.

The patient's general condition was excellent. Neither of his kidneys was palpable on examination, of the muscular and fatty development, and no painful area in either kidney region could be elicited even on deep pressure.

After all symptoms from his recent acute infection had disappeared the patient was prevailed upon to enter the hospital to enable me to study his case. During the eighteen days of observation at the hospital temperature and pulse were always normal, the daily quantity of urine varied between thirty and fifty ounces; it always looked turbid and was slightly alkaline, while it showed an unusually high content of phosphate. Large bladder and small renal caliculi were found. The urine smears thus: "Cystoscopy presented the picture of a chronic cystitis. The ureters and urethra showed small

areas of inflamed mucous membrane, especially near the left ureter, which appeared quite puffed and reddened, and from which at regular intervals gushes of a turbid fluid were emitted. Near the left ureter a small superficial ulcer was visible. The right ureter appeared normal in size and apparently normal urine spurted from its mouth. By ureteral catheterization a quantity of turbid urine was obtained from the left side, which on microscopic examination showed abundant pus and a few red blood cells; bacteriologically streptococci and coli bacilli were found. Inoculation of a guinea pig with urine from the left side gave a negative result as regards tuberculosis.

Catheterization of both ureters in combination with the test for kidney function gave the following result:

<i>Right Kidney.</i>	<i>Left Kidney.</i>
Urine very cloudy.	Clear.
Cryoscopy: — 0.65	— 0.69
Urea, 0.0065.	0.004 to 1 c.c. of urine.
Sugar after injection of 25 min. of ½ per cent. of phloridzin solution:	
0.42	0.11
Microscopic examination: Much sediment. Few red cells, numerous small epithelial cells, pus in abundance.	Sediment hardly noticeable, a few uric acid crystals, a few small epithelial cells.

Upon these findings a pyelitis and possibly a pyonephrosis on the left side was diagnosed, and renal lavage of that side with silver nitrate of increasing concentration carried on over a few weeks without any apparent influence upon the macroscopic and microscopic features of the left kidney secretion.

An x ray examination finally led to the correct diagnosis in this case, demonstrating two distinct shadows in the left kidney region which were interpreted as calculi.

When the patient was notified of the result of the Röntgen examination he volunteered the statement that he had suffered about three years ago a chill, followed by pain in the right kidney region. It was at that time thought to be an attack of acute indigestion, and the patient did not need to seek medical aid for it.

The third case which presents another type of vague symptoms produced by nephrolithiasis would never have been correctly diagnosed if my previous experience would not have put me on the lookout:

CASE III.—A strong and ruddy sea captain, of fifty-five years, consulted me for an ache in the back, preferably in either loin, which at various hands had been diagnosed as lumbago or rheumatism. No symptom pointed to the urinary tract, and except for the presence of a few blood shadows in the urine I would not have been justified in putting my patient to the expense of obtaining a radiogram of his kidney regions. My suspicion, though, of the pain being possibly due to the presence of a renal concrement proved to be well founded, as the plate showed a distinct and characteristic shadow in the right kidney.

Such and similar observations which to enumerate time and space forbid force upon us the conviction that radiography must at present be considered the most important means for the recognition of kidney stones with vague or obscure symptoms.

The technique of Röntgen examination has in the course of years been developed to such a stage as to demand a special training. In order to obtain reliable diagnostic results the x ray specialist must be equipped with a fair knowledge of physics as well

as with a good medical education. The handling of the complicated apparatus and the knowledge of the working of the different tubes can only be learned slowly and requires an experience extending over several years before the term "x ray expert" can be justly applied to a worker in this field.

If plates would be made and interpreted by such men only errors could be reduced to a minimum. In the latest edition of his textbook on Röntgen technique Albers-Schoenberg states that if a plate shows all the salient points of the kidney region (processus transversi of the spinal column, the two last ribs with their structure, the psoas and quadratus lumborum muscles), and if no shadows that could be interpreted as being caused by concretions are visible, then the existence of calculi to the size of a pea can safely be excluded.

It is advisable, especially in cases of suspected nephrolithiasis with vague symptoms, to make a thorough radiographic search of both kidney regions and ureters. This is especially indicated in cases like the second reported in this paper where the patient's statements as regards pain pointed to the opposite side of the one where the concretions in reality were located. It is essential to take photographs on two or three different occasions, since errors caused by intestinal contents can in this way be avoided.

Nevertheless, it cannot be denied that the Röntgen diagnosis of nephrolithiasis is only an auxiliary or corroborative method, and I would hesitate except in extraordinary cases to expose a kidney upon the sole evidence furnished by the plate. On the other hand, though, I would crave for the information gained by the x rays in every case of suspected nephrolithiasis even in the presence of other unmistakable symptoms. It is to be hoped that a better knowledge of the diagnostic value of a good plate made by an expert radiographer will lead to the correct diagnosis of obscure ailments that hitherto at the hands of the surgeon were diagnosed, for instance, as chronic appendicitis and by the internist interpreted as neurasthenic symptoms.

2672 PINE STREET.

SURGICAL COMPLICATIONS AND SEQUELÆ OF TYPHOID FEVER INVOLVING THE GALL- BLADDER AND LIVER

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Typhoid fever ranks preeminently among the acute infections as that disease most frequently productive of complications affecting the hepatic system. It is now well known that bile possesses a peculiar allurements or affinity for the *Bacillus typhosus*, and whether the bacilli gain entrance to the gallbladder and liver by way of the biliary ducts or through the blood, the fact remains that they do congregate in these two organs to a marvelous degree, thereby giving rise to the not infrequent complications and the sequelæ demanding surgical interference.

Gallbladder.

Secondary only to the intestinal perforation in frequency and importance stand the surgical com-

plications and sequellæ of typhoid fever involving the gallbladder. These accidents may occur (1) during the course of the fever, (2) in the period of convalescence, (3) weeks, months, or years following the acute attack, and (4) absolutely independently of any previous symptoms of enteric fever. As early as 1829, Louis first recognized the possibility of cholecystitis complicating typhoid fever, stating that "changes in the bile and gallbladder are much more frequent in the course of typhoid fever than in any other acute disease." Not, however, until 1888 (eight years after the discovery of the bacillus of Eberth) is credit due Fütterer (1) for priority in the isolation of the organism in the gallbladder, and two years later Gilbert and Girode (2) demonstrated microscopically and by cultures the bacillus in a case of suppurative cholecystitis in which the cholecystotomy was performed five months after the attack of typhoid. About the same time Naunyn (29) promulgated his dictum that gallstones due to a catarrhal inflammation are induced by microorganisms. Bernheim (3) first drew attention to this relation between gallstones and typhoid fever. Welsh has discovered the typhoid and colon bacillus in the nucleus of a gallstone. In a series of one hundred cases of biliary calculi removed at autopsy, Fournier (4) found living or dead bacteria in 38 per cent. The majority of these bacilli were the *colon bacillus*, the next the *Bacillus typhosus*. Similar observations have been made by Flexner (5), Gilbert and Domenicini (6), Milian (7), Hanot (8), and others.

Bernheim and Fournier are of the opinion that the typhoid bacilli cause stasis of the bile, which in turn leads to the formation of stone. There can be no doubt that where gallstones already exist, the resistance of the mucosa being therefore necessarily diminished, the liability to cholecystitis is accordingly greatly increased. Perhaps it should be mentioned here that cases have been recorded where typhoid bacilli, in pure cultures, have been isolated from gallbladders affected with cholecystitis six weeks (9); three and a half (10); six (11); and eight (12) months; and one (13); seven (14); fourteen and a half (15); seventeen (16); eighteen (17); twenty (18) and even twenty-five (19) years after an attack of enteric fever. It will be borne in mind, however, that although the gallbladder is commonly infected by the bacillus of Eberth in typhoid fever, not infrequently other organisms as the pyogenic cocci and the *Bacillus coli communis* are discovered. Cushing (20) mentions five cases of posttyphoidal cholecystitis in which the *Bacillus coli communis* was found in pure culture in the inflamed organ. From these facts it is readily understood that the virulence of the *Bacillus typhosus* in a biliary environment is almost incredible. Why typhoid bacilli like bile, or to explain the chemotactic or physical affinity of bile for the *Bacillus typhosus* is impossible, but true it is and the realization of this fact prompted Conradi (21) to utilize biliary culture media for the isolation of the bacillus from the blood with unprecedented success. In consideration of the views of Robson (22) and Mark W. Richardson (23) we believe with Maurice Richardson (24) that the modes of entrance of the bacilli into the gallbladder may take place either by way of the biliary ducts as an ascending infection, though not

necessarily accompanied by an ascending inflammation, inclining very strongly to the last mentioned as the more important. Just so soon as the bacilli reach the biliary passages after secretion from the liver, disabled by the poisonous products of the bacteria, or by whatever other source they may reach the ducts and gallbladder, they find there a cheerful environment and "happy hunting ground" for the propagation of mischief.

Quoting from Foster (25):

"The act of secretion of bile by the liver must not be confounded with the discharge of bile from the bile duct in the duodenum. When the acid contents of the stomach are poured over the orifice of the biliary duct, a gush of bile takes place. Indeed, stimulation of this region of the duodenum with dilute acid at once provokes a flow, though alkaline fluids so applied have little or no effect. When no such acid fluid is passing into the duodenum no bile is, under normal circumstances, discharged into the intestine."

"The secretion of bile on the other hand, as shown by biliary fistulæ, is continuous; it appears never to cease. When no food is taken the bile passes from the liver along the hepatic and then back along the cystic duct. The flow being aided (probably by peristaltic contraction of the muscular fibres of the duct) to the gallbladder, where it is temporarily stored; hence in starving animals, when no discharge is excited by food, the gallbladder becomes greatly distended with bile."

"The bile is, moreover, affected by the length of the sojourn in the gallbladder; bile taken direct from the hepatic duct, especially when secreted rapidly, contains little or no mucus; that taken from the gallbladder as of slaughtered oxen or sheep, is loaded with mucus."

On the other hand, although the normal bile is sterile, Charcot and Gombault (26) have shown that, within twenty-four hours after ligation of the common duct, the bile contains numerous organisms.

Camac (27) compares the typhoid patient to a starving animal that "presents all the conditions favorable for the distension of the gallbladder and the formation of mucus therein. This mucus, forming a plug in the cystic duct again produces the condition favorable for the development of pathogenic organisms. The resistance of the individual becoming less and less, as the invasion of the system by the organism proceeds, there is nothing to prevent ulceration and even perforation of the gallbladder. On the other hand, if the resistance of the individual prove equal to the attack, and the organisms cease to multiply there is equal reason for the bacilli to remain in the gallbladder many months and even years after the infection."

Curiously enough there have been not a few cases of typhoidal cholecystitis reported in recent years in which there has been no record of preceding enteric fever, although the bacillus of Eberth was subsequently found in pure culture in the gallbladder contents. Thus Burley in 1903 collected six such cases and Stewart the following year added a seventh. Erdmann (28), Cushing, Pratt, and others have reported similar cases.

In reviewing the literature upon cholecystitis in typhoid fever we have been successful in collecting 154 cases. Included in this number are three cases from the surgical wards of the University Hospital and one from the Episcopal Hospital which have not previously been reported.

CASE I.—M. N., female, age sixty-six, was referred to Dr. Frazer's service December 21, 1904, complaining

ing of having lost thirty pounds in weight during the preceding six months, and two or three weeks before, the time of inception of her present condition, of "roaring in the head" and some throat trouble. She had had the usual diseases of childhood and a definite history of having passed through an attack of typhoid fever several years prior to the onset of her present symptoms. Several months before admission emesis, and gastric distress was present, which was succeeded six weeks ago by epigastric pain, generally at midday, but no longer vomiting. For two or three weeks preceding and at the time of her admission, she complained of pain in the right hypochondrium, associated at times with severe sharp shooting pains, radiating downward towards the hip, also a dragging sensation in the right breast and at the angle of the scapula. The acute attacks of pain were associated with chills and sweats; the milder ones by jaundice, which disappeared rapidly. Itching in the hypochondriac area had been a constant symptom recently. Bowels were clay colored and regular.

Diagnosis.—Cholelithiasis.

Operation.—An incision through the outer border of the right rectus, extending from a point two inches below the costal arch downward displayed an enlarged cirrhotic liver and a gallbladder distended with purulent bile and containing one large and a number of smaller calculi. Following the introduction of drainage the wound was closed and the patient passed through an uninterrupted convalescence.

CASE II.—R. H., a female, aged sixteen, was admitted to Dr. Martin's service and underwent operation, August 18, 1906, for typhoidal cholecystitis. She had had the usual diseases of childhood. A child was still born eleven weeks before admission to the hospital. Her physician stated that seven weeks ago she was the victim of a continued febrile attack resembling typhoid fever, lasting four weeks. Five days prior to operation patient was seized with cramp like pains throughout abdomen. A remission of pain followed for two days, only to be succeeded by a second attack, which caused her to go to bed, and which was associated with fever, nausea, and vomiting. Constipation was the rule. Previous to operation her temperature was 102.2° F.; pulse, 142; respiration, 22. Leucocytosis, 24,080.

Operation by Dr. Martin.—Vertical incision in outer edge of right rectus from tip of ninth costal cartilage to level of the umbilicus. In region of the gallbladder a slimy, tense, thick, smooth yellowish mass was seen, which proved to be a thick layer of plastic exudate, completely enclosing and walling off the gallbladder. The latter was enlarged and tense, its walls injected. Aspiration withdrew a thick, mucopurulent material. The mucosa was necrotic and had practically sloughed off from the remaining coats of the viscus. This was removed almost entirely together with eight small split-pea sized calculi, with a considerable quantity of purulent bile. Drainage was introduced and the wound closed. The Widal agglutination made three days later resulted positively. The recovery of the patient was prompt and perfect.

CASE III.—M. M., female, age fifty-four, was operated upon by Dr. Frazier, April 26, 1903. She had given birth to five children, had had the usual diseases of childhood, but no other acute illness until typhoid fever, from which at the time of the onset of the sequel, she was practically convalescent, having been in bed for three months. Four days prior to operation, after she had been out of bed for a day, she was seized with sharp pains in the epigastrium and was somewhat nauseated, but did not vomit. These colicky pains continued for twenty-four hours. Meanwhile a physician had seen her and found a mass in the abdomen to the right of and above the umbilicus, which was not especially tender. On the following day the mass had dis-

appeared, but reappeared again on the succeeding day. She was not distinctly jaundiced and had no chills. For twenty-four hours prior to operation everything was vomited and a great deal of abdominal distress was present. At time of operation temperature was 101.2° F.; pulse, 124; respiration, 30. She was very weak and emaciated. The mass was distinctly palpable, firm, and movable with respiration. The liver extended well below the costal arch. There was some rigidity of muscles of the right side of abdomen, but no distention, and tenderness over the mass was very acute.

Operation.—Incision in outer edge of the right rectus revealed a gallbladder enormously distended and adherent to the parietal peritoneum. A large quantity of viscid biliary fluid was evacuated, the gallbladder drained, and the wound partially closed. No calculi were discovered, but the bacillus of Eberth was obtained in pure culture from the evacuated biliary fluid. The patient recovered.

CASE IV.—B. A. W., male, aged forty-five, was referred by Dr. Musser to Dr. Frazier and underwent operation, October 13, 1906, for suspected cholecystitis as a sequel to typhoid fever. The patient had passed through a typical attack of typhoid fever one year previously; had no biliary pains at the time, but some bladder pain on urination for three or four months. Shortly after leaving bed he began to suffer pain in the right hypochondriac region, but not severe enough to prevent him from going to work as soon as he was strong enough. The pain was usually of a steady, dull type and was worse in the morning before rising, causing him to toss about in bed. Fever at times rose as high as 102° F., and tenderness was persistent beneath the costal border. He had been unable to work for the past four months. The Widal agglutination, three weeks before operation, was reported negative. The consecutive leucocytic counts during the three weeks before operation were 7,440, 10,800, 14,640.

Operation.—Cholecystotomy. Under ether anaesthesia a right rectus incision was made. The gallbladder was found to be adherent to the gastrohepatic omentum by a few thin webs of tissue. A quantity of viscid, dark green bile was evacuated. The first report upon the biliary fluid from the bacteriological department was negative, a second two weeks after the operation, announced the presence of the *Bacillus typhosus* in pure culture. A speedy and uninterrupted convalescence ensued.

The classifications of the varieties of cholecystitis have been many, based largely upon the pathology of the diseased viscus discovered either at the time of operation or at autopsy. We prefer, however, in this article to divide these affections from the clinicosurgical standpoint into two groups; namely (1) the nonperforative cholecystitis or empyema or both, with or without cholelithiasis, and (2) the more important lesion the perforative cholecystitis. An analysis of 154 cases of typhoidal cholecystitis, that we have been able to collect from the literature after a very careful search shows that the perforation occurred in 39 patients or 25.3 per cent. Of these 39, eleven, or 28.1 per cent., were operated on with a mortality of 54.6 per cent. The remaining patients, or 71.9 per cent., died. This phase of the subject is of so much importance not only to the surgeon but to the internist that we have appended a tabulation of all the available cases of perforative cholecystitis subjected to operation.

From these statistics it is plain that the prognosis varies with the duration of the interval elapsing between the onset of the accident and the time of operation; that the perforation in those cases in

TABULATION OF CASES OF PERFORATIVE CHOLECYSTITIS FOLLOWED BY OPERATIVE INTERVENTION.

No.	Reporter.	Sex	Age.	Time of occurrence.	Interval between onset and operation.	Operation and revelations.	Ca/culi	Bacterological findings.	Results
I	Williams and Shield ¹	F	31	Eleventh day	Not stated	Incision in median line above umbilicus for suspected intestinal perforation. Gallbladder deeply inflamed, purple coloration, slightly enlarged, but lightly distended. Circular sloughing ulcer with perforation near neck of bladder. Drainage through incision into fundus.	—	—	R
II	Alexieff ²	F	5	Fifth week	Probably two days	Incision parallel to right costal margin. Suppuration of gall bladder with adherent intestines. Evacuation of empyema and drainage of gallbladder.	—	Periculture of bacillus typhosus.	R
III	Osler and Halsted ³	F	29	Eight months following fever	Eighteen hours	Incision for appendectomy. Omentum adherent to colon and gall bladder, pocketing small quantities of purulent yellowish fluid. Gallbladder enlarged and very tense, from which 100 c.c. of clear fluid and 30 c.c. of purulent matter were evacuated.	Indefinitely demonstrated at time of operation, but discharged after six weeks	—	R
IV	Osler and Halsted ³	F	37	Fifteen weeks after incidence of fever	Two days	Incision for cholecystotomy. Gall bladder enlarged and rupture immediately visible, through which bilious purulent material oozed. Necrotic wall of viscus incised, drained, and packed.	—	Bacillus coli communis	D 23 days later of toxæmia and exhaustion.
V	Bel ⁴	F	25	End of second week	Probably three days	Incision for cholecystotomy. Gall bladder distended and both it and intestines and liver covered with patches of lymph. No perforation seen. 180 c.c. of pus aspirated, followed by incision and evacuation of 152 gallstones, and insertion of drainage tube.	+	Bacillus typhosus	D 3 days later of general peritonitis.
VI	Marsden ⁵	M	17	Twelfth day	Thirty six hours	Median inferior laparotomy for suspected intestinal perforation. A second incision in right iliac region revealed several ounces of dirty greenish mucoid fluid and solitary ribbon of lymph 5 inches long by $\frac{3}{4}$ inch in breadth. Colicase prevented further search. Autopsy showed gallbladder to be thickened with many ulcerations, especially in fundus. Perforation in fundus. Perforative cholecystomy. Perforation near cystic duct.	—	Bacillus of colon group of pseudo typhoid type. Widal two days before operation was positive	D 18 hours later
VII	Willis ⁶	F	19	Fifth week	Immediate	Median laparotomy revealed bile stained serum in abdominal cavity. No perforation discovered. Because of collapsed condition of patient further exploration was deemed inadvisable. Autopsy revealed perforation of gallbladder.	—	Widal positive 20 hours later of exhaustion.	D 2 weeks later of peritonitis
VIII	Stevens and Davis ⁷	M	12	Third week	Six hours	Cholecystotomy at a point where perforation was present; adhesions to colon preventing contamination of peritoneal cavity. Drainage.	—	Resembled typhoid bacillus but possessed no agglutinative power. Widal positive	R
IX	DaCosta ⁸	M	11	Sixth week	Not stated	Laparotomy for suspected intestinal perforation. No evidences found.	—	Widal positive	D. Autopsy revealed perforation of gallbladder
X	Gundelir ⁹	—	—	Twelfth day	Not stated	Incision through right rectus. Cholecystotomy. Perforation of gallbladder near cystic duct. Abdomen contained not less than a pint of bile stained fluid.	—	Bacilli-staphylococci and bacillus coli communis	R
XI	Erdmann ¹⁰	F	16	Sixth week	Two weeks	—	—	—	—

N.B.—In addition to the above noted cases, there is one other case of perforation of the gallbladder to which we were unable to secure access, and therefore unprepared to say whether or not operation was performed or recovery ensued.¹¹

¹ *Lancet*, 1895, i, 531.

² *Journal Russkaya Meditsina* 3, *American Journal of the Medical Sciences*, October, 1897, pp. 465.

³ *Transactions of the Association of American Physicians*, xii, p. 388, 1897.

⁴ *Quintess*.

⁵ *Montreal Medical Journal*, January, 1896.

⁶ *Medical Chronicle*, iv, pp. 268-281, Manchester, 1901.

⁷ *North-East Medical Journal*, 3, 179, S. 3, 1904.

⁸ *Records of the Liverpool Hospital*, 17, vol. 21, 1907.

⁹ *Medical Record*, April, 1905, p. 689.

¹⁰ *Annals of Surgery*, No. 41, 1906.

¹¹ *Annals of Surgery*, xxxv, p. 88, Philadelphia, 1903.

¹² *Guy's Hospital Gazette*, xx, p. 263, London, 1906.

which its location was stated occurred most frequently near the cystic duct; that only 5 of the 11 patients recovered; that females were affected about twice as often as males; that it occurred irrespective of age; that the *Bacillus typhosus* was isolated in about 50 per cent. of the cases, and that calculi were found in only three of the eleven cases or 27.27 per cent.

A very interesting question, therefore, is the

causal relationship not only of calculi to perforation but also of typhoid fever to cholelithiasis. It is highly probable that the previous existence of gallstones either acts mechanically as a predisposing element in the production of cholecystitis, or shows the presence of pathological changes which might predispose to its occurrence.

In a series of 805 cases of typhoid fever we discovered cholecystitis to have occurred only 14 or

in 1.3 per cent. Four of these twelve or 33 1-3 per cent. required operation, and a fifth was allowed to go on to perforation, general peritonitis, and death. Calculi were found in 3 or 75 per cent. of the operated cases and the *Bacillus typhosus* in the biliary contents of all four.

The following is the analysis of the 154 cases of typhoidal cholecystitis collectable from the extant literature:

Age.		Time of occurrence.	
Birth to 10 years (incl.)	5	Few days to 9th day (incl.)	2
11th to 30th year (incl.)	33	10th to 30th day (incl.)	32
Over 30 years	20	2d to 3d month	13
Not stated	96	4th to 6th month	1
		7th to 11th month	2
Total	154	After 1 year	4
		Not stated	100
		Total	154

Gallstones are reported in thirty-one, or 20.1 per cent., of the 154 cases. Approximately 90 per cent. of the cases will be found to be of the female sex. In 50 per cent. of all cases the bacillus of Eberth was isolated from the biliary material, and when the complication developed during the course of the fever, this percentage increases to perhaps 95 per cent.

Symptoms. The latency of this disease is not infrequent and occasionally is extreme and almost incredible. Thus the case of Findlay and Buchanan (19) occurred twenty-five years following the acute typhoidal attack. This view is supported by Da Costa (30), who writes "from the frequency, it might almost be said constancy, with which infection of the gallbladder happens in typhoid fever, it would be supposed that symptoms referable to it are very common. But it is just the reverse." Mason (31) says "inflammation may reach such a degree of severity that life is cut off without warning of the local danger. In more than half of the cases recorded, either through latency of symptoms, or on account of typhoidal stupor nothing unusual was observed. Thus the gallbladder may become distended or perforation may occur without detection." Such was the circumstance in Stevens's and Davis's case, when the physician detected some hypochondriac tenderness in the region of the gallbladder, while making rounds in the ward one morning; no pain or discomfort having been complained of previously by the patient. The three most constant signs, however, are pain, tenderness, and tumor. The former is generally paroxysmal and most marked in the region of the gallbladder, and under the scapula. The pain may, however, be in the epigastrium, or it may be referred directly to the usual seat of the vermiform appendix. It may be, as in Da Costa's case, accompanied by flexion of the legs upon the abdomen, and is probably due to distention of the gallbladder. The paroxysmal nature of the pain may be indistinguishable from that accompanying biliary colic.

According to Mayo Robson (32) in all gallbladder inflammations there is almost invariably a tender spot at the junction of the upper two thirds with the lower one third of a line drawn from the ninth rib to the umbilicus. The tumor varies in size even in the same case at different times, and its position varies with the size of the liver. In uncomplicated cases the free expanded end is movable from side to side and descends with inspiration. Dullness on percussion is a very variable sign. In the genucep-

toral position the tumor can be felt to move just beneath the abdominal wall during respiration. As a rule nausea and vomiting are present. Jaundice is but seldom encountered. Constipation may be present, and the stools clay colored on account of more or less occlusion of the ductus choledochus. Sometimes there are chills and sweats. The presence of leucocytosis is a much disputed point, but whether or not it may occur in a case of pure catarrhal typhoidal cholecystitis, we believe it to be invariable in case of mixed infection, and we regard it as a most valuable adjunct to the other diagnostic features of the disease.

The onset of perforation is usually signalled by sudden pain in the abdomen, especially if referable to the right hypochondrium, to be followed soon by symptoms of peritonitis, the clinical course being much the same as in perforative peritonitis from other sources.

Diagnosis. In a consideration of the diagnosis of typhoidal cholecystitis, two conditions are preeminent: (1) Whether the accident occurs in the acute course of the fever as a complication; or (2) subsequent to the original infection as a surgical sequel. The physical signs and symptoms in the first instance are frequently dependent upon the presence or absence of an associated cholelithiasis, which, dormant prior to the acute typhoidal infection, is stimulated to activity and production of acute, catarrhal, suppurative, gangrenous, or phlegmonous cholecystitis. The symptomatology of the second category is that of cholelithiasis and its complications, comprising empyema, chronic cholecystitis, ulceration, pericholecystitis, and pericholangitis with adhesions, stricture, perforation, and fistula.

The clinician, who, to-day, is content to say a patient has calculus, falls far short of the diagnostic possibilities; he should go further and determine the situation of the calculus and the pathological changes which may be present. Such exact diagnosis rests upon (1) a careful history, including the record of previous attacks, if any, and (2) a thorough and repeated examination of the patient. From the former, one can often recognize the various steps in the pathological processes of cholelithiasis. The extent of the disease will frequently be revealed by the character of the attacks of colic, of fever, and of jaundice, if present. Under physical examination, routine attention to inspection, percussion, auscultation, and palpation, especially the last, is of inestimable value. Bimanual palpation with the patient in the dorsal position, in the presence of a tumor, almost always reveals tenderness. The importance and constancy of tenderness as a symptom cannot be overrated and as pointed out in Stevens's and Davis's case was discovered accidentally and was the sole sign indicative of gallbladder complication. Other very important areas of referred tenderness in cholelithiasis are over Mayo Robson's point and Boas's (59) point. The latter sign is elicited by pressure posteriorly at the level of the twelfth thoracic vertebra and from two to three finger breadths to the right of the spine. This sign may be present even when there is no tenderness over the gallbladder or beneath the margin of the liver. It is undoubtedly a sign of great value.

Although the complication of cholecystitis in the

acute course of a typhoid attack may be overlooked through inattention or carelessness, the diagnosis should not be difficult. This again confirms the dictum that repeated and careful examinations of patients suffering from typhoid fever should be the daily rule of the internist, because these patients by virtue either of the insidious character of the disease or systemic toxæmia have their sensibilities so dulled that no initiative complaint of subjective phenomena is raised. Tenderness over the gallbladder is invariably present, and a tumor is frequently palpable. Some observers deny the presence of leucocytosis in a pure typhoid cholécystitis, but we must assert that in the cases that have fallen under our observations at least a relative increase has always occurred in the leucocytic enumeration. Whether or not this is the result of a mixed infection in all cases, we are not prepared to say, but we are prone to regard the persistence of increased leucocytic count associated with the continuance of other untoward clinical signs and symptoms a motive for operative intervention.

The symptoms of an acute cholécystitis are identical with those caused in the early stage of cholelithiasis, save for the fact that the gallbladder is always enlarged, palpable, and tender. Jaundice is never present unless there is a catarrhal extension down the cystic duct, affecting the mucosa of the common duct.

Pain, which is both paroxysmal and continuous, and may radiate in several directions, bringing many conditions in a differential diagnosis, is soon followed by nausea and vomiting, marked rigidity, tenderness in the gallbladder region, prostration, and collapse. The temperature usually reaches 100° F. or even more, but, as is the case in all other abdominal operations, the pulse is the safer guide and more to be depended upon than the temperature. So pronounced have these symptoms been that they have led to the false diagnosis of, and operation for acute intestinal obstruction.

Cholécystitis with or without cholelithiasis may be confounded with (1) gastric ulcer or cancer; (2) duodenal ulcer; (3) pancreatitis; (4) appendicitis; (5) intestinal perforation; (6) renal disease and Dietl's crises; (7) right sided pulmonary affections; (8) lead colic; (9) gastric crises of tabes; (10) meteorism; (11) echinococcus cyst, and (12) "indigestion." Among the rarer conditions Riedel and Kehr mention aneurysm of the hepatic artery and syphilitic hepatitis.

The most difficulty will be experienced in distinguishing between gastric and duodenal ulcers and cholelithiasis. The differential diagnosis may be impossible, but gastric analyses, Boas's occult blood test and inflation of the stomach should in addition to the other signs suffice to distinguish the condition. Ewald has called attention to the fact that hyperchlorhydria is of little value in the distinction, inasmuch as it precedes frequently gallstone colic. Moynihan (10) describes a "hunger pain" instantly relieved by the taking of food. This pain coincident with the emptying of the stomach is especially significant of duodenal ulcer.

In pancreatitis, especially in the acute hæmorrhagic type, with fat necrosis, unless the character of the pain and peritoneal tenderness are typical for one of the strict of these conditions, the differential

diagnosis may be impossible. Indeed the pancreatitis may be secondary to the cholécystitis. The presence of neutral fats in the stools and glycosuria will indicate a lesion of the pancreas.

Although local and general peritonitis may occur secondary to perforation of the stomach at or near the pylorus, to perforation of the duodenum, to perforative cholangitis or cholécystitis and to other intraperitoneal and retroperitoneal catastrophes, the chief affection concerned with its early ætiology, and with which it is likely to be confounded in a consideration of the lesions of the biliary passages, is appendicitis. Sufficiently explanatory of this is the abnormal pointing or position of the appendix, and the fact that occasionally during embryological development, owing to failure in the descent of the colon, cæcum, and appendix, these structures are found in the right hypochondrium in close relation with the gallbladder. The development of an appendiceal abscess under these conditions, naturally presents great, if not impossible, diagnostical difficulties, and only laparotomy will reveal whether the condition is referable to the gallbladder or appendix. Rarely, it is said biliary colic may simulate appendicular colic, but personally we have never encountered any real difficulty. Ordinarily the cardinal symptoms and signs, so familiar, of the two conditions are so manifest, that a differential diagnosis is not difficult. It is to be remembered, however, as Ochsner and others have pointed out, that cholelithiasis associated with appendicitis is not uncommon.

The differential diagnosis of intestinal perforation from cholécystitis is not difficult. The former is characterized by sudden abdominal pain, associated with a spontaneous rise in the number of leucocytes, soon to be followed by the symptoms of peritonitis and collapse.

Renal disease and Dietl's crises can always be eliminated by careful diagnostic procedures. By distention of the colon with air, a renal tumor or a movable kidney almost always disappears, while a tumor of the gallbladder will be displaced upward. In renal colic, the pain radiation is usually in the direction of the scrotum, vulva, or thigh. Deep seated lumbar tenderness and urinary changes as pyuria and hæmaturia will generally enable a correct opinion to be given. Finally, resort to ureteral catheterization and functional renal diagnosis will clinch the diagnosis.

Careful attention to the previous history and physical signs will allow of little difficulty in the diagnosis of right sided pulmonary and thoracic conditions. The same holds true of lead colic and the gastric crises of locomotor ataxia.

In meteorism, there is no tumor; the pain is general; there is general abdominal distention, and no jaundice or leucocytosis.

The absence of pain and perhaps fever; a slow steady growth of the tumor; a carefully taken history and eosinophilia will suffice to distinguish echinococcus cyst from cholécystitis.

"*Indigestion*" is the condition of the patient may be a system reveals either in the amount of gas evolved. In the case of the continued absorption of gas, no remedy may be referred to the biliary passages at all. Riedel says that of one hundred cases of epistaxis, 17% are much crampy, 10% are

seven are due to gallstones. It must not be understood from this, that the accidental discovery of gallstones at autopsy, necessarily explains the gastric neuralgia previously suffered by a patient, or that cholelithiasis necessarily produces symptoms.

The exact diagnosis of the typhoidal sequels occasions more difficulty than the complication of acute cholecystitis. The symptoms of these sequels arise invariably from the associated preëxistent or secondary cholelithiasis. As to the frequency of cholelithiasis in typhoid fever at the time of the height of the typhoid attack, Dufourt in a series of nineteen cases of cholelithiasis, posttyphoidal makes the following analysis. Second month, two cases; third month, six cases; fourth month, three cases; fifth month, one case. The remaining cases occurred in the tenth month or later. The gallstones may be located anywhere in the biliary passages and the symptomatology will vary accordingly. In view of the relation of diagnosis to treatment it behooves the clinician to determine exactly, if possible, the situation of the calculus or calculi.

Calculi are very rarely found in the stools, owing to the fact that they are generally too large to pass through the cystic and common ducts. Even when such occurrence takes place, the stone may become disintegrated, or if large, may remain in the intestinal tract and cause ileus. If calculi larger than cherry stones are found in the feces it is pardonable to assume that they entered the intestine through a fistula.

It is difficult to demonstrate the existence of calculi by means of the x ray, although its employment at times has been successful. The diagnosis of acute obstruction of the ductus choledochus is so easy as to require no further discussion. Chronic obstruction or choledocholithiasis, on the other hand, frequently escapes diagnosis. Jaundice may be absent, for when the duct expands, the bile passes around the stone, and the infection subsides. Also if the cystic duct is patulous, and a fistula is present, the bile may find its exit by this route into the intestinal tract. Again the concretion may be pocketed or lie in a diverticulum of the common duct, in which event the bile may pass normally into the duodenum. On the contrary, calculi in the cystic duct, with resultant contraction of the gallbladder, may impinge upon the common or hepatic ducts producing sufficient pressure to occlude the lumen and cause intense icterus. In such cases, the stools may be continuously or intermittently clay colored, and the urine show the presence of biliary pigments, especially urobilin.

In substantiation of the above Courvoisier has formulated the following law: "In cases of chronic jaundice due to blockage of the common duct, a contraction of the gallbladder signifies that the obstruction is due to stone; a dilation of the gallbladder, that the obstruction is due to causes other than stones."

The existence of a tumor of the gallbladder without jaundice, indicates occlusion of the cystic duct by calculus, whereas distention with jaundice is often referable to malignant disease of the pancreas, duodenum, or common duct. Paracentesis of the gallbladder for diagnostic purposes in this age is unpardonable, because the tumor when present is so characteristic that explanatory puncture is su-

perfluous and entails great danger of peritonitis from the escaping bile, which must always be regarded as infected.

Prognosis. The mortality for simple cholecystectomy or laparotomy following perforation, is not more, in fact less than when due to causes other than the typhoid bacillus. For the former it should be less than 50 per cent. and for the latter according to the statistics which we have collected, 54.6 per cent. We agree entirely with Keen in the opinion "that in distention of the gallbladder prompt surgical interference is the best. It is far easier and better to prevent perforation than to remedy it after it has occurred."

Treatment. Unfortunately, surgeons and internists are not agreed as to the indications in cholecystitis and cholelithiasis that demand operative treatment. Reidel and others think that internal treatment has its place, even in cholelithiasis. However, with Mayo, Winniwarter, and others we believe that operation should be performed as soon as the diagnosis of calculus is assured. The chief dangers of cholelithiasis are cholangitis, perforation, and carcinoma, and the importance and frequency of the last has been and is too little appreciated at the present time, although the idea of the early operation in cholelithiasis is undoubtedly gaining ground, both among surgeons and internists. In our collection of 154 cases of cholecystitis complicating typhoid fever 20.1 per cent were associated with cholelithiasis, while in 27.27 per cent. of the cases of perforative cholecystitis subjected to operation calculi were found. In 25.3 per cent. of cases of typhoidal cholecystitis, perforation occurred. The mortality following operation was 54.6 per cent., and all patients not operated upon died.

If statistics are worth anything, they indicate in this consideration early operative intervention. Thus an acute seropurulent cholecystitis with marked distention of the gallbladder may subside in spite of medical treatment, but it may also lead to perforation and in the vast majority of cases to death. Aspiration can no longer be considered a justifiable diagnostical, much less a therapeutical procedure, for the indications that justify aspiration surely justify exploration. It is about as rational to advise aspiration of a suspected appendiceal abscess as to consider aspiration of a gallbladder with cholecystitis. In these cases cholecystectomy is attended with such slight risk that it should be given the preference over internal treatment. As soon as the diagnosis of suppurative or phlegmonous cholecystitis is established, an explanatory incision should be made and the gallbladder incised and drained. If gangrene is discovered, the gallbladder should be excised, the indications for that measure being as distinct as in the case of a gangrenous appendix.

Operation is indicated in: 1. Presence of any symptoms seriously interfering with patient's mode of life; 2. all cases in which medical treatment has failed; 3. acute suppurative cholecystitis or cholangitis; 4. acute suppurative chronic obstruction of the cystic duct; 5. persistence of acute obstruction of the common duct; 6. all cases of calculus, save possibly that of acute obstruction of the common duct; 7. perforation, and 8. cases in which there is a suspicion of primary carcinoma of gallbladder.

Operation is contraindicated in: 1. Acute obstruc-

tion of the common duct or hepatic ducts, in the belief that the stone may pass through the common duct into the duodenum and no others are present to produce a new attack. If fever, however, is associated indicating suppurative cholangitis, operation should be performed with drainage of the hepatic duct; 2. very old or stout individuals or those suffering from diabetes, arteriosclerosis, cardiac, pulmonary or renal disease; 3. extensive carcinoma of the biliary passages.

The precise nature of the operation will remain in the balance frequently, until after the explanatory incision has been made, and the exact condition of the gallbladder and biliary passages determined. Depending upon conditions found in the gallbladder the operation will be cholecystotomy, cholecystostomy, cholecystendysis, or cholecystectomy; if the calculus is implanted in the cystic duct cysticotomy; if in the hepatic duct hepaticostomy, hepaticotomy, or hepaticolithotripsy; if in the common duct, choledochotomy, choledochostomy, cholecystenterostomy, choledochenterostomy, choledochectomy, or hepaticoduodenostomy. The technique of operation is so variable and the idiosyncrasies of operators so diverse and the general principle so simple and well known that its consideration is superfluous.

Liver.

The relative frequency of typhoidal affections of the gallbladder stand out in bold relief to the rarity of typhoidal complications or sequels in the liver.

We shall omit the consideration of two cases¹⁸ of echinococcus cysts complicating typhoid fever, because of the rarity of this disease in this country. Nor will we dwell upon the statistics referable to multiple focal necrosis of the liver in typhoid fever, other than to say that Hölscher (33) in 2000 cases found it in over 10 per cent., and that it is not impossible to suppose that a certain number of abscesses of the liver have their initiative pathology based upon this fact. Pylephlebitis and thrombophlebitis of the mesenteric and portal system must be borne in mind as being the causes of a certain number of liver abscesses by virtue of venous extension.

Adami suggests that the rarity of liver infection is due to the bactericidal function of the liver cells. Sherrington (34) has shown that "though the blood be teeming with microorganisms, none can escape through the normal hepatic tissues." The liver has to bear the brunt of burden of gastrointestinal infection. The portal vein drains directly from the intestinal tract into it and to a less degree the hepatic artery, which is in intimate relation with the gastric and splenic arteries, vessels concerned in the transmission of the blood to the liver after its circulation through the stomach and spleen. On the other hand, extension of the bacilli from the duodenum to the liver may occur directly through the lumen of the common and hepatic ducts. Infection, however, through the portal veins from the intestinal wall or mesenteric glands seems to be the most common.

The colon bacillus is, in all probability, the organism that is most active in producing the so called typhoid liver abscesses. In support of this theory are the following facts: 1. *Bacillus coli communis* is present in abscesses of the liver following typhoid fever. 2. Roger (35) has shown that the liver pre-

motes the growth of the colon bacilli, while it inhibits the growth of the typhoid bacillus. 3. Macaigne and Klecki (36) have demonstrated that the virulence of the colon bacillus is increased by disorders of the intestinal tract. 4. Sanarelli (37) discovered that the colon bacillus, isolated from typhoid stools, was more virulent than when isolated from healthy stools.

Granted that the virulence of the *Bacillus coli communis* is increased in a patient suffering from typhoid fever, and that the liver offers little if any resistance to invasion by this bacillus, it is not surprising that hepatic suppuration occasionally follows typhoid fever.

Bacteriological examination of the purulent material removed from the liver in the various cases in our series reveals the fact that in a few instances the bacillus of Eberth was found in pure culture, but in the vast majority of cases the *Bacillus coli communis* was the invading organism, or a mixed infection was present. Clinically these suppurations of the liver may be either primary or secondary. The primary may be either single or multiple; the secondary are as a rule multiple and metastatic from a pyæmic infection in other parts of the body, due (1) to extension from a pylephlebitis, or (2) to suppuration from a mesenteric lymph node, or (3) to infection through the biliary passages. The majority of the reported cases illustrates the first of these causes, notably those of Louis (43), Chvostek (44), Sidlo (45), Dunin (38), and Barth (46). To the same category belong the cases of Lannois (40), Osler (38), Romberg (47), Gerhard (48), Tüngel (49), Sheldon (50), Bückling (51) and Asch, and Ebernard (41). The cases of Klebs (52) and Sharples are the solitary ones belonging to the third group.

This rare accident as a complication or sequel of typhoid fever was first reported by Louis (43) in 1841. In a collection of 4363 cases of typhoid fever with 450 deaths, abscess of the liver is recorded but once. Again in 2450 fatal cases of typhoid only thirteen hepatic abscesses occurred.

Analysis of our collection of twenty-eight authenticated reported cases reveals the following facts: (Lifskit's (56) is not analysed as access to the literature was not possible). Male adults from nineteen to forty years of age are far and away the most liable to the ravages of this accident. One case occurred in a boy, twelve years old, another in a girl of eleven years. It occurs more frequently as a sequel than a complication in the acute course of the typhoidal infection. Of these twenty-eight patients all died but five, a mortality of 82.2 per cent. The five cases of recovery are those of Delaire (57), Sidlo (45), Perthes (58), McCrae and Mitchell (54), and Lang (55). Four of these five patients underwent operation, the fifth (Sidlo's (45) recovered entirely spontaneously on the one hundred and twentieth day, following rupture of the abscess into the bowel.

The symptomatology of hepatic abscess following typhoid fever is compared in two groups: 1. The general systemic symptoms of an infection. 2. Local manifestations indicating a lesion of the liver.

¹⁸ Macaigne and Klecki (36) have demonstrated that the virulence of the colon bacillus is increased by disorders of the intestinal tract. 4. Sanarelli (37) discovered that the colon bacillus, isolated from typhoid stools, was more virulent than when isolated from healthy stools.

The *diagnosis* may be easy, difficult, or impossible. In Dunin's (38) and Osler's (39) cases the patients died suddenly, without any symptoms indicating hepatic involvement. Pain in the hepatic region, chills, and enlargement and tenderness of the liver, with or without jaundice, with or without leucocytosis (McCrae's (54) and Long's (55) cases) would suggest typhoidal suppuration. Careful examination of the blood, urine, and feces is undoubtedly of value. Paracentesis of the organ over the site of the suspected abscess, will frequently clinch the diagnosis. Pylephlebitis may produce the identical symptoms as hepatic abscess and a differentiation is impossible. Ascitis was present in one case (40) of pylephlebitis, but no record is found in a similar case reported by Asch and Bernhard (41).

The *treatment* of hepatic abscess as a complication or sequel to typhoid fever is naturally surgical. In all cases where a solitary abscess can be diagnosed, the pus should be evacuated by operation. As to whether or not surgical interference should be instituted in cases of multiple abscesses a much mooted question has arisen, but we are inclined to believe that no evil should befall the patient, and drainage would be followed by relief and possible value in some cases. Treves (42) has operated in a case of suppurative pylephlebitis which resulted in recovery.

In conclusion I desire to thank Dr. Charles H. Frazier, Dr. Edward Martin, Dr. John H. Musser, Dr. A. A. Stevens, and Dr. G. G. Davis for permission to report the incorporated cases, and especially Dr. Frazier for valuable suggestions and advice in the preparation of this paper.

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1810 CHESTNUT STREET.

THE "OPEN METHOD" TREATMENT OF CANCER.

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The open method of treating cancer differs from the usual surgical procedure employed at the present time. There can be no doubt that surgery has so far given better results in the past than any other form of treatment.

The routine method of scrubbing the field of operation in all surgical cases is especially to be condemned in malignant conditions for this reason;

the process of invasion of both the local tissue and the lymphatic glands is greatly hastened and increased by the pressure used in cleansing the skin over the cancerous mass. The principle involved causing the distribution of the cancer cells into local tissue and the neighboring lymphatic glands may, for the sake of illustration, be compared to a sponge filled with water surrounded by a layer of cotton placed in a rubber bag from which various small tubes extend. Any pressure then on the bag will express the water from the sponge to the cotton and then out through the various tubes, the sponge representing the tumor, the cotton the local tissues, and the tubes the lymphatic channels leading to the glands. The same may be said to take place when the examiner handles the original tumor roughly and applies undue pressure in the examination of the case.

The question of drainage has heretofore been entirely disregarded in the treatment of cancer. The author's attention was first called to this in looking over the literature and from experience with cases which had ulcerated through the skin, thus producing a natural drainage. These cases soon after this rather imperfect drainage was established showed some signs of improvement for a time even if left untreated. On the other hand, if one looks over the reports in these cases where the x ray has been used after ulceration has taken place they will find that the most satisfactory and best results have been obtained more especially in just this class of cases. The principle of drainage in these cases certainly appeals to one far more if he reviews his surgical experience and begins to realize just how much of the success of surgical procedures depends almost entirely on good drainage. In other words, if drainage will achieve the results already known to all in infected cases, why will it not assist in getting rid of the few malignant cells in the lymphatic channels which are necessarily left after an operation for complete removal of malignant disease? If cancer cells make their way from the original mass to the lymphatic glands there should be no reason why after the glands and tumor are removed they could not be drained out of the channels by leaving the wound open instead of closing it and expect Nature to destroy them.

With these principles in mind, the author has improvised a method called the *open method treatment of cancer*, which is as follows:

The patient is prepared for operation in the usual manner, with one exception. Instead of scrubbing the site of the operation a soap poultice or plain antiseptic dressing is applied and left until the patient is anesthetized. The reason for not scrubbing is that any undue pressure on the tumor or glands may cause some of the elements of infection to be forced out into the surrounding tissue and lymphatics. The dressing or poultice is then removed and potassium permanganate solution poured over the area involved, followed by a solution of oxalic acid.

If it is a case with involved lymphatic glands the operator begins with the most remote accessible lymphatic gland and then clears away all of the glands to the tumor. By beginning with the most remote gland the chances of spreading the infection beyond into the neighboring glands and tissues by pressure on the tumor or glands are lessened.

The entire wound is left open and allowed to heal by granulation, thus facilitating an ideal drainage of all the tissues and lymphatics in this region. A dry antiseptic gauze is then applied to the raw surface and the usual dressing placed over this.

As soon as the patient is able to submit to it, a fifteen minute exposure to the Röntgen ray is given daily until the wound is healed. When the granulations first appear in the wound the gauze dressing is removed and a dressing consisting of perforated gutta percha tissue is applied to the granulating surface. Over this is placed a pad of moist boracic acid gauze and over all a covering of oiled silk. This combination affords drainage by capillary attraction through the perforations in the gutta percha tissue into the moist gauze and does away with the tearing loose of those granulations which become imbedded in the mesh of the gauze when it is applied directly to the granulating surface. The oil silk keeps the gauze moist.

The advantages of this method are the perfect drainage of all the lymphatics and tissues in the infected region and the changing of a deep or subcutaneous cancer to a superficial one. This permits the Röntgen ray more thoroughly to destroy the remaining cells or elements of infection brought to the surface by leaving the wound open. That the Röntgen ray does destroy superficial malignant growths is conceded by the most skeptical and conservative.

Even in small epithelioma of the face if this method is carried out the patient will be under treatment less than half the time it would take to do it with the x ray alone. When compared to surgical enucleation and closed wound this method takes longer for the reason that one has to wait and ray the wound which heals by granulation instead of by first intention. However, this time is well spent because it helps to insure the patient against a possible recurrence. The dangers of infection of an open wound with good drainage would be very small in a healthy individual, and it is all the less in these cases, for it has been found that in all cases of malignancy the opsonic index is always higher than even in a healthy person. To substantiate this theory it has been said that a disease like cancer calls forth such a degree of protection against infection that the old time war doctors could amputate a breast and get primary union under "well waxed shoemaker's thread," that had been held in the mouth or over the ear while the operation was in progress.

After carrying out the details of this method in various cases for the last year and a half, that is in cases wherever it is possible to obtain an ideal drainage, the author believes that this method of procedure, if carried out systematically, offers the most favorable prospects of obtaining a complete cure of malignant disease.

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Physicians' Fees in France.—At the present day in the French provinces the fee for a visit is from three to five francs, with an additional franc per kilometer of distance from the doctor's house. In Paris the fees vary from three francs in the workmen's quarters to five francs in the better parts of the town. A general practitioner in Paris, in a good quarter, often earns £2,000 a year. In the provinces, the minimum seldom falls below £400. (*British Medical Journal*.)

Therapeutical Notes.

Seborrhœa of the Scalp.—For seborrhœa (which is often mistaken for pityriasis of the scalp), the *Journal de médecine de Paris* recommends:

- R Precipitated sulphur, 15.0 grammes;
Castor oil, 50.0 grammes;
Cacao butter, 12.0 grammes;
Balsam of Peru, 2.0 grammes.

M. Make an ointment *secundum artem*.

S. To be applied night and morning, to the scalp, with friction.

Dressing for Burns.

- R Cocaine hydrochloride, 2.0 grammes;
Distilled water, 17.0 grammes;
Purified wool fat, 17.0 grammes;
Spermaceti, 4.0 grammes.

M.

This is to be applied to painful burns of the second or third degree. The surface can be also covered with a compress moistened with cocaine solution (2 per cent.).—*Journal de médecine de Paris*, September 15, 1907.

Treatment of Hæmoptysis.—Schröder and Kaufmann condemn the use of morphine in a case of hæmoptysis, as it diminishes expectoration and favors subsequent infection by the sputum, which is retained. A little codeine may be given at night to relieve dry cough (0.03 gramme, or gr. $\frac{1}{2}$). The patient should be kept in bed on a light diet, with ice to the precordial region. Ligatures may be passed around the limbs in grave cases. The affected side of the chest may be immobilized by strips of adhesive plaster. Physical examination of the chest should be avoided. The following astringent mixture may be ordered:

- R Gallic acid, } aa 1.5 grammes;
Ergotin, }
Quinine hydrochloride, }
Hydrochloric acid, } aa 1.0 gramme;
Infusion of canella, 60.0 grammes.

Take a teaspoonful every two hours.

Würtemberger medizinisches Korrespondenz Blatt, through *Revue de thérapeutique*, September 1, 1907.

Massage for Hæmorrhoids in Infants.—Hippins, a Russian physician, has proposed a method of treatment, which rapidly cures hæmorrhoids in infants, and the chronic constipation which causes the hæmorrhoids. He practises massage of the abdomen associated with massage of the rectal varices. With the little finger coated with petrolatum and introduced into the rectum of the infant, he makes gentle circular frictions and strokings directed from below upwards. The séances are given daily, or every two days, and last only a minute, at first; the time being gradually lengthened on succeeding days to three minutes. Each massage of the hæmorrhoids is preceded by massage of the abdomen. After the third or the fourth séance, the pains during defæcation become less, and the venous tumors decrease in volume. The cure of the hæmorrhoids and constipation is secured at the end of two or three weeks of this treatment.—*Journal de médecine de Paris*, September 8, 1907.

Administration of Gray Oil in the Treatment of Syphilis.—Leiter, of Breslau, gives the following cautions, with regard to the administration of gray oil subcutaneously: (1) Do not allow any of the oil

to rest in the tract of the needle, as it would cause abscess, or lead to infiltration; (2) never make the injection twice in the same place; (3) warm the mixture (composed of sterilized, purified wool fat, 12 parts; petrolatum, 13 parts; liquid paraffine, 35 parts), but not above the temperature of 30° C.; and shake it well; (4) do not use gray oil if the patient's mouth is in bad condition, and carefully observe the hygiene of this organ; (5) do not give the injection if the internal organs (particularly the kidneys, liver, and intestines) are not in normal condition (for instance, no arteriosclerosis); also in case of chronic intoxications (lead, tobacco, alcohol); or to the aged, the gouty, the cachectic, the tuberculous, to pregnant women with kidney disorders, or to subjects of hysteria, or of epilepsy.—*Journal de médecine de Paris*, August 11, 1907.

Treatment of Tropical Dyspepsia.—Kaminka, in a *Thèse de Paris*, 1906, No. 275, refers particularly to the treatment of dyspepsia in hot countries. He recommends a treatment, which is more dietetic than medicinal and which may be summarized as follows: Positive interdiction to the patient of all forms of alcoholic drinks, and also of meat. A milk diet, at first exclusive, to which may be gradually added, slightly cooked eggs, tapioca, starches, and sweet fruits, in light cases. In the forms of rebellious anorexia complicated by anæmia and nervous troubles, the patient should have absolute rest in the open air, and a diet of water only (hydric diet). The strength is to be sustained by tonics. As soon as the anorexia yields, milk and Vichy water (or that of Vals) may be taken in quantities of two or three litres a day. In chronic and obstinate forms, no meat and no fatty food should be permitted. A vegetable or purely fruit diet will suit the majority of cases. It should be thoroughly understood that all fermented drinks are forbidden to these patients.—*Bulletin général de thérapeutique*, August 30, 1907.

Treatment of Plague.—A report on the treatment of plague with Yersin-Roux serum at the Maratha Hospital during 1905, by Choksey, reviews briefly the results of the various investigations with the serum treatment of plague. In 1897 Simon Mason and the German plague commission treated patients with serum in India; they found that the death rate could be reduced if the patients were treated with the serum on the first day of illness. In patients treated on the first day they had a mortality rate of 33.37 per cent., which was decidedly lower than when treated later. The mortality rate at Brisbane during 1902 was 13.8 per cent. in patients treated with serum. In the Maratha Hospital during 1904 the mortality was lower in the patients not treated with serum. This unfavorable result led the writer to make a systematic trial of the serum treatment. He found that under the serum treatment more lives were saved than with the ordinary treatment; there were also fewer complications and less suppuration of buboes. The results with serum therapy were more favorable in private practice among the better classes. The writer concludes that the earlier the serum is used the more effective it is. It is the only treatment capable of saving a greater portion of lives. Not all types of plague are favorably influenced by the treatment.—*Military Surgeon*, October, 1907.

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NEW YORK, SATURDAY, OCTOBER 12, 1907.

THE EASTERN NEW YORK CUSTODIAL
ASYLUM.

The last New York legislature authorized the governor to appoint a commission of three persons to select a site in the southeastern part of the State for an institution for the care of the lower grade epileptics, idiots, imbeciles, and feeble minded for whom no adequate State provision had been made. In our opinion it is unfortunate that the law limited the amount of land to be acquired for the new institution to 500 acres. There are now in the Craig Colony for Epileptics at Sonyea, in the Institution for Feeble Minded Women at Newark, in the State Institution for Feeble Minded Children at Syracuse, in the Rome State Custodial Asylum, in other institutions, and in private homes in the State, between 1,700 and 1,800 persons that ought to be admitted into the Eastern New York State Custodial Asylum as soon as that institution can be made ready to receive them. And it is reasonable to assume that the number will be materially increased during the next few years. We have only to look at the expansion of other State institutions to sustain this point.

When the Craig Colony for Epileptics was begun, twelve years ago, a careful census brought to light 771 epileptics who might sooner or later enter the colony. Since that time 2,295 patients have been admitted. At Sonyea and there are now 1,000 more who would enter if there was room for them. The demand for room being so great for the defective classes generally, it is to be regretted that the size of the new institution should be so restricted at the

outset. It has been our opinion that this new institution for the "overflow" classes should not be an institution in the ordinary sense of the word—that it might better be regarded as a great "community," with not less than 1,500 and better still 2,500 acres of land on which it would be possible to construct satisfactorily groups of buildings reasonably well apart, so that defectives of the various types and grades and in allotted numbers might be segregated.

There is satisfaction in the fact that the matter has not gone so far but that a change of policy can be instituted without injury, and we hope that the excellent commission charged with the selection of this site will request the legislature of 1908 to give the Eastern New York State Custodial Asylum not less than 1,500 acres of land at the outset, and make an initial appropriation of \$500,000 for constructing the administrative centre and a group of buildings for one of the types to be cared for. The State has an opportunity to establish an institution that will reflect credit upon its policy of charity administration.

"KULIN POLYGAMY."

A practice that goes by this name—an absurd one, since there is no polygamy about it in the sense in which we understand it—has lately been the subject of several letters published in the London *Times*, as we learn from last Sunday's *Sun*. It seems to prevail among the Bengalis. Some of the *Times's* correspondents approve of it as a means of improving the physique of a race; others speak of it as "revolting" and "abhorrent." Among those who defend it is that interesting person Mr. George Bernard Shaw. It is well known of course that in most communities many women eligible to matrimony fail to form a marital alliance with a suitable man and consequently remain spinsters. Their reproductive capacity is wasted. The Bengal practice purports to spring from a patriotic desire to save this waste. Mr. Shaw says: "What does a Bengali father do under the same circumstances? He selects a picked man, a Brahman representing the highest degree of culture and character in his class, and pays him £700 to enable his daughter to become the mother of a well bred child."

There is no pretense of marriage, as we understand it; the Brahman is simply hired to beget a child. If more children are wanted, presumably other picked men may be provided for the same woman, and perhaps that accounts for the use of the word polygamy. The whole business seems to us to be on a par with the breeding of domestic animals. The farmer buys the service of a selected stallion for his mare; the rich Bengali hires a picked man to serve

his daughter. We must agree with those who call the practice revolting and abhorrent. It is the effort of medical men to promote the physical welfare of all human beings, but never at the expense of morality and social order; consequently we expect that our British confrères will join us in protesting against approval of the strange Bengal custom.

EXCESSIVE SUSCEPTIBILITY AND IMMUNITY.

In previously published papers Rosenau and Anderson have shown that horse serum is apparently a bland and harmless substance when injected into a normal guinea pig, but that a subsequent injection produces symptoms which may be serious to the point of producing death. The heightened susceptibility produced by the injection of a foreign serum is of extreme importance as related to the antitoxine treatment of diphtheria. In some further studies upon the subject (*Journal of Medical Research*, July) the same authors acquaint us with some further conclusions.

The changes produced by the first injection of a foreign proteid are possibly to be found in the central nervous system, and the reaction following the second injection of proteid material appears to be common to all the higher forms of albuminous substances, of whatever source. It is possible to refine antitoxic serum by precipitation and dialysis so that the same antitoxic strength is contained in one half the bulk of serum. While this refined serum is quite as toxic, bulk for bulk, as the unrefined serum, there is a distinct advantage in using the concentrated product by reason of its reducing the amount of foreign proteid injected. It has been found that sera from various horses vary little, if at all, in toxic property; the apparent differences are dependent upon something connected with sensitizing action.

The authors' work indicates that supersusceptibility is either an essential element or one stage in the process of resistance to a certain class of diseases. They are convinced that further studies upon the phenomenon will have an important bearing upon the prevention and cure of certain infectious processes. The supersusceptibility obtained by bacterial proteids and the subsequent immunity furnish data for this belief. Supersusceptibility may easily be induced in guinea pigs with proteid extracts obtained from bacterial cells. The first injection of such an extract seems to be comparatively harmless to the animal, but a second injection shows that profound physiological changes have taken place. The phenomena induced by the second injection are followed, in certain cases, by immunity to the corresponding infection. A definite period must elapse between the first and the second injections.

These results give a possible explanation of the period of incubation of some of the communicable diseases. Is it a coincidence that the period of incubation in a number of infectious diseases is from ten to fourteen days, which corresponds significantly with the time required to sensitize animals with a strange proteid? In certain infectious diseases with a short period of incubation, such as pneumonia, the crisis, which commonly appears in about ten days, may be explained in the same way. It is evident that disease processes produced by soluble toxins, such as diphtheria and tetanus, do not belong to the category now under consideration. The phenomena are not the same for all kinds of bacterial proteids, so that there is no general law applicable to all infections.

MELANCHOLIA.

Melancholia is perhaps the most ill defined and loosely used of psychiatric terms, being often applied to such diverse conditions as neurasthenia on the one hand and anxiety insanity on the other. For the most part it seems only essential for its application that the patient should show symptoms of depression.

From the state of confusion when cases in the main were divided into the depressions—melancholia—and the excitements—mania—Kraepelin set off the group to which he gave the name "manic-depressive insanity," reserving the term melancholia for those depressions of later life which seemed to present a somewhat different clinical picture, with a more serious prognosis. With these new conceptions the depressions came to be differently viewed, and a material impetus was given to their study. As a result of these investigations it came to be recognized that states of depression occurred in many insanities, but that in the main the depressions of later life seemed to differ in character from those of earlier years, and to a certain group of those occurring in the præsenium Kraepelin gave the name involution melancholia.

One of Kraepelin's former assistants in Heidelberg, Dr. Georges L. Dreyfus, has just published, under the title *Die Melancholie* (Gustav Fischer, Jena, 1907), an exhaustive analysis of all the cases of the Heidelberg Clinic since 1892 which had been diagnosed as melancholia. These are the cases of involution melancholia of Kraepelin, which include such conditions as were formerly classed as melancholia simplex, anxiety insanity, depressive *Wahnsinn*, and senile depression.

As a result of a most thorough study of the records and the following up of the later histories of the patients by personal interviews and extensive correspondence, the author reaches the very interesting conclusion that involution melancholia—the

only melancholia in the Kraepelin system—is but a phase of “manic-depressive” insanity. This conclusion is extremely suggestive and one which seems to those who have met with the practical difficulties of distinguishing these two conditions to issue naturally and to explain a considerable proportion at least of the mistakes and confusions in diagnosis. Kraepelin himself admits as much, and in his teaching often points out the practical impossibility of making a definite diagnosis in a given case.

In the main the class of facts on which the author bases his conclusions are two: The impossibility of defining any symptom or symptoms which are exclusive for either condition, and the much better prognosis of the cases when their later histories are studied. Kraepelin gives thirty-two per cent. of recoveries for his group of involution melancholias, whereas Dreyfus's later studies of seventy-nine of the same cases shows a recovery of over fifty per cent. The final issue of dementia is due to the advent of cerebral arteriosclerosis. We are familiar with the picture of arteriosclerotic dementia occurring in the course of other insanities of the præsenium and senium, and cases of frank “manic-depressive” insanity present this same picture; but our author believes that in the class of cases under consideration it is much more common than in other insanities.

Here is a suggestion of the pith of the whole question to those who have carefully followed the work of the German school, and have been beset with the same difficulties that the work of Dreyfus attempts to dispel, and no one will deny that many so called involution-melancholias are incorrectly diagnosed. But, after allowing for all the cases of “manic-depressive” insanity, is there not a residuum, small perhaps, which cannot be disposed under this group? Even allowing that all the involution cases belong in the “manic-depressive” category, they do present in their *ensemble* a somewhat different picture. To what are these differences due? If they are dependent, as it would seem they must be, upon changes incident to advanced age, how are they brought about and what is their nature? In this connection we should not overlook the excellent studies of Farrar, of Baltimore, which support the thesis that the differences in the depressions of youth and of the involution period are functions of age conditions.

The work of Dreyfus is stimulating and suggestive, and so far as it goes, is a valuable addition to our knowledge of the depressions. In reading it, however, one feels that before this class of problems can reach satisfactory solution they must be illumined by the careful psychological analysis of the individual case.

THE HEALTH OF THE ARMY.

Since our last issue went to press we have received the *Report of the Surgeon General of the Army* for the fiscal year ending June 30, 1907. It presents a great mass of statistical and other interesting information. During the year the death rate was slightly lowered, from 6.28 to 6.11 in a thousand; the whole number of deaths having been 358 in a force of 58,572 men. Venereal diseases continued to be “by far the most important factor affecting the efficiency of the army during the year,” causing a loss equal to that for the entire year of about eleven full companies of infantry—a higher rate than in any other army except the British. Next in order of prevalence were the malarial fevers. On the whole, the health of the army was good during the year. It appears that the board for the study of tropical diseases did some excellent work, including the discovery of the *Filaria philippinensis*.

GAS POISONING IN A MOTOR CARRIAGE.

As stated in the *Bulletin médical* for July 20th, a lady residing not far from Paris was in the habit of going frequently to the city in a motor carriage of an inclosed pattern. The odor of the exploding gasoline was always very apparent. One evening upon her return home with her two daughters, they were all found to be very much overcome by the gas, unconscious and quite unable to stand. One of the daughters, who had incipient phthisis, was more gravely affected and did not recover consciousness for two days. The mother was the least affected. Upon testing the air of the inclosed portion, while the motor was in operation, it was discovered subsequently that there was as much as nine decilitres of carbonic oxide to each ten cubic metres of air. It was found that the chauffeur had, only a few days before, ingeniously attached a box to hold his tools underneath the carriage, the movable lid of which was placed in the floor, where it was hidden by carpet. But it was situated only fifty centimetres from the end of the tube through which the products of combustion were discharged. In this manner the gases forced their way through the box into the interior of the carriage and caused the asphyxiation of its occupants, which was nearly fatal to one of them. Upon removal of the box and repairing the floor, the evil was found to be remedied. It is suggested to manufacturers that the means of ventilation of this class of vehicles should not be neglected, for obvious sanitary reasons, as even minute quantities of carbonic oxide, owing to its action on hæmoglobin, are decidedly deleterious when mixed with the inspired air.

News Items.

Philadelphia Change of Address.—Dr. Walter Roberts, to 1732 Spruce Street.

The Richmond, Va., Academy of Medicine and Surgery.—At a meeting of this academy, held on Tuesday evening, October 8, 1907, Dr. C. M. Hazen read a paper entitled *Some Points in Electrotherapeutics*.

The Geneva, N. Y., Medical Society.—The regular monthly meetings of this society were resumed on Thursday, October 3, 1907, the paper of the evening being read by Dr. J. H. Knickerbocker.

The Portland, Me., Medical Club.—The monthly meeting of this club was held, with Dr. Thayer as host, at 10 Deering Street, on Thursday evening, October 3, 1907. Dr. A. S. Thayer read a paper on *Arteriosclerosis and High Pressure*.

Typhoid Fever in Pennsylvania Towns.—Forty cases of typhoid fever have been reported to the Board of Health of Spring City, Pa. A number of cases of typhoid fever have been reported to the Board of Health of Franklin, Pa.

The Yellow Fever Situation in Cuba.—It is reported that through the efforts of the United States medical corps, the city of Cienfuegos has been entirely freed from yellow fever. There are, however, still a number of cases outside the city.

The Philadelphia Pathological Society.—At the regular semi-monthly meeting of this society, held on Thursday evening, October 10th, the annual address of the president was delivered, officers were elected for the coming year, and the reports of the secretary, treasurer, and recorder were read.

Philadelphia Municipal Hospital Census:

	Remaining last report.	Received.	Dis- charged.	Died.	Re- maining.
Diphtheria	35	38	59	15	79
Scarlet fever	45	69	37	0	77
Smallpox	1	0	1	0	0
Other diseases	3	6	1	3	5

The Medical Society of the County of Richmond, N. Y.—The following programme was arranged for a meeting of this society, held at the Staten Island Academy, on Wednesday evening, October 8, 1907: *Blood Pressure*, by Dr. William B. Stowell, Manhattan; *Report of a Carcinomatous Aneurysm*, by Dr. H. W. Patterson.

The Medical Society of the Woman's Hospital, Philadelphia.—At the annual meeting of this society the following officers were elected for the season of 1907-1908: President, Dr. Catharine Macfarlane; vice president, Dr. Florence Harvey Richards; treasurer, Dr. Elsie R. Trechler; secretary, Dr. Ella M. Gerlach.

Pennsylvania State Tuberculosis Dispensary for York.—Dr. J. S. Miller, County Physician of York County, Pa., will be in charge of a State dispensary for tuberculosis, the site for which was selected on September 25th by Dr. Thomas H. A. Stutes, of the State Department of Health. Dr. J. H. Bennett, of York, will be Dr. Miller's assistant.

Local Skin Reaction Produced by Diluted Tuberculin.—Dr. Louis Fischer demonstrated at the meeting of the *Section in Paediatrics* of the New York Academy of Medicine, October 10th, a moulage illustrating the local reaction produced on the skin by the inoculation of diluted tuberculin, according to the method recently introduced in the European Children's Hospitals by Dr. C. von Pirquet.

The Medical Society of the County of Genesee, N. Y.—At the annual meeting of this society, held at Batavia, on Wednesday, October 2, 1907, officers for the ensuing year were elected as follows: President, Dr. Henry A. Ganiard, of Stafford; vice-president, Dr. A. Frank Miller, of Batavia; secretary and treasurer, Dr. George W. Cottis, of Batavia.

The Medical Society of the Borough of the Bronx.—The programme arranged for a meeting of this society, held on Wednesday, October 9th, included the following papers: *A Symposium on Anesthetics: Ethyl Chloride versus Nitrous Oxide*, Maurice Green, D. D. S.; *Ether versus Chloroform*, Dr. Joseph E. Lumbard; *Warm versus Cold Anesthetics*, Dr. James Tayloe Gwathmey.

The Hospital of the Woman's Medical College. The cornerstone of the new building for the hospital of the Woman's Medical College of Pennsylvania was laid on

September 25th. Dr. Henry Beates, Jr., delivered an address on *The Relation of Medical Schools to the State Board of Medical Examiners*. The new hospital building will be a six story structure of the latest design and equipment.

Cholera in the Orient.—According to press despatches cholera has made its appearance in Tokio, Japan, where nineteen new cases of the disease have been reported recently. The outbreak is assuming alarming proportions and the conditions in that city are regarded as especially dangerous, on account of the overpopulation and the crowding among the lower classes. The disease is said to be spreading into Corea.

Duplicates of Medical Publications.—We are informed by the librarian to the Manchester, England, Medical Society that the society has had prepared a list of all duplicate monographs, periodicals, and pamphlets in its possession, the list contains about one thousand separate items. The librarian will be glad to hear from other medical societies and institutions having similar lists and wishing to make exchanges.

The Fifth District Branch of the Medical Society of the State of New York held its first annual meeting at Syracuse, on Thursday, October 3, 1907. The society embraces the counties of Onondaga, Oswego, Jefferson, Lewis, Herkimer, and Oneida. The officers of the society are: President, Dr. Nathan Jacobson, Syracuse; vice-president, Dr. W. M. Gibson, Utica; secretary, Dr. J. F. McCaw, Watertown; treasurer, Dr. H. P. Marsh, Fulton.

The Training School for Nurses of Mercy Hospital, Pittsburgh.—The commencement exercises of this school were held on the evening of September 17th. Dr. X. O. Werder presented the diplomas. The following young women received the diploma of the school: Miss Mary E. King, of Sewickley; Miss Ella A. McCaffrey, of Braddock; Miss Annabel F. Cunningham, of Huntingdon, Pa.; Miss Mary M. Schuler, of McKees Rocks; and Miss Catherine M. Henry, of Titusville, Pa.

The Sixth District Branch of the Medical Society of the State of New York.—At the annual meeting of this branch, held at Ithaca, on Tuesday, September 24, 1907, officers for the ensuing year were elected as follows: President, Dr. William A. Moore, Binghamton; vice-president, Dr. John C. Fisher, Elmira; secretary and treasurer, Dr. Herbert W. Fudge, Elmira. The next annual meeting will be held in Binghamton. Dr. Ross G. Loop, of Elmira, was the retiring president.

Charitable Bequests.—By the will of Morris Einstein, the Jewish Hospital Association will receive \$5,000, upon the death of the testator's brother, which it is to hold in trust for the benefit of the Home for Aged and Infirm Israelites.

By the will of Charles Hewett, the Hospital of the Protestant Episcopal Church of Philadelphia receives \$5,000 for the establishment of a free bed in memory of the wives of the testator, Anna Cordelia Hewett and Mary Ann Hewett.

The American Academy of Ophthalmology and Otolaryngology.—At the annual meeting of this academy, held at Louisville, Ky., on September 26-28, 1907, the election of officers resulted as follows: Dr. Derrick T. Vail, Cincinnati, president; Dr. Joseph C. Beck, Chicago, first vice-president; Dr. T. B. Schneideman, Philadelphia, second vice-president; Dr. F. S. Owen, Omaha, third vice-president; Dr. George F. Suker, Chicago, secretary; and Dr. O. J. Stein, Chicago, treasurer. Cleveland was selected as the next meeting place.

The Medical Society of the County of Madison, N. Y.—The annual meeting of this society was held at Oneida, on Wednesday, October 2, 1907, and officers for the ensuing year were elected as follows: President, Dr. Otto Pfaff; vice-president, Dr. C. H. Perry; secretary, Dr. George W. Miles; treasurer, Dr. S. J. Wilson, all of Oneida; censors, Dr. William Taylor, of Canastota; Dr. J. R. Eaton, of Chittenango; and Dr. C. H. Perry; delegate to the State convention in January, Dr. G. W. Miles. The semiannual meeting of this society will be held at Canastota in May, 1908.

The Williamsburgh Medical Society, of Brooklyn.—The programme prepared for a meeting of this society, to be held on Monday, October 14th, includes the following: Presentation of cases and specimens; case of *Streptococci Septicemia*, presentation of patient, by Dr. Simon R. Blat-

teus; case of Rhinoscleroma Treated with the X Ray, by Dr. Milton J. Ballin, of Manhattan; papers of the evening: Infantile Paralysis, Diagnosis and Treatment, by Dr. Henry D. Chapin, of Manhattan; discussion by Dr. Louis C. Ager, Dr. Arthur C. Brush, Dr. Henry W. Frauenthal, of Manhattan, and others.

Philadelphia Academy of Surgery.—At the regular monthly meeting of this academy, held on Monday evening, October 7th, Dr. Joseph M. Spellissy reported four cases of spinal injury and one case of gunshot wound of the brain; Dr. George G. Ross reported a case of punctured fracture of the skull; Dr. Macy Brooks reported a case of hernia cerebri involving the frontal lobe, and due to extensive fracture; Dr. Hiram R. Loun reported a case of permanent drainage of both kidneys, and exhibited the apparatus; Dr. George P. Müller reported a case of sarcoma of the jaw.

Philadelphia County Medical Society.—At the regular semimonthly meeting of this society, held on Wednesday evening, October 9th, Dr. Solomon Solis-Cohen exhibited a sputum bag for the use of tuberculous patients; Dr. W. Wayne Babcock read a paper on The Factors in the Operative Treatment of Pulmonary Tuberculosis, with a report of the excision of over one half of the right lung; Dr. George E. Pfahler gave a lantern demonstration of physiological and clinical observations upon the alimentary canal by means of the Röntgen rays; and Dr. Jay F. Schamberg gave a lantern demonstration on the diagnosis and treatment of tuberculous diseases of the skin.

The New York Pathological Society.—The following programme was arranged for a meeting of this society, held on Wednesday evening, October 9, 1907: A Case of Traumatic Rupture of the Cardiac Orifice of the Stomach, by Dr. Otto H. Schultze; A Case of Chronic Suppurative Pylephlebitis, by Dr. E. Libman and Dr. H. L. Celler; A Case of Typhoid Fever in an Infant, A Case of Paratyphoid Fever in an Infant, A Case of Universal Hydrops in a Fetus, by Dr. Alwin M. Pappenheimer; A Case of Hypertrophy of the Female Breast, by Dr. Wilbur Ward; A Hospital Epidemic of Dysentery in Winter, by Dr. Hans Zinsner; papers: Observations on the Spirochæta Pallida in Gumma, by Dr. James Ewing.

The Long Island Throat Hospital and Eye Infirmary.—The eighteenth annual meeting of this institution was held on Tuesday evening, October 1, 1907, under the presidency of Dr. C. T. Schondelmeier. The treasurer's report showed that there was a balance in the treasury of \$413. The following officers were elected to serve for the ensuing year: Dr. C. T. Schondelmeier, president; Richard W. Preston, first vice-president; Adolph Vanreine, second vice-president; Judge A. H. Dailey, counsel; William J. Wheeler, treasurer; C. C. Mollenhauer, secretary. The following trustees were elected to serve for three years: Judge A. H. Dailey, George H. Fisher, Edward L. Walter, Dr. John L. Baker, Richard W. Preston, Dr. Ernest H. Saniter.

Philadelphia Personals.—Dr. Francis D. Patterson has resigned the position of Chief Surgeon of the Bureau of Police and Fire of the city of Philadelphia.

Dr. A. J. Taughe, of Milwaukee, Wis.; Dr. R. G. Roak, of New Castle, Pa.; Dr. James H. Hayes, of Cass City, Mich.; Dr. E. E. Wible, of Monhall, Pa.; Dr. William M. Stookey, of Salt Lake City, Utah; Dr. T. F. Staley, of Bristol, Va.; and Dr. A. B. Painter, of Mill Hall, Pa., are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

The Mortality of Chicago.—According to the report of the department of health for the week ending September 28, 1907, there were during the week 519 deaths from all causes, as compared with 438 for the corresponding week in 1906. The annual death rate in one thousand of population was 14.28. The principal causes of death were: Apoplexy, 9; Bright's disease, 30; bronchitis, 9; consumption, 70; cancer, 10; scarlet fever, 2; diphtheria, 10; heart disease, 10; intestinal diseases, 10; measles, 10; pneumonia, 10; scarlet fever, 2; suicide, 5; typhoid fever, 9; violence (other than suicide), 10; whooping cough, 1; all other causes, 11. There were 147 deaths of children under one year of age, as between one and five years of age, 41; of persons between five and twenty years of age, 210; between twenty and thirty years of age, and 110 over thirty years of age.

Scientific Society Meetings in Philadelphia for the Week Ending October 19, 1907.—Monday, October 14th, Section on General Medicine, College of Physicians; Wills Hospital Ophthalmic Society. Tuesday, October 15th, Section on Ophthalmology, College of Physicians; Dermatological Society; Academy of Natural Sciences; North Branch, Philadelphia County Medical Society. Wednesday, October 16th, Philadelphia County Medical Society (business meeting, open to members only); Section on Otolaryngology and Laryngology, College of Physicians; Association of Clinical Assistants of Wills Hospital; Franklin Institute. Thursday, October 17th, Section on Gynecology, College of Physicians; Section Meeting, Franklin Institute; Medical Society of the Woman's Hospital. Friday, October 18th, American Philosophical Society.

The Philadelphia Pædiatric Society.—At the regular monthly meeting of this society, held on Tuesday evening, October 8th, Dr. J. Claxton Gittings and Dr. S. S. Woody exhibited a girl aged four years with traumatic hemorrhage into the membranes of the spinal cord; Dr. Herbert B. Carpenter showed a baby with congenital malformation of one thumb; Dr. G. Hudson Makuen showed a girl of eleven years with symptoms of cretinism; Dr. James H. McKee reported on the diseases of children, discussed at the last meeting of the Pennsylvania Medical Society; Dr. Alfred Hand, Jr., reported on the papers on diseases of children read at the last meeting of the American Medical Association; Dr. Howard Childs Carpenter reported a case of severe anemia secondary to pyelonephritis in an infant of eleven months; Dr. Maurice Ostheimer reported two cases of infantile surrury.

The Late Dr. Seneca D. Powell.—At a regular meeting of the medical board of St. Mark's Hospital, held October 1, 1907, the following resolutions were adopted:

Resolved, That in the death of our late friend and associate, Dr. Seneca D. Powell, the hospital has sustained a loss, which we deeply mourn. His great ability as a teacher and voluminous writer commanded the respect and admiration of the entire profession. His devoted work and experiments in behalf of medical education connected his name most prominently with the teaching of medicine and surgery. But, above all, his fearless honesty of purpose and his exquisite gentleness of character and manner so endeared him to his associates that we, his colleagues and friends, feel in his death a personal bereavement.

Resolved, That we tender to his family our sincerest sympathy in their bereavement, and that a copy of these resolutions be spread upon the minutes of this board and published in the medical press.

REYNOLD WEBB WILSON, President.

CARL BECK, President, Board of Trustees.

Personals.—The following named physicians have taken offices in the new building, No. 23 West Thirty-sixth Street, New York; Dr. J. Herbert Claiborne, Dr. George A. Wilson, Dr. George A. Wilson, Jr., Dr. John R. Shannon, Dr. Joseph A. Kenefick, Dr. Edward C. Smith, and Dr. George T. Jackson.

Dr. Walter Benschel has consented to remain as commissioner of street cleaning in New York, until the mayor can find a man to take his place.

Dr. William Oliver Moore, after an absence of two years, has returned to New York and resumed practice, at the Sydenham, 610 Madison Avenue.

Dr. Esther C. Pohl has been elected city health officer of Portland, Ore. She will receive a salary of \$3,000 a year. She was the first woman to enter the Oregon Medical College, and since graduating has taken postgraduate courses in Baltimore and New York. She has also taken a degree in the Vienna University.

Dr. Charles E. Beevor, of London, England, will deliver the address in the Section of Nervous and Mental Diseases at the meeting of the American Medical Association, to be held in Chicago on June 19.

American Hospital Association.—The sixth annual meeting of this association was held at Chicago on September 17-20, 1907, with an attendance of one hundred and fifty representatives of twenty hospitals in twenty-four States, and physicians of the Chicago, St. Paul and Cleveland, and the association entertained as its guests Miss Jane Addams, of Hull House, Chicago; Dr. Robert A. Fisher, of Chicago; the Honorable J. Ross Robertson, Governor of the United States; Children, University, and Dr. A. T. Gifford, and a number of Hospital, State, University, and Municipal. The

following named officers were elected for the ensuing year: President, Dr. S. S. Goldwater, superintendent of Mt. Sinai Hospital, New York; vice-presidents, the Honorable J. Ross Robertson, Toronto; and Dr. John M. Peters, Rhode Island Hospital, Providence, R. I.; secretary, Dr. Babcock, Grace Hospital, Detroit; treasurer, Asa Bacon, Presbyterian Hospital, Chicago. In future, trustees of hospitals as well as superintendents will be admitted to active membership, and the increased income derived from the new membership will be devoted to the wider publication of valuable literature on hospital management, which heretofore has been buried in the annual reports of the association.

The Health of Philadelphia.—During the week ending September 21, 1907, the following cases of transmissible diseases were reported to the bureau of health: Malarial fever, 1 case, 0 deaths; typhoid fever, 77 cases, 11 deaths; scarlet fever, 21 cases, 1 death; chickenpox, 4 cases, 0 deaths; diphtheria, 51 cases, 7 deaths; cerebrospinal meningitis, 1 case, 0 deaths; measles, 4 cases, 0 deaths; whooping cough, 12 cases, 4 deaths; pulmonary tuberculosis, 90 cases, 44 deaths; pneumonia, 25 cases, 26 deaths; erysipelas, 7 cases, 1 death; cancer, 10 cases, 20 deaths; septicæmia, 2 cases, 0 deaths; tetanus, 1 case, 0 deaths. The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 9; dysentery, 1; diarrhea and enteritis, under two years, 52; puerperal fever, 1; cholera morbus, 1. The total deaths numbered 451, in an estimated population of 1,500,595, corresponding to an annual death rate of 15.60 in 1,000 of population. The total infant mortality was 150; under one year, 121; between one and two years, 29. There were 31 still births, 25 males and 6 females. No unusual meteorological phenomena were reported by the weather bureau. The total precipitation amounted to 0.56 inch.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending October 5, 1907:

	October 5— Cases. Deaths.		September 28— Cases. Deaths.	
Typhoid fever.....	161	19	180	23
Smallpox.....	..	..	..	..
Varicella.....	16	..	13	..
Measles.....	113	9	112	2
Scarlet fever.....	131	6	134	3
Whooping cough.....	25	6	18	5
Diphtheria.....	146	18	174	13
Tuberculosis, pulmonalis.....	350	146	345	130
Cerebrospinal meningitis.....	12	9	15	10
Totals.....	954	213	991	186

Society Meetings for the Coming Week:

MONDAY, October 14th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Society of Medical Jurisprudence, New York; New York Ophthalmological Society; Society of Alumni of St. Mary's Hospital, Brooklyn, N. Y.; Corning, N. Y., Medical Association; Waterbury, Conn., Medical Association.

TUESDAY, October 15th.—New York Academy of Medicine (Section in Medicine); Buffalo Academy of Medicine (Section in Pathology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings, N. Y.; Binghamton, N. Y., Academy of Medicine; Clinical Society of Elizabeth, N. J., General Hospital; Syracuse, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association.

WEDNESDAY, October 16th.—New York Academy of Medicine (Section in Genitourinary Diseases); New York Society of Dermatology and Genitourinary Surgery; Woman's Medical Association of New York City (New York Academy of Medicine); Medicolegal Society, New York; New Jersey Academy of Medicine (Jersey City); Buffalo Medical Club; New Haven, Conn., Medical Association; New York Society of Internal Medicine; Northwestern Medical and Surgical Society of New York.

THURSDAY, October 17th.—New York Academy of Medicine; German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society; Æsculapian Club of Buffalo, N. Y.

FRIDAY, October 18th.—New York Academy of Medicine (Section in Orthopedic Surgery); Clinical Society of the New York Postgraduate Medical School and Hospital; East Side Physicians' Association of the City of New York; New York Microscopical Society; Brooklyn Medical Society.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

October 3, 1907.

1. The Treatment of Typhoid Fever with Specific Sera, Filtrates, and Residues (Vaughan),
By MARK W. RICHARDSON.
2. Modern Operations for Complete Removal of the Prostate,
By ARTHUR TRACY CABOT.
3. The Reaction of Some Milk Modifications to Rennet,
By H. ILLOWAY.
4. The Question of "Justifiable Homicide,"
By CHARLES GREENE CUMSTON.

1. The Treatment of Typhoid Fever with Specific Sera.—Richardson, from a study of specific therapy in one hundred and thirty cases of typhoid fever, has brought out the following facts: Specific therapy, confined to the original disease, increases, apparently, the tendency of the disease to relapse. By therapeutical inoculation, however (Vaughan's nontoxic residue), continued into convalescence, the relapse in typhoid fever can be largely eliminated. This statement is made with much assurance, but is, of course, subject to confirmation by observation upon a much larger series of cases. If relapses can be prevented, then it follows almost certainly that mild typhoid infections can be aborted. This study would show, furthermore, that to get the best results cases must be seen as early as possible in the infection, but an early diagnosis in typhoid is oftentimes impossible, and, for this reason, specific therapy suffers under a severe handicap. Antityphoid serum was no more effective than filtrates and residues and was infinitely more expensive. Typhoid filtrates may exert a powerful effect upon the clinical course of the typhoid process, their use being followed in many instances by chills, or rise in temperature and pulse, these being followed in their turn, oftentimes, by marked fall in temperature, pulse, and respiration, and a general improvement in the clinical picture. The nature of these reactions is still unknown. It is hoped that further study, especially that of the opsonic index, in connection with these reactions, may give valuable information concerning their nature. The nontoxic residue of the typhoid bacillus as prepared by Professor Vaughan seems to make the typhoid process longer, but milder. It is apparently very effective in the prevention of relapses.

2. Modern Operations for Complete Removal of the Prostate.—Cabot says that his personal experience has been that the restoration of function is more complete and lasting after the perineal than after the suprapubic operation. The control of hemorrhage he has found distinctly easier by the perineal route. A strip of gauze can be snugly packed into the prostatic capsule and then the end can be brought down through the outer wound which it should not fill tightly, for too much pressure against the rectal wall may produce sloughing and lead to a fistula. In the suprapubic operation it is difficult to apply packing so that it will stay in place and continue to exert pressure against the bleeding surface without so filling the base of the bladder as to exert injurious pressure on the ureters and to cause great discomfort to the patient. Convalescence after perineal prostatectomy is much quicker and more comfortable than after the suprapubic operation. The tubes can be removed on the third to the fifth day, and after this the patient soon passes his own water with little or no involuntary leakage. At first the larger part of the water comes through the perineal wound and serves the good purpose of keeping this thoroughly washed out. Occasionally, for a few days, the urine comes away involuntarily through the perineal wound. This soon ceases, however, and usually, by the end of a fortnight, the greater part of the urine is passed *per urethrum* with

little or no escape through the perinæum. If it happens that after taking out the tubes the patient is unable to void the urine, the catheter is easily introduced through the urethra and drainage kept up for a few days in this manner, at the end of which time the power of voluntary urination will be invariably restored. In the past four years he has operated in thirty-five cases by perineal prostatectomy. Two patients have died; one three days after operation, the other at the end of a month.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

October 5, 1907.

1. The Physiology of the Thyroid Gland in Its Relation to Exophthalmic Goitre, By S. P. BEEBE.
2. The Pathology of Exophthalmic Goitre, By W. G. MACCALLUM.
3. What Should Be the Relations of Pharmacists and Physicians? By J. N. McCORMACK.
4. Examination of the Gynecological Patient for Diagnosis, By AUGUSTIN H. GOELT.
5. Trigger Finger, By ROBERT F. WEIR.
6. Spontaneous Arterial Degeneration in Rabbits, By AMY B. MILES.
7. The Nephelometer: An Instrument for Estimating the Number of Bacteria Suspensions Used for Calculating the Opsonic Index and for Vaccines, By JOSEPH MCFARLAND.
8. The Specific Nature of Opsonins, By JOSEPH MCFARLAND and EDWARD W. LIVINGE.

1 and 2. The Thyroid Gland and Exophthalmic Goitre.—Beebe remarks that the investigations of the last twenty years have given to the thyroid gland a physiological importance of the first order. The observations on the effect of operative removal of the glands and on the administration of various components of the glands to animals operated on and to normal animals constitute the most important known facts about the physiology of these structures. The facts are briefly as follows: 1. Removal of the thyroid causes cachexia thyreopriva, the symptoms of which may in large part be alleviated by administration of thyroid preparations. Thyroid extracts owe their activity largely to the organic iodine group therein contained. 2. Removal of the parathyroids is followed by an acute tetany. It is on these observations that all the interesting and suggestive theories useful in the physiological and therapeutical value of the glands have been founded. Some of these theories have sufficient dignity to command serious respect, but in many of them there is a lack of regard for the principles. It is a well authenticated fact that thyroid feeding stimulates nitrogenous metabolism, and it may be that such a stimulation is accompanied by a heightened oxydative capacity of the organism by which toxic products of metabolism are rendered harmless. Chemical studies of the gland have demonstrated the presence of three forms of proteid, nucleoproteid, globulin, and albumin, in addition to a number of the simpler cleavage products of proteid, the latter being bodies of no especial significance. The normal thyroid contains relatively little of the nucleoproteid, much globulin, and a smaller amount of albumin; the parathyroid, on the other hand, contains a large amount of nucleoproteid, a very small proportion of globulin, and still smaller amounts of albumin. These findings agree with what we should expect from the functions of the glands, for the proteid present in greatest abundance is the one most active physiologically. We know very little of what the thyroid secretion does when confined within physiological limits, but it is clear that the secretion is the cause of the symptoms characteristic of exophthalmic goitre. The exophthalmos, tachycardia, tremor, gastrointestinal disturbance, profuse sweating, increase in temperature, rapid loss in body weight, and other symptoms that have all been caused experimentally in animals by overdosing with thyroid preparations. It has thus far been

impossible to produce the disease experimentally, and the nearest approach has been obtained by giving an excess of thyroid extracts. There is, however, a serious error in technique in most of these experiments in that the commercial thyroid has been given in intermittent doses by stomach in most cases, but if the physiological conditions are to be simulated a saline extract of the gland from the same animal species should be given in small, frequently repeated doses hypodermatically. There are two commonly accepted possibilities which explain the origin of the hyperactivity of the gland. First, as a result of nervous shock; second, as a compensatory hypertrophy during a toxæmia. As to the first possibility, the investigations of the last ten years have given us a fund of information concerning the remarkable control exercised by the nervous system on glandular activity. Particularly with reference to the digestive glands we have seen qualitative and quantitative changes in their activity following an apparently insignificant stimulus. We have no direct experimental evidence to indicate in how far we can apply these results to the thyroid gland, but clinically we see many instances of marked change in the activity of the gland following some profound nervous disturbance. As to the second hypothesis, there are some histological studies which indicate that during the infections and also during chronic toxæmias the thyroid undergoes cellular hyperplasia which may serve in the nature of a compensatory hypertrophy, i. e., the additional demand for the detoxicating action of the gland results in its growth. At present we have no method of measuring the activity which the gland has either in a normal or pathological condition and can form only the crudest notions by the gross appearance and histological structure. It is, therefore, rash to conclude that in those cases of exophthalmic goitre with no goitre there is no hyperthyreosis. There are many clinical observations that support the theory of compensatory hypertrophy, and it is the mere bulk of this evidence rather than its character which is impressive.—MacCallum observes that much attention has been devoted to the study of the cervical sympathetic ganglia and nerves, since the idea is held by many that changes in those structures are really at the bottom of the whole disease, but the results of these studies have been very unsatisfactory; some authors have described atrophy of the cells, increase in the pigment or overgrowth of connective tissue, but quite as many or more have found the ganglia perfectly normal. He has studied them carefully in two cases and has found no pathological alterations, unless the presence of a number of shrunken, deeply stained ganglion cells in one section can be regarded as pathological. This ganglion was fixed in formalin and the one from the other side in alcohol. In that one no such changes were found, so that he is not disposed to attach much importance to them. Similar results have come from the anatomical studies of the central nervous system, for while in some cases atrophy or destructive lesions have been found in the corpora restiformia, and in others hemorrhages in the medulla, the majority have shown no abnormality, and at best the lesions must be regarded as extremely inconstant. As to the hypophysis cerebri, there seems to be few recorded observations. Of pathological alterations in other tissues and organs so little is known, and the findings are so inconsistent that they may well be passed over. On the whole, therefore, the only lesions in this disease are those of the thyroid gland and of the lymphoid apparatus and thymus. All the more, then, is it to be regretted that it has been completely missed that it is difficult to convince oneself that the thyroid is the cause of the disease, that sufficient cause is the production of the disease by the use of the gland, and that the only way to cure the disease is by the use of the gland, and that the only way to cure the disease is by the use of the gland.

5. **Trigger Finger.**—Weir states that the affection, which is generally known by the title trigger finger, is also called variously *digitus recellens* or *lock* or *snapping finger*, and sometimes *spasm of the finger*. It is nearly always met with in flexion, and particularly in flexion sufficiently great to allow the tip of the finger to rest or to press firmly on the palm of the hand. When the trigger action is present the finger can only be extended by a considerable muscular effort, or by the aid of the other hand. In overcoming the hitch by the action of the extensor muscles the finger springs back suddenly and usually with more or less pain, though when arrested or replaced by the sound hand much less discomfort is ordinarily experienced. It may indeed not be associated by any pain whatever and may be no more than a source of amusement to the bearer as well as to spectators. The pain is also occasionally felt in the flexion that brings about the hitching, though to a less degree than in the subsequent extension of the finger. A slight click or rubbing noise or sensation has been noticed in a few instances. It is a rather rare affection. While most of these trigger fingers are endurable or inoffensive, yet they may and, not infrequently do, become so painful or interfere so much with manual labor as to demand surgical intervention. Rheumatism and gout are made the parents of nearly all joint or tendon disease, and the trigger finger has not escaped this alleged paternity. In none of the cases under surgical investigation has there been found any gross or microscopic evidence of any deposit of urates in the sheath or in the tendons, though a number of special investigations have been devoted to this point. What has been revealed by careful examinations of the removed portions of the affected tendon or its sheath, excluding tuberculous deposits and the changes ensuing on acute traumas, is a certain amount of circumscribed fibrous hypertrophy. There is a possibility of the larger tendon changes being due to previous hemorrhages (traumatic) and subsequent degenerative changes in their interiors. The author admits the possible influence of a gouty or rheumatic diathesis in aiding and abetting traumatic changes, and that repeated slight injuries inflicted on the exposed tendons in the palm, with or without this influence, may develop a thickening sufficient to cause an interference of tendon motion. The tendons and their sheaths seem to be more unprotected in the palm than in fingers themselves in which latter locality a strong special sheath of varying thickness and a synovial buffer guards them better than in the upper palm, where the tendon sheaths are derived from a varying thickness of the palmar fascia, and where both tendon and its sheath can be, and often are, unduly crowded against the subjacent metacarpal bones, and not infrequently damaged by the normal projections on the large joint ends. While many times a cure has been effected even where both tendon and sheath appeared normal, especially if the sheath be widely opened, yet occasionally a portion of a thickened sheath has been removed or a fusiform swollen tendon lessened in size by shaving it down or by taking out a longitudinal triangular piece or by cutting a protruding part of a tendon or by splitting it and digging out a mass of degenerate cells of hemorrhagic origin. Notwithstanding that success has followed these various measures, the author is inclined to advise, after the failure of a legitimate bloodless treatment, that simple free incision of the tendon sheath be resorted to in most cases as the curative procedure. In five cases in which the tendon was involved, this measure was resorted to with a successful and permanent result. The suturing of the sheath after removal of the tendon obstruction, of whatever character it may be, need not be resorted to. Care must be taken to preserve the arch of the digital sheath at the base of the first phalanx.

MEDICAL RECORD.

October 5, 1907.

1. Uric Acid Symptoms (Rheumatism) and Their Relief by Colchicum and the Salicylates, By A. H. P. LEUF.
2. Early Diagnosis of Gastric Cancer, with Report of a Case, By LOUIS M. COMPERTZ.
3. What Is the Function of the Gallbladder and Why the Folds of Heister in the Cystic Duct? By M. R. BARKER.
4. The Diagnosis of Glanders in the Human Subject from the Viewpoint of a Veterinarian, By A. SILKMAN.
5. The Incision and Treatment of the Stump in Appendectomy, By JOSEPH P. BISSELL.
6. A Note on the Sensibility of the Human Visceral Peritoneum, By EDWIN BEER.
7. Chronic Pharyngitis, By R. M. NILES.
8. Fibroma Molluscum and Pendent Tumor of the Breast, By C. WINFIELD PERKINS.

1. **Uric Acid Symptoms and Their Relief by Colchicum and the Salicylates.**—Leuf formulates our knowledge about uric acid symptoms and their relief by colchicum and the salicylates as follows: The etiology of excessive uric acid formation is unknown, while the symptomatology of its excess is not fully known. The name rheumatism may generally be used synonymously with uric acid excess. The absence of uric acid evidence from the urine is no guarantee that it does not exist in abundance elsewhere in the body, and require elimination. It disturbs all the tissues of the body, though some much more than others, and is unusually selective of exceptional tissues in some cases, the reason for which is not understood. Only a single symptom may exist to call attention to even very large quantities signifying the eve of a severe affliction if not promptly eliminated. Many such conditions are not recognized, and are therefore unsuccessfully treated until the real condition is recognized. Symptoms that are benefited by colchicum or the salicylates are most probably due to uric acid, which causes irritative catarrh of the excretory mucosa, and probably most so as it nears the outer skin, thus affecting the bladder and urethra, as well as the enteric tract. Toothache of uric acid origin should not be overlooked, and is capable of prompt relief without the use of anodynes. There exists a visceral rheumatism, or pain and abnormal functioning of the viscera from uric acid disturbances, promptly relieviable by colchicum or the salicylates and proper diet, and probably not by any other means. Uric acid symptomatology seems to be due to its accumulation in the tissues, because of its formation in excess of the ability of elimination; on this account structures poor in circulation are subject to its influence, as ligaments, bones, or serous membranes; or those in which, though their eliminative power is far greater than that of those just mentioned, the formation of waste products may be too rapid and bountiful to admit of prompt enough removal to prevent accumulation, as muscle. Wine of colchicum root is a remedy of remarkable efficiency for the relief of uric acid conditions, acting promptly in most instances, and the salicylates are valuable adjuncts to colchicum. The bowels should be kept freely open (not diarrhoeal) with magnesium sulphate, preferably small doses on arising, the amount depending upon the effect, one or two stools per day being desirable. Medicines should be pushed until effective, or until physiological evidences of their action ensue. All influences increasing circulation in or about the affected area are beneficial, such as heat, negative galvanism, the static breeze or spark, or warm bathing. As a rule all those medicinal agents are helpful which hasten elimination or increase oxidation, as the iodides, alkalies, iron, and manganese.

3. **What Is the Function of the Gallbladder and Why the Folds of Heister in the Cystic Duct?**—Barker gives his theories regarding the gallbladder and the

folds of Heister as follows: The gallbladder secretes a substance essential to the highest physical development and perfect working of the system, but not a substance essential to the life of the system, nor without which the system may not sustain a high degree of perfection and well being. This secretion is mixed with bile in the gallbladder periodically, and forced from the gallbladder into the common duct at intervals. The folds of Heister are controlled by the sympathetic nervous system, and are always closed tightly, thus preventing anything passing through the cystic duct, except as these folds are relaxed and the duct opened by the nervous mechanism controlling it. The action of this mechanism may be suspended temporarily by anesthesia or surgical procedures, and suspended or completely destroyed by diseased conditions. Or it may act in a sluggish and imperfect manner, in certain temperaments and under unfavorable conditions. The needs of the system for the gallbladder secretion act as a stimulus upon the nerve centres controlling the folds of Heister, causing them to relax, thus allowing bile to flow through the cystic duct into the gallbladder, and there mix with its secretion, diluting it, and rendering its passage through the cystic duct into the common duct comparatively easy, this being necessary because of the feeble contractile power of the gallbladder and the viscid nature of its secretion. When this cycle is completed the folds of Heister close and remain closed until the system again demands the secretion of the gallbladder, when the cycle is repeated. Thus this mechanism functionates during the life of the individual, or until disturbed or destroyed by some abnormality.

4. **The Diagnosis of Glanders in the Human Subject from the Viewpoint of a Veterinarian.**—Silkman speaks in his paper of the acute and subacute forms of glanders, leaving the chronic form for another paper. In the acute form, he states, glanders runs a very rapid course, terminating fatally generally in from twelve to eighteen days after infection. In the subacute form the period of incubation appears longer, and the patient may remain in a condition resembling typhoid for from four to five weeks. In this form the patient may live for six or eight weeks after infection. It is extremely difficult to diagnosticate glanders in its first stage. It greatly resembles typhoid fever, and when any suspicion exists the agglutination test for glanders should be made, as well as the Widal test, especially in all cases of suspected typhoid where complications are present and where the Widal test has failed of reaction. After a few days lung complications almost invariably occur, which are frequently mistaken for acute lobar pneumonia. A few days later one may get articular pains on motion which resemble rheumatism. Suppurative peri-arthritis is a not uncommon complication. About this time may be found one or more intermuscular abscesses forming in some part of the body. These abscesses, when opened, will be found to have no true wall or enveloping membrane. Three or four days before death pustules appear on the face, neck, and shoulders, and frequently all over the body and extremities of the patient, who generally dies before the pustules rupture. These pustules are characterized by rough, uneven ulcerations around the edge of each, and rupture will disclose the contents to be a small amount of yellowish matter. Removal of the tissue covering will discover the true farcy ulceration, a peculiar characteristic of which is that immediately prior or subsequent to death an anemic, whitish areola surrounds it; this, he believes, is a pathognomonic lesion of glanders. Frequently the lymphatic glands are found to be involved, and often ulcerations occur in the subcutaneous membrane, accompanied by a profuse discharge a day or two prior to death. Orchitis may or may not be present. In the early form the glands are rarely affected. The temperature and pulse in the diagnosis of glanders

in the human subject. As a rule the temperature is persistently fluctuating, uncertain, and uncontrollable. In all cases of glanders in the human subject which have come under his observation connection has in every instance been established between the patient and some horse or horses proved to have been glandered; the only exception was one chronic case. Glanders will not localize at the point of infection. Wounds through which the subject was known to have been infected have healed before any marked symptoms of glanders have developed, and have subsequently shown no sign of inflammation or infection. From observations of subacute cases in the human subject, and from experiments with mallein in horses, he is led to believe that with small and repeated injections of specially prepared mallein at the initial stages of subacute cases in the human subject the disease would yield and change into a chronic form, with the possibility of ultimate recovery.

BRITISH MEDICAL JOURNAL

September 21, 1907.

1. Clinical Remarks on Medical Cases Demonstrated in the Meath Hospital, Dublin. By J. CRAIG.
2. A Case of Bradycardia with Epileptoid Attacks. By A. E. R. WEAVER.
3. An Operation for Embolus. By W. S. HANDLEY.
4. Aneurysm of the Foot. By A. R. TWEDDIE.
5. Epidemic Cerebrospinal Meningitis with Typhoid Agglutinins in the Blood. By W. ST. C. SYMMERS and W. J. WILSON.
6. A Case of Aneurysm of the Abdominal Aorta Without Symptoms. By T. G. S. LEARY and C. ELLIS.
7. A Case of Cerebellar Hemorrhage. By H. M. INGLES and P. C. FENWICK.

(Seventy-fifth Annual Meeting of the British Medical Association.)

Section of Diseases of Children.

8. A Discussion on the Diseases and Displacements of the Testicle. By D. A. POWER, R. HOWARD, and W. E. DIXON.
9. Some Malformations of the Penis. By G. H. EDINGTON.
10. Pneumococcal Arthritis in Children. With a Report of Two Cases. By C. A. R. NITCH.
11. A Discussion on Acute Nephritis in Children and Its Results. By A. F. VOELCKER and others.
12. A Discussion on Lumbar Puncture: Its Diagnostic and Therapeutic Value. By E. F. RIZZARDI and others.
13. Precocious Development. By R. L. LANGDON-DOWN.
14. Precocity in Relation to the Ductless and Accessory Genital Glands. By L. G. GUTHRIE.
15. The Care of Tuberculous Children. By T. N. KEYSER.

5. **Widal Reaction in Cerebrospinal Meningitis.**—Symmers and Wilson report a typical case of cerebrospinal meningitis occurring in a woman, twenty-seven years of age, in which the blood showed marked agglutinative power on the bacillus typhosus (Widal reaction). Twice the serum in dilutions of one in two hundred gave marked clumping within fifteen minutes. But the woman had never had typhoid fever—had not been ill in bed for one day in nineteen years. The clinical symptoms and course of the disease were characteristic of cerebrospinal meningitis, and at the autopsy suppurative meningitis was found, from the pus of which the diplococcus intracellularis meningitidis of Weichselbaum was recovered in pure culture and in large numbers. Nothing whatsoever suggestive of typhoid fever was found.

8. **Diseases of the Testicle.**—Power pays special attention to tuberculosis of the testicle in children. It is more common than is generally believed. The inflammation is sometimes primary, but is more often associated with other forms of tubercle, and there is frequently a definite history of injury. The diagnosis is more difficult in children than in adults, as the symptoms are less marked. In the adult, the gland not being functional in children. When the testicle is simple and the child fairly healthy, the disease may remain localized on the

affected gland. Eventually the testicle resumes its original condition, or if involution goes too far, it atrophies. The treatment in these cases may safely be palliative. The prognosis is not so good when there is mixed infection with pyogenic organisms. Here an abscess is soon formed and the neighboring lymphatic glands become involved. When such suppuration occurs the testicle should be removed as soon as possible.—Howard discusses torsion of the testis. This occurs both in the fully descended and in the imperfectly descended testis. The exciting cause of the torsion is not precisely known; no exciting cause, such as strain, is usually in evidence. The symptomatology resembles that of strangulated hernia, but the vomiting is not so persistent, the bowels react to enemata or purgatives, and flatus is passed. The temperature may be slightly elevated. The testicle itself is swollen, and its various parts cannot be differentiated. Suppuration, gangrene, or atrophy may occur. The result of torsion is usually atrophy of the testis affected. In cases of acute torsion in the fully descended testis which cannot be untwisted, the case should be treated expectantly unless the symptoms are very urgent, as recovery is possible without marked atrophy, and if atrophy does occur, the patient is not worse off than if orchidectomy had been performed. But should suppuration appear imminent the testis should be removed at once.—Dixon, discussing the organotherapy of the testis, states that the gland has two distinct functions, and the changes occurring at puberty are more likely to give a measure of the presence or absence of testicular tissue than the spermiatic function. In spite of this, there is no evidence of value showing that orchitic extract, whether given by the mouth or subcutaneously, supplies a deficient secretion. This must mean that the active constituent of the secretion does not occur free in the testis.

9. Malformations of the Penis.—Edington reaches the following conclusions regarding malformations of the penis: 1. Glandular hypospadias is the commonest form. 2. Malformation of the raphe is frequently present in glandular hypospadias, but either malformation may occur independently. 3. Phimosis occurs in a considerable proportion of the cases of glandular hypospadias. 4. Malformation of the raphe may exist alone, but it usually indicates the presence of other deviations from the normal. 5. Torsion of the penis is always associated with malformation of the raphe. 6. Hernia or hydrocele occurring in a case of torsion does not seem to have any influence in the production of the deformity. 7. The deviation of the raphe has probably no effect upon the form of the urethra.

11. Acute Nephritis in Children.—Stevenson discusses the eye changes in nephritis in children, and sums up as follows: 1. Ocular complications are uncommon in cases of acute nephritis, and when they occur they usually assume the form of an inflammation of the optic papilla. 2. Retinal complications are apparently much less frequent in parenchymatous than in interstitial nephritis. 3. The ophthalmoscopic signs do not appear to differ either quantitatively or qualitatively in the two forms of chronic nephritis. 4. Detachment of the retina may occur as a complication of retinitis in childhood. 5. The significance as regards duration of life is as unfavorable in the renal retinitis of children as in that of grown up persons.

13 and 14. Precocious Development.—Langdon-Down states that in the eyes of the medical profession precocity has been very generally looked on as an almost unmixed evil. This view has been based rather on the extreme cases and those complicated with other conditions, than on a broad view of the facts. Natural ability follows the law of variation from the mean, and there is no reason to suppose that this is not also true of precocity. In the broadest sense of the word precocity is an innate condition based on heredity, and as

such it should not be regarded as abnormal in a strict sense.—Guthrie, discussing precocity in relation to the ductless and accessory genital glands, reaches the following conclusions: 1. Precocious physical development, sexual and somatic, may be due to tumors or to hypertrophy pituitary and pineal glands, of the adrenal cortex and accessory genital glands. 2. The opposite condition—namely infantilism, or stunted growth, loss or nondevelopment of sexual attributes—may depend on atrophy or destruction of function of one or other of the organs named. 3. Hypersecretion on the part of one or other of these glandular structures, in the first case, and hypersecretion in the second, may account for the opposite conditions described. 4. Precocious development (sexual and somatic) may in some cases be unassociated with any obvious lesion of glandular organs. 5. There is reason to suppose that a correlation of function, or some mutual check action exists between the glands which have been mentioned. It is also probable that the thyroid and thymus glands are intimately connected with the phenomena of physical and sexual development. 6. Two distinct types of precocious development—namely, the obese and the muscular—are associated with tumors or hypertrophy of the adrenal cortex. 7. The obese type may occur in both cases, but the muscular type seems to be confined to the male sex. 8. Premature hirsuties occurs in practically all cases of premature physical development, but is not necessarily associated with other signs of sexual maturity. 9. Tumors of the adrenal cortex which occasion precocious development are of mesothelial origin, and act by inducing multiplication and over growth, and therefore hypersecretion of the cerebral parenchyma cells.

LANCET.

September 21, 1907.

1. The Operation of Gastrojejunostomy and Its Physiological Effects, By H. J. PATERSON.
2. Relation of Polymastia to Multiparous Birth, By T. IWAL.
3. Mucous Colitis, By E. H. HARRISON.
4. Notes on, and Remarks Suggested By, a Case of Malignant Endocarditis (Diphtheritic) With Terminal Cerebrospinal Symptoms, By J. T. C. NASH.
5. Case of Double Optic Neuritis: Symptoms of Cerebellar Tumor: Complete Recovery, By C. HIGGINS.
6. A Case of Land Scurvy Occurring in a Patient After a Prolonged Period as an In Patient in a Hospital and as a Complication of a Fistula in Ano, By J. B. DAWSON.
7. Preliminary Note on a Leucocytosoon Found in the Blood of the Red Grouse (*Lagopus Scoticus*), By C. G. SELIGMAN and L. W. SAMBON.
8. The Clinical Significance of Alochiria, By E. JONES.
9. A Preliminary Note on Bombay Spivillar Fever, By F. P. MACKIE.

1. Gastrojejunostomy.—Paterson thinks we are justified in drawing the following conclusions as to the physiological effects of gastrojejunostomy: 1. A certain amount of bile and pancreatic juice enters the stomach after gastrojejunostomy, but the amount is small and has no injurious effect. 2. The acidity of the gastric contents is markedly diminished, usually about thirty to thirty-five per cent. This is due, partly to a diminution of the total chlorides secreted, partly to the partial or complete neutralisation of the free hydrochloric acid by the alkaline bile and pancreatic juice, and probably also to earlier stimulation of the pancreatic secretion, and compensatory earlier fall of the gastric secretion. In gastric ulcer cases the removal of spasmodic stenosis of the pylorus likewise tends to diminish the total acidity. 3. Gastric digestion is impaired but not lost after gastrojejunostomy. 4. The motility of the stomach, if normal before operation is for practical purposes, unaffected. Gastrojejunostomy is therefore not a drainage operation. Its

beneficial effects on gastric ulcer are due to the diminution of the acidity of the gastric contents. 5. Gastro-jejunostomy has no material effect on the metabolism of the human body, the percentage of nitrogen and fat absorbed being within the limits observed in individuals who are apparently healthy. This chemico-pathological evidence is supported by the evidence of clinical experience.

2. **Polymastia and Multiparous Births.**—Iwai has studied the relation of polymastia (presence of supernumerary mammary glands) to the giving birth to two or more children at the same time, and arrives at the following conclusions: 1. It is probable that a relation exists between polymastia and multiparous births. 2. It is probable that those who have supernumerary mammary glands have a tendency to become more frequently pregnant than those who have not. 3. The fact that instances of multiparous birth increase in women with the number of their conceptions and the development of their age, coincides well with the opinions given hitherto by several authorities. 4. According to the writer's own observations the instances of multiparous birth are most common among people of the lower classes, and especially among those of a low order of intelligence.

6. **Land Scurvy.**—Dawson reports a case of land scurvy occurring in a woman who was under treatment in a hospital for a long time for fistula in ano. There were three special points of interest: 1. The occurrence of scurvy in a patient whose food had been the same as customary among people of her class, for she had been taking plenty of good and fresh food, according to her own statements. Moreover, she had been in a hospital a month where her diet was a plentiful one of milk, beef tea, custard, jelly, and so on, before the onset of the scorbutic symptoms. 2. The possibility of the retardation of healing seen in certain forms of long standing "callous" wounds being due to a scorbutic diathesis. 3. The possibility of the long continued suppuration and mental distress due to the fistula, being the cause of the diathesis, a vicious circle being thus produced.

LA PRESSE MEDICALE

September 14, 1907.

1. Urobilinuria Is Not a Sign of Hepatic Insufficiency, By A. GILBERT and M. HERSCHER.
2. The Possibility of Strychnine, By A. MARTINET.
3. Anaplasmosis, By V. VEAU.
4. Congenital Muscular Atony, By R. ROMME.

1. **Urobilinuria is Not a Sign of Hepatic Insufficiency.**—Gilbert and Herscher report five cases of pathological conditions of the liver associated with maintenance or its normal functions or excess of the same, and urobilinuria; and then twenty other cases of hepatic insufficiency with absence of urobilinuria. From these cases the authors conclude that urinary urobilin is not the pigment of the diseased liver, but a derivative of the normal biliary pigment produced by the action of the kidney, that urobilinuria is not a sign of hepatic insufficiency, but is an indirect phenomenon, and that urobilinuria occurs in spite of the functional state of the liver.

2. **Possology of Strychnine.**—Martinet presents the following conclusions: (1) That one to two centigrammes of strychnine is useful in cases of convulsions, daily dose of strychnine for the first three months of pregnancy being 0.005 to 0.01 gramme, and 0.01 to 0.02 gramme in the third trimester; (2) that the strychnine of the patient and during the course of the laboratory to the drug the dose may be gradually increased when necessary to three centigrammes; (3) that these observations demonstrate that in certain individuals and particularly in certain pathological conditions, such

as delirium tremens, one may be able to increase the dose to five centigrammes, or even more, it nevertheless remains true that when the dose of three centigrammes is exceeded one enters a true danger zone.

September 18, 1907.

1. The Cutaneous and the Ophthalmic Reaction to Tuberculin in the Adult, By OLMER and MARCEL TERRAS.
2. Synthetic Pharmacodynamia. The Original Idea of Salol in Pharmacodynamia, By ALFRED MARTINET.
3. The Button of the Nile. Its Treatment with Potassium Permanganate, By MEDINI.
4. Total Ablation of a Finger, By VICTOR VEAU.
5. Massage and the Venous Hyperæmia Produced, By DUREY.

1. **The Cutaneous and the Ophthalmic Reaction to Tuberculin in the Adult.**—Olmer and Terras present the following conclusions from their studies: Von Pirquet, who was the first to use the method of cutaneous reaction for the early diagnosis of tuberculosis in children, admits that in children above the age of two years and in adults the cutaneous inoculation of tuberculin may cause a reaction when no bacillary lesion is present. But these authors, with many others, have found the reaction inconstant in the adult. Eleven out of thirty-one tuberculous adults presented no reaction, while other adults who presented no appreciable tuberculous lesion exhibited a very intense reaction. Persons who appeared clinically to be perfectly cured of their tuberculosis and presented no apparent bacillary lesion reacted positively to both the cutaneous and ophthalmic test.

3. **Treatment of the Button of the Nile.**—Medini reports three cases of the successful employment of potassium permanganate in the treatment of this disease, which is also known as the Aleppo button and the Delhi boil.

5. **Massage and the Venous Hyperæmia Produced.**—Durey is inclined to think that the benefit obtained by massage is to be ascribed to the venous hyperæmia thereby produced, which acts in the same manner as when produced by Bier's method.

LA SEMAINE MEDICALE.

September 18, 1907.

1. The Relations of Rickets to the Pointed Deformation of the Palatine Arch and to Chronic Hypertrophy of the Lymphoid Tissue in the Pharynx, By MARFAN.
2. Adiposulgia.

1. **Relations of Rickets to Deformation of the Palatine Arch.**—Marfan considers rickets to be the resultant of the reactions of the defense against infections and chronic intoxications in the bony medulla, very active in the young infant and the fetus. The reactions consist of the vascularization and proliferation of the bony medulla, not only in the long bones, but also of the Haversian canals and the subperiosteal layer of other bones. He also ascribes to it the growth of adenoids and of enlarged tonsils.

BERLINER KLINISCHE WOCHENSCHRIFT

September 9, 1907.

1. Concerning the Pathogenesis of the Small Intestine in Whipple's Intestinal Disease, Was It Due to a Bacterial Process? By H. KROEMER and M. FRIEDMAN.
2. Concerning the Pathogenesis of the Small Intestine in the Tuberculosis of the Intestine, By C. GROSS.
3. The Pathogenesis of the Small Intestine in the Tuberculosis of the Intestine, By A. GILBERT.
4. Concerning the Pathogenesis of the Small Intestine in the Tuberculosis of the Intestine, By A. GILBERT.
5. Concerning the Pathogenesis of the Small Intestine in the Tuberculosis of the Intestine, By A. GILBERT.
6. Concerning the Pathogenesis of the Small Intestine in the Tuberculosis of the Intestine, By A. GILBERT.
7. Concerning the Pathogenesis of the Small Intestine in the Tuberculosis of the Intestine, By A. GILBERT.

1. **Tumor of the Spinal Meninges.**—Oppenheim and Borchardt add another case to those reported by them some time ago of tumors of the spinal meninges. Oppenheim made the diagnosis in a woman, twenty-three years of age, and Borchardt opened the spinal canal, with little hope of success, and removed the tumor. The patient made a good recovery.

3. **Mikulicz's Disease and Syphilis.**—Gutmann reports a case of Mikulicz's disease, symmetric swellings of the lachrymal and salivary glands, which he met with in a man, twenty-seven years of age, who had a distinct history of syphilis. The swollen glands decreased in size under treatment with potassium iodide until at the end of two months they had been reduced to normal. From this case he argues a close relation between this disease and syphilis.

4. **Atoxyl and Relapsing Fever.**—Glaubermann alleges on the basis of forty cases of relapsing fever treated with atoxyl that this drug has a distinctly beneficial effect in this disease.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT

September 17, 1907.

1. Contribution to the Pathology and Treatment of the Alveolar Emphysema of the Lungs, By PANSLER and SEIDEL.
2. Diabetes and Catalysis, By SHADE.
3. Bacteriological Investigations in Cholelithiasis, By BACHMEISTER.
4. Concerning the Presence of Spirochæta in Pseudo-leucæmic Hyperplasia of the Lymphatic Glands, By PRÖSCHER and WHITE.
5. Concerning the Variable Relations between the Process of Ovulation, Including Menstruation, and Internal Diseases, By RIEBOLD.
6. Concerning Disinfection with Iodobenzin, By ENDERLEN.
7. Simplification of the Dressing after Amputation of the Breast and Other Operations in the Axilla, By EBNER.
8. Concerning the Prospects for Recovery in Carcinoma of the Stomach and Intestine, By ANSCHÜTZ.
9. What Should Be Designated as a Generalized Vaccine? By VOIGT.
10. A Case of Bilateral Chylothorax Traumaticus, By HAMMESFAHR.
11. Prevention of the Vascular Dilatations Produced by the Action of the Radium Rays, By AXMANN.
12. The Establishment of Institutions for the Care of Persons with Pulmonary Diseases in the Struggle against Tuberculosis as a Common Disease, By BESCHORNER.
13. New Salt Sterilization Apparatus with Refrigeration and Pressure Regulator Attachments, By BECKER.
14. Avulsion of Spinous Process of the Vertebra by Muscular Exertion, By HENSCHEN.
15. The Opening of the International Laboratory on Mount Rosa, By FUCHS.

1. **Alveolar Emphysema of the Lungs.**—Päessler and Seidel assert that (1) Freund's operation, resection of the cartilage of the first rib, is of unquestionable value in emphysema with rigid dilatation of the thorax; (2) the operation can have a good result when performed on one side alone; (3) the operation is not particularly difficult in its technique, and is not too severe upon the patient; (4) it should be recommended to resect the sympathetically affected cartilage of the first rib; (5) the preferable time is the period of the appearance of dyspnoea on moderate exertion, the latest time that of the appearance of dyspnoea on very slight exertion; (6) it is of value even when secondary insufficiency of the heart is present, but once in a while so advanced a case should be advised against the operation; (7) as regards the ætiology and pathology of alveolar emphysema the results produced by Freund's operation show that there is actual basis for Freund's theory of the importance of the rigid dilatation of the thorax; (8) the performance of the resection of the cartilage

of the first rib by Seidel demonstrates that the operation suggested by Freund for tuberculosis of the apex of the lung presents no extreme difficulties.

5. **Relations between the Process of Ovulation and Internal Diseases.**—Riebold asserts that with the periodical ovulation certain secretions enter the circulation which under physiological conditions cause an increase of the nervous and psychical excitability, an increase of the blood pressure and of the vital energy, a general enhancement of the processes of metabolism, an accompanying hyperæmia of the internal organs, and a consequent exchange of fluids. Menstruation usually follows one or more days after the processes which accompany ovulation, but all those processes, which have nothing to do with the hæmorrhage from the uterus as such, can also appear entirely independent of it. The author's conclusions will be presented in a future paper.

9. **Generalized Vaccine.**—Voigt states that the term generalized vaccine should be confined to the forms in which a general vaccinal eruption is produced in a hæmatogenous way, in distinction from those in which there is a local transmission of vaccinal forms, such as pustules and eczema.

14. **Avulsion of the Spinous Process of the Vertebra by Muscular Action.**—Henschen reports a case in which a man, eighteen years old, while exerting himself strenuously shovelling coal, felt a sudden pain between his shoulder blades. Examination revealed that the spinous process of the first dorsal vertebra had been broken off.

THE MILITARY SURGEON

October, 1907.

1. A Plan for the Expansion of the Army Medical Department in War, By FREDERICK P. REYNOLDS.
2. The Surgical Treatment of Dysentery, By HOLTON C. CURL.
3. French Impressions of the Medical Service of the Rear in Manchuria, By CHARLES S. BUTLER.
4. The Brain a Good Field for Surgery, as Shown by Its Disregard for Traumatism, By CHARLES D. CENTER.
5. Necator Americanus in Natives of the Philippine Islands, By CLARENCE L. COLE.
6. Cholera Indica or Asiatic Cholera, By JOHN A. METZGER.
7. The Load of the Foot Soldier, By HENRI MARESCHAL and PAUL F. STRAUB.
8. Tropical Diseases in the Philippine Islands, By PERCY M. ASHBURN and CHARLES F. CRAIG.
9. The Jamestown Tercentennial Exposition, By WILLIAM COLBY RUCKER.

3. **French Impressions of the Medical Service of the Rear in Manchuria.**—Butler says that the low mortality seen among those with infected wounds will be explained by these circumstances: The minimum of morbid receptivity among the Russian soldiers, who were carefully recruited, well nourished and clothed; a rational arrangement of the stationary and base hospitals; an undeniably tonic effect of the climate of north-eastern Asia; the relative attenuation of the virulence of the streptococcus; less laceration of the wounds by small calibre bullets; and hence greater resistance of tissues to pathogenic bacteria; the usual practice of Russian surgery, conservative at the front and at the rear; disinfection of wounds as quickly and as completely as possible, by sterile water or tincture of iodine; the rapid evacuation to the rear of all wounded; the desire on the part of surgeons to attack infections at the very outset, with the constant use of the thermometer as a guide; free opening and drainage of deep wounds; and the use of aseptic dressings.

5. **Necator Americanus in Natives of the Philippine Islands.**—Cole states that *Necator americanus* is a common parasite in natives of the Philippine Islands. This infection occasions a great loss of time to the government through illness of the enlisted men, principally of scout organizations. There is an unnecessary increase

of expense for medicines and hospital supplies on account of this condition. Every man infected with uncinaria is a menace to his comrades and a source of danger to the community in which he is stationed. No person suffering from uncinariasis, mild or severe, is capable of performing his duty as efficiently as the one who is free from this infection. Every one suffering from uncinariasis, although mild, is more susceptible to other diseases and having contracted another disease, the complicating disease is more severe on account of the weakened condition of the individual, and his period of illness is necessarily longer. Uncinariasis is a disease which yields readily to treatment with little danger and positive results. If uncinariasis is as prevalent in the Philippine Islands as the few examinations, here reported, would indicate, then there is no way in which systematic expenditure of a small amount of money will bring a greater return in health, happiness, efficiency, and increased prosperity, than in eradicating this disease.

7. The Load of the Foot Soldier.—Mareschal and Straub give very interesting facts as to the wearing of a knapsack. They observe that military nations have adopted either the dorsal or lumbar method of carrying the knapsack, these methods being the only two possible. The objections to the dorsal method are: First, that it is a statical error in that it displaces backwards the centre of gravity of the body. Second, that it is a physiological error in that it deprives the soldier of a part of his respiratory capacity by the contraction of the pectoral and abdominal muscles necessary to maintain the erect position. It is a remarkable fact that the soldier, although more heavily loaded than a mule, is at the same time deprived of a part of his breathing abilities. Third, that it is a military error in that it interferes with the handling of the rifle when firing; by compressing the axillary vessels it causes a stiffening of the muscles of the upper extremities which interferes with their proper function when the soldier aims and the index finger pulls the trigger. In order to obviate these objections many armies have adopted the lumbar method of carrying the knapsack. But, if the lumbar method is correct in theory, it must be confessed that satisfactory results have not thus far been obtained in practice. For it is necessary to find a stable point of support for the load to rest upon in the lumbar region, and although it has the advantage of being near the centre of gravity of the body, it presents an inclined surface hard to utilize. The solution of the problem lies in finding a fixed point of support with lumbar region. This can be given by a cartridge box, so shaped that its inferior surface is fitted to the lumbar curvature and to maintain it in position the belt passes through it. To prevent all compression of the abdominal organs, it is further supported by a hook to which the suspenders are fastened. This is a device of Dr. Barthelemy. The knapsack is made concave anteriorly to permit it to rest upon the cartridge box.

Proceedings of Societies.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS.

Twentieth Annual Meeting, held in Detroit, September 17-18, and 20-21, 1907.

The President, Dr. ROBERT T. MONROE, of New York, in the Chair.

The Ætiology of Gallstone Disease.—Dr. HUGO O. PETERSON, of Indianapolis, read in this paper the recent developments that have led to the gallbladder being named only the appendix among the abdominal organs in their literature to date so to speak. Like the appendix, the gallbladder was found to be a compound for the

ease germs, which displayed their activity by signs which for a long time were unrecognized or incorrectly interpreted. The view of Kehr, that an infection supervened on preexisting gallstones, was supported by clinical and pathological observations and reasoning. A gallstone engaged at the neck of the gallbladder might excite an irritation of the wall of this organ not unlike that seen in the gravid uterus when its contents had become unsettled and acted like a foreign body. The vaginal portion suddenly swelled to a large size, with oedematous infiltration, and the dormant uterine musculature became active. Rapid dilatation of the cervical canal and violent expulsive pains occurred. In the case of the gallbladder, a stone wedged in its cervical canal might be supposed to bring about similar changes, affecting both the musculature and connective tissue of the entire organ. Opinions of authors and practitioners varied materially as to what size of stones could be passed by the cystic or common duct. Large stones that had been passed by the bowel or vomited had left the gallbladder through unnatural openings; yet there was unmistakable evidence of comparatively large stones having passed through the natural channels. The temperature should be regularly taken in all cases of gallstone colic. It might be the first definite sign of a grave disease. Every case of gallstone colic with a rise of temperature demanded a local examination to detect evidence of an inflammatory character, gangrene and pericystic involvement, or excessive enlargement. The persistent absence of fever commonly indicated that the condition was not dangerous, and when associated with certain, concurrent conditions might warrant persistence in nonsurgical measures.

Dr. JOHN A. LYONS, of Chicago, related the case of a physician whom he saw about four months ago. Blood tests were made to determine whether the case was one of cholecystitis or appendicitis. The pain radiated from the right to the left hypochondriac region. It was decided that the case was one of cholecystitis; a noted surgeon concurred in the diagnosis, and operated. The operation, however, disclosed multiple carcinoma of the liver. This case he reported to show that it was difficult for even eminent practitioners to distinguish between gallbladder disease and appendicitis in some cases.

Dr. JAMES F. W. ROSS, of Toronto, reported five cases of gangrene of the gallbladder. Whenever this condition was diagnosed, he said, it required an immediate operation, just as a case of gangrene of the appendix did. One case had demonstrated to him the possibility of gangrene of the gallbladder without the presence of gallstones.

Dr. JAMES F. BALDWIN, of Columbus, O., had had a number of cases of gangrene of the gallbladder. He had noticed one symptom to which he attached considerable importance, namely, irregularity of the pulse. The last patient upon whom he operated had no elevation of temperature apparently or acceleration of the pulse, but very severe pain. The patient gave a history of attacks of pain dating back a year, and a Cincinnati physician who saw the patient on one of these attacks thought it was clearly the appendix that was at fault. The patient was in a desperate condition, so that an immediate operation was indicated. Dr. Baldwin operated, going high up, as he thought there was more tenderness over the gallbladder than over the appendix. The patient was the same. The gallbladder was gangrenous, but removed and contained six gallstones. The patient made an excellent recovery.

Dr. THOMAS BRUCE, of Philadelphia, said that gallstone disease was very common in some systems. He mentioned the fully developed case of a patient with gallstones, but gallstones as had been demonstrated in some patients, sometimes even without the usual condition of

symptoms during life. He did not think that colic was a common symptom.

Dr. W. H. HUMISTON, of Cleveland, referred to the frequency of gallstones without symptoms. During his residence in Vienna for several months he visited the autopsy room, where they had from six to twelve bodies daily. In a hospital there with 3,500 beds, gallstones were found quite frequently, and although in many of these cases there were no symptoms of gallstones, yet they were found at autopsy. He had found that a rigid right rectus was an indication of gallbladder disease.

Dr. CHARLES L. BONFIELD, of Cincinnati, said there was a decided difference between a pain due to an acutely inflamed and distended gallbladder and one that was due to true gallstone colic. Gallstone colic was always due, in his opinion, to a contraction of the gallbladder. This contraction might be caused by the effort for the stone to be passed through the duct or it might be caused by an inflamed condition producing contraction.

Dr. PANTZER said that the frequency of gallstones bore no relation to the frequency of gallbladder disease. The possibility of cholecystitis gangræna was to be entertained in every case presenting symptoms of grave inflammatory disease.

Tuberculosis of the Kidney.—Dr. RUFUS B. HALL, of Cincinnati, said in this paper that it was the consensus in the profession to-day that renal tuberculosis was a local affection limited to one kidney in the vast majority of cases. As to the method of infection, we must consider the circulation, the lymphatics, and extension from the bladder as well as direct communication from the tuberculous focus situated near or outside the genitourinary tract. There could be little doubt that the kidney was often affected without either the ureter or bladder being involved. It was also susceptible of demonstration that if the disease was far advanced in the kidney, the ureter rarely escaped infection.

If a diagnosis could be made early and the abscess of the kidney drained, many of the patients could be cured without the sacrifice of the kidney, which necessarily followed if the disease was allowed to progress many months. If the general profession would realize the importance of considering tuberculous disease of the kidney one of the chief causes of irritable bladder, occurring in patients between the ages of twenty and fifty years, where some other good cause could not be easily ascertained to account for their condition, especially if the urine contained pus and it was acid, there would be a great advance made toward an early diagnosis of this grave condition.

Dr. EDWARD J. ILL, of Newark, N. J., reported the case of a girl who had tuberculosis of the left kidney and ureter. This case dated back eighteen years. The patient was seen in the days before operations were undertaken for the relief of this condition, and while she did not undergo an operation at that time, she was perfectly well to-day. No tubercle bacilli could be found in the urine at the present time. Another patient, seen twelve years ago, was perfectly well to-day. He did not cite these cases for the purpose of saying that they did not call for an operation, but rather the reverse. In the last five or six years he had operated in six such cases, removing both the kidney and ureter. All these patients were alive except two. One died of sepsis at the time of the operation, while the other died of lung trouble, which was not recognized previously.

Dr. H. O. WALKER, of Detroit, spoke of the value of drainage of the kidney in tuberculosis. He had had some successful results with it.

Dr. O. H. ELBRECHT, of St. Louis, cited two cases he had had of tuberculosis of the kidney. In one he drained, in the other he did not. One patient died from

miliary tuberculosis eight weeks after the operation. In this case the kidney was large and full of pus, and was drained. The kidney could not have been removed without the pus coming in contact with the wound. In the other case the abscesses were small; nephrectomy was done without puncturing the various abscesses. He also removed the ureter in this case and closed the wound; the patient recovered from the operation, but later died of miliary tuberculosis.

Dr. PRICE said that when a kidney was honeycombed with tuberculous disease, it was perfectly folly to attempt drainage. Such a kidney should be removed. Undoubtedly there were many cases in which surgeons had really anchored so called floating kidneys which were pathological. Cases were cited in point.

Dr. ROSS said it was unpleasant to do nephrotomy in these cases, and then find out afterward that one was compelled to do nephrectomy. It was not easy to determine whether nephrotomy should be done or nephrectomy primarily. English authorities years ago promulgated the dictum that nephrotomy should be resorted to first, and that nephrectomy should be considered in the light of a secondary operation in cases of tuberculosis of the kidney. In the cases that had come under his observation, he had followed that plan to some extent, because he had not been able to satisfy himself as to the condition of the other kidney. It was stated that tuberculosis of the kidney was generally bilateral, but in his experience this was not so.

Dr. BALDWIN emphasized the point that nocturnal frequency of urination was not only equal to the frequency of urination during the day, but was increased. He had noticed this in so many cases that he attached a great deal of importance to it. Where there was an irritable bladder, the erect position produced more congestion, and there was increased frequency of urination during the day, without relief at night. A patient noticed that he had to urinate more frequently at night than during the day, and examination in these cases later had verified the suspicion of tuberculosis. He had practised nephrotomy in three desperate cases, believing that nephrectomy would have turned the tide in these, and the patients would have died.

Dr. HALL said that if there were many abscesses, with several pockets, he invariably took the tuberculous kidney out. In a few cases, however, the condition of the patient had been so desperate that he had simply drained for the time being, but had had to remove the kidney in these cases months afterward.

Toxæmia of Pregnancy as Observed by the Gynecologist.—Dr. RALEIGH R. HUGGINS, of Pittsburgh, stated that observations led to the belief that pernicious vomiting, acute yellow atrophy, and eclampsia were but the results of conditions which as a rule had gradually developed. The onset might be severe enough to impair the process of metabolism seriously, and thus render the patient more susceptible to many other complications which frequently accompanied pregnancy and the puerperium. That many dangerous complications were apt to develop after delivery as a result of previous toxæmic conditions was a fact that had not received the attention which its importance merited. There was much greater danger of infection at delivery as a result of lowered resistance than when the eliminative organs had been acting normally throughout pregnancy; in a number of cases of cholecystitis occurring during pregnancy and the puerperium it had developed in the presence of toxæmic symptoms; and complications such as cholecystitis and empyema of the gallbladder had been the direct result of an overworked liver caused by the toxins of pregnancy. In a large percentage of cases of insanity occurring during the puerperium there was a history of toxæmic symptoms previous to delivery.

Dr. E. GUSTAV ZINKE, of Cincinnati, was satisfied

that puerperal toxæmia could be eliminated in nine tenths of the cases if the patients were instructed to consult physicians who would do as they should by them. These women should have the necessary care from the beginning of their pregnancy until the end of it, until they were able to be up and about after their confinement. This was what the young practitioners should be taught; this was what practitioners should preach to the public.

Dr. PRICE referred to a young woman who had diabetes during pregnancy, and the question arose as to whether it was safe for her to bear a child. He was called to settle that point. He decided that the woman could safely conceive. She was watched with great care by a physician, a man of great skill, who made high application of the forceps, and delivered her of a child who was now alive.

Dr. LYONS recalled two cases of puerperal sepsis, but neither of the patients had consulted him in time for him to do much good.

Dr. ELBRECHT reported cases of hyperemesis gravidarum. In one it had been necessary to resort to the induction of abortion to stop the vomiting.

Dr. HUMISTON said that in the severe cases that had resisted other methods of treatment he had had good success from the use of stomach lavage, twice daily, with rest in bed, and with enemata of saline solution.

Treatment of Puerperal Sapræmia and Puerperal Sepsis.—Dr. JOHN E. CANNADAY, of Hansford, W. Va., outlined the present status of treatment of these conditions. The treatment of the former had been definitely settled. The treatment of puerperal sepsis, however, was unsettled and unsatisfactory. There were several more or less ineffective methods of treatment. Each had its champions. The yeasts, nucleins, sera, and more recently the opsonins had been lauded. In one or several of these evidently lay the hope of the future. The use of the curette had been praised by a few and derided by many. Pryor's iodoform gauze method gave good results in the hands of a few. Several of the more radical men practised hysterectomy, but there was danger of a deadly staphylococcus infection external to the uterus. The author advocated vaginal and uterine douches of a normal salt solution, supplemented by a cul-de-sac drainage, whenever there were any evidences of infiltration or abscess posterior to the uterus, in the broad ligaments, or in the tubes. Saline transfusion, frequently administered, nutritious diet, and other general supportive measures should be resorted to.

Final Results of Operations for Prolapsus Uteri.—Dr. JOHN W. KEEFE, of Providence, R. I., expressed the conviction that hysterectomy for prolapsus should be practised only in rare instances, as it was an operation that was attended with a high mortality. The author tabulated 48 cases of operations for prolapsus uteri of varying degree. Of this number, 46 were treated by the combined methods of plastic operations on the parturient canal and the Alexander operation. He had been able to trace after operation 23 cases out of the 48. Of the 23 patients examined, he had found 18, or 77 per cent., with the uterus in good position and cured of the previous symptoms. Of the 5 remaining, 2 had a return of prolapsus to the second degree, but without any subjective symptoms. One was treated by plastic work on the vagina, and ten years afterward well into the sixth month of pregnancy, after which the prolapsus returned. In the case of the Alexander operation was done. Another was also treated by plastic work, also with a resulting failure. The patient returned later, the plastic work was repeated, and an Alexander operation done. After this the patient bore two children, and on examination, August 21, 1907, the uterus was found in good position, with a pro-

ate cystocele and proctocele. The patient had had no return of the symptoms for which she sought an operation. In the other case of failure the patient was advised to return for hysterectomy. Seven women had borne children since the operation, and one was pregnant at the time of examination. The labor in every case had been normal, free from the use of forceps, and had not caused a return of the prolapsus, except in one case in which the Alexander operation was not done. The author was convinced of the practical value of the Alexander operation combined with plastic surgery upon the uterus and vagina in cases of prolapsus uteri.

Phlebitis Following Abdominal Operations.—Dr. ORANGE G. PFAFF, of Indianapolis, presented the following conclusions on this subject: "1. Many of these cases are simply extensive aseptic blood clots, without any true inflammation. 2. There must be present an abnormal plasticity of the blood in order that thrombosis may be the result of surgical traumatism. 3. The clot generally receives a mild form of infection introduced into the wound at the time of the operation, and in turn an invasion of the vein wall results. 4. As stagnation is such an important element in the ætiology, getting patients up earlier undoubtedly reduces the liability to thrombosis. 5. As an abnormally high degree of plasticity of the blood is essential in developing the disorder, the blood ought to be tested by some recognized standard in every case, and if found in a dangerous state, operation should be postponed until medication shall have brought it back to a normal condition."

Dr. HERMAN E. HAYD, of Buffalo, said he had a woman patient in bed at present with a postoperative phlebitis. He operated on her four weeks ago for a simple recurrent attack of appendicitis. The wound healed kindly, without any evidence of irritation or pus. He was unable to account for the phlebitis in this case. He cited it to show that after a trivial operation, under the most careful precautions, phlebitis was likely to follow, and probably this woman would be in bed five or six weeks.

Dr. JOSEPH PRICE said that whenever much acrobatic surgery was done, phlebitis would follow. He had noticed with anxiety that in certain institutions where undue prominence was given to binders, to the use of crutches and retractors, phlebitis followed the operations. He mentioned one institution in which they had had forty-eight cases of phlebitis following operations, twenty-five of ileus, and eighteen of ether pneumonia. He had not had a case of phlebitis following operation for five or ten years.

The PRESIDENT said he had had two cases of phlebitis developing on the left side after operations on the appendix. He found it difficult to explain the occurrence of left sided phlebitis in these two cases.

Dr. HAYD said that in his case the phlebitis was left sided.

Dr. JAMES F. BALDWIN, of Columbus, O., asked if the members had seen phlebitis in cases of appendicitis in which no operation had been done.

The PRESIDENT replied that he had seen it in patients that had not been infected. There was no infection in either of the two cases he had mentioned.

Dr. JOHN W. KEEFE, of Providence, R. I., cited a case of hernia in a woman, for whom he did a J. B. Alexander operation. The operation was clean; it was done in fifteen minutes, but a left sided phlebitis occurred, and within two weeks a right sided phlebitis followed. At no time was there any suggestion of process about the hernial wound.

Dr. J. B. BALDWIN said that for a number of years he had had no cases of phlebitis, and then there were eight cases in succession. These patients were operated on both in hospitals and in private practice. He believed it was a simple condition, for he had seen a

follow as long as five weeks after a simple appendectomy.

Dr. HUGO O. PANTZER said that most cases of phlebitis were aggravated as soon as patients got up from operations. In some instances postoperative phlebitis did not develop until the patient began to sit up.

The Formation of an Artificial Vagina by Intestinal Transplantation.—Dr. BALDWIN described a new method for making an artificial vagina, and reported a case. He had first described the method on theoretical grounds three years ago, in the *Annals of Surgery*, but no case had then presented itself for operation. The operation consisted in making the usual opening between the rectum and bladder, and then lining this with a loop of intestine taken from the sigmoid flexure of the colon, or from the lower end of the ileum, as seemed preferable. Continuity of the bowel was restored by an anastomosis, and the cervix, if the uterus was to be saved, attached to the bowel, so that menstruation would take place through the artificial channel. In the case which he reported, the operation was in every way successful, in that a capacious vagina lined with mucous membrane resulted, with no tendency to cicatricial contraction.

Painful Menstruation in Young Unmarried Women.—Dr. W. A. B. SELLMAN, of Baltimore, discussed the causes of this condition, and pointed out that these sufferers should receive the benefit of those operations which had been so successful in giving permanent relief in this class of cases. The cervixes of these patients should be dilated or slit, the curette used, or something else done to end their pain.

Dr. BERTHA VAN HOOSEN, of Chicago, said that one of the most potent causes of dysmenorrhœa was a diseased appendix, which made itself known at the time of the menstrual period. During the past two years she had recognized more and more the importance of making a thorough examination of the appendix, and since doing this she had had hardly any cases of dysmenorrhœa that she had not been able to relieve.

Dr. PRICE said the prominence given to menstrual disturbances was too great. He believed that early matrimony was the best treatment for all varieties of dysmenorrhœa, except those in which pathological conditions existed.

Dr. J. HENRY CARSTENS, of Detroit, said that many of these women, after they married and bore children, had no further disturbances of menstruation.

Dr. PANTZER emphasized the importance of the hygienic treatment. When young girls with dysmenorrhœa were sent to the mountains for a short sojourn, thus changing their manner of living, it did them much good, in that they were rid of dysmenorrhœa for months, but in some cases, when they returned to a life that was faulty, the dysmenorrhœa recurred.

Dr. SELLMAN failed to see any connection between appendicitis and painful menstruation. He did not think appendicitis was a cause of dysmenorrhœa.

(To be concluded.)

Letters to the Editors.

A FALSE IMPRESSION CORRECTED.

DEPARTMENT OF PHYSIOLOGY, OHIO STATE UNIVERSITY,
COLUMBUS, October 1, 1907.

To the Editors: Notwithstanding previous denials on my part in the local papers and before the Columbus Academy of Medicine, letters are being sent out by a local firm connecting my name with an alleged discovery of a new diphtheritic antitoxine. I wish to state that such statements are absolutely unwarranted, as I have made no tests or investigations of any character concerning the preparation, nor have any such tests been made in my laboratories. A. M. BLEILE.

Book Notices.

Manual of the Diseases of the Eye. For Students and General Practitioners. By CHARLES H. MAY, M. D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York, etc. Fifth Edition, Revised. With 362 Original Illustrations, including 22 Plates, with 62 Colored Figures. New York: William Wood & Co., 1907. Pp. viii-391. (Price, \$2.)

The fourth edition of this book was issued two years ago, was reprinted less than a year ago, and has been translated into German, French, Italian, Dutch, and Spanish, as well as honored with a British edition. These facts furnish abundant evidence of the value and the popularity of this little work. It needs no further encomium from the reviewer. The changes from the last edition are not many or very noticeable. Some illustrations have been replaced, and a new colored plate, which portrays the fundus in diabetic retinitis and in amaurotic family idiocy, has been added.

Treatment of the Diseases of Children. By CHARLES GILMORE KERLEY, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital, etc. Fully Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 597. (Price, \$5.00.)

Dr. Kerley has added a valuable work to the list of textbooks on the diseases of children. The author states: "If I were asked what I considered the chief requisite for the successful practice of pædiatrics by a competent physician, I would answer: The education of the mother." Accordingly we find many valuable hints for the woman expecting a baby and for the mother herself.

That the author is very pronounced in his ideas can easily be seen, for instance, when he says that "a scale for weighing the baby is a very necessary adjunct to the nursery furnishings;" "a child should never be kissed on the mouth—the parents must make the rule, and they must set the example by adhering to it themselves;" "a child, regardless of its age, should never be taken out in inclement weather," but, dressed as for his daily outing, he can have his exercise and fresh air in a room with the windows opened on one side only. About alcohol the author very rightly remarks that "in its relation to children, regardless of the form in which it is used, it must always be considered as a drug and not as a beverage. Fully into details goes the chapter on foods.

Thus we accompany the child from the time of his birth through all the little ills and severe diseases which may befall him: Teething, night terrors, bed wetting, ringworm of the scalp, measles, scarlet fever, whooping cough, vaccination, typhoid fever, pneumonia, etc., all are treated of; in short, there is not a thing that may happen to the child which cannot be found expounded in the book.

A list of drugs, with their doses for different periods of age, for internal as well as external use, is appended, which, in its condensation, forms a very valuable addition. The index is well carried out.

The work can be highly recommended, and we feel sure that it will be fully appreciated by the general practitioner, for whom it has been prepared.

Der Hypnotismus, sein Wesen, seine Handhabung und Bedeutung für den praktischen Arzt. Von G. v. Voss, Greifswald. Halle a.S.: Carl Marhold, 1907. Pp. 40.

Dr. von Voss, of the University of Greifswald, Germany, gives us a very interesting synopsis of the history of hypnotism as used by the physician as a therapeutical measure. He reminds us that the English surgeon

Braid used hypnotic methods for anaesthetization; six years after Braid's death appeared the work of Liébault, a French physician, on hypnotism. Through him the attention of Bernheim, of Nancy, was called to the subject. In contrast to Bernheim's teachings stands that of Charcot, of the Salpêtrière, and his school, who explained hypnotism as an artificial hysteria. This review is followed by a condensed description of the diseases which might be influenced by hypnotic treatment, and the technique of such a treatment.

As the conclusions of the author are based upon purely medical points of view, the pamphlet is a valuable addition to the literature as represented by Bernheim, Forel, Löwenfeld, von Schrenck-Notzing, and others. An English translation would be very welcome.

Die kindliche Psyche und der Genuss geistiger Getränke.
Abhandlung für Lehrer und gebildete Eltern nach
einem in der wiener pädagogischen Gesellschaft ge-
haltenen Vortrage von LEOPOLD LANG. Mit einem
Vorworte vom Dozenten Dr. ALEXANDER PICZ. Mit
14 Tafeln im Texte. Wien: Josef Šafář, 1907. Pp.
80. (Price, M 1.40.)

This book has been written under the influence of the Society of Abstaining Austrian Teachers. It aims to demonstrate scientifically the danger arising from the use of alcohol, especially for children and youths, and the noxious influence produced by its use upon the progenitors of the child and upon the child itself, especially upon its mental development. The experience of teachers in reference to the capability and ability of pupils, tabulated according to the use or nonuse of alcohol, is a valuable addition to the literature on the use of alcohol.

The author says in his conclusions: Not only warning a child of its dangerous influence and interdicting the use of alcohol should be practised by parents and teachers; they should also prove the truth, necessity, and benefit of their teachings by their own total abstinence from alcohol.

Official News.

Public Health and Marine Hospital Service
Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending October 4, 1907:

Smallpox—United States.		Date	Cases.	Deaths.
Phases.				
California	San Francisco	Sept 8-14	1	
	Illinois	Chicago	Sept 15-21	1
	Kentucky	Louisville	Sept 15-16	1
	Massachusetts	New Orleans	Sept 15-21	1
	Massachusetts	Boston	Sept 22-28	1 Imported
	Michigan	Saginaw	Sept 15-21	1
	Ohio	Canton	Sept 15-21	1
	Poland	Lincoln	Sept 1-31	3
	New Jersey	Carlsbad	Sept 6	1
	Texas	San Antonio	Sept 8-14	1
	Washington	Seattle	Aug 1-31	18
	Wisconsin	Milwaukee	Sept 18-24	2
Smallpox—Foreign.				
Africa	Algeria	Algiers	Aug 1-31	6
Africa	British South Africa			
	Cape Town		Aug 11-17	1
Argentina	Republic	Rosario	July 1-31	6
Brazil	Mantua		Aug 21-23	1
Brazil	Rio de Janeiro		Aug 12-23	16
Brazil	Pernambuco		Sept 1-14	39
Canada	Halifax		Sept 15-21	1
	Quebec		Aug 21	Present
China	Chongking		Aug 31	1
China	Hankow		July 8-Aug 24	9
France	Marseilles		Aug 1-31	3
France	Paris		Sept 1-7	1
India	Calcutta		Aug 11-15	1
India	Madras		Aug 1-27	2
Java	Batavia		Aug 11-17	3
Mexico	Puebla		Sept 2-8	1
Mexico	Veracruz		Sept 1-7	1
Mexico	Veracruz	Orizaba	Sept 8-14	1
Mexico	Veracruz	City	Aug 18-24	1
Portugal	Lisbon		Sept 11-17	3
Russia	Riga		Sept 1-7	1
Russia	St. Petersburg		Aug 18-31	1
Spain	Barcelona		Sept 1-7	2
Spain	Cadix		Aug 1-31	1

Spain—Denia	Sept.	17	2
Spain—Seville	Aug.	1-21	1
Spain—Valencia	Sept.	2-8	15
Panama—Colon	Sept.	10	1
Turkey—Europe	Constantinople	Sept. 10	1
Turkey—Asia	Bassorah	Aug. 11-24	1
<i>Cholera—Foreign</i>			
Algiers—Algeria	Aug.	1-31	2
Immigrants quarantined without the city limits			
China—Tientsin	Aug.	15-17	3
India—Bombay	Aug.	21-27	52
India—Calcutta	Aug.	11-17	27
India—Madras	Aug.	17-23	27
India—Rangoon	Aug.	11-17	1
Japan—Kobe	Aug.	24 Sept. 7	1
Japan—Saito	Aug.	10 Sept. 1	390
Japan—Nagasaki	Aug.	31	14 cases daily
Japan—Osaka	Sept.	1	1
Japan—Sasaka	Sept.	14	Present
Japan—Sasoko	Sept.	1	Present
Japan—Yokohama	Sept.	1-2	1
From S.S. <i>Takagawa Maru</i>			
Philippine Islands—Manila	Aug.	4-10	60
Russia—Astrachan	July	14 Sept. 3	1,231
Russia—Samarkand	July	16 Sept. 29	5
Russia—Juroino	Aug.	26	1
Russia—Moscow	Aug.	31	1 imported
Russia—Nizhni Novgorod	Aug.	26 Sept. 3	from Saratov
Russia—Peking	Aug.	21-29	6
Russia—St. Petersburg	Aug.	18-21	12
Russia—Samara Govt. Dist.	July	16 Sept. 3	344
Russia—Saratov	July	16 Sept. 3	147
Russia—Siberisk	July	Aug.	7
Russia—Stavropol	Sept.	1	Still present
<i>Cholera—Russian</i>			
Kastroma dist., Nikolajewsk			
Yansk, Siberia	Sept.	1	Present
Zarizyn	Sept.	1	Present
<i>Yellow Fever—Foreign</i>			
Brazil—Minaes	Aug.	24-31	1
Brazil—Para	Sept.	1-14	6
Brazil—Rio de Janeiro	Aug.	12-25	2
Brazil—Santa Maria	Aug.	31	1
Cuba—Alcarranes	Oct.	1	1
Cuba—Cienfuegos	Sept.	25 Oct. 2	8
Cuba—Cienfuegos	Total	Aug. 3 Oct. 2	62
Cuba—Cienfuegos	Aug.	3 Oct. 2	16
Case reported Sept. 19 proved not to be yellow fever.			
Cuba—Jovellanos	Sept.	24	1
Cuba—Palos	Oct.	1	1
Cuba—Union de Reyes	Sept.	1	1
Cinidad Point of Spain	Aug.	18-24	1
<i>Plague—United States</i>			
California—San Francisco	Sept.	26-30	6
Total (including Berkeley)	Aug. 12 Sept. 30	49	27
<i>Plague—Foreign</i>			
Algeria—Oran	Sept.	30	Present
Brazil—Rio de Janeiro	Aug.	12-18	1
China—Hongkong	Aug.	16 Sept. 5	35
Egypt—Alexandria	Aug.	16 Sept. 4	26
Egypt—Port Said	Aug.	11-18	4
Egypt—Behera Province	Aug.	14-20	1
Belgium—Ghent	Aug.	11-17	11
India—Bombay	Aug.	21-27	2,545
India—Calcutta	Aug.	11-17	4
India—Rangoon	Aug.	17	20
India—Osaka	Sept.	6	Present
Peru—Callao	Aug.	25-31	1
Peru—Huanchaco and vicinity	Aug.	25-31	31
Peru—Lima	Aug.	31	Still present
Peru—Paita	Aug.	25-31	1
Peru—Vera	Aug.	21-31	9
Manchuria—Kalping, province of Kwantung	Aug.	13	1

- MARSH, W. H., Acting Assistant Surgeon. Granted leave of absence for ten days, from October 11, 1907.
- THORNTON, M. J., Acting Assistant Surgeon. Granted three days' leave of absence, on account of sickness, from September 20, 1907; granted leave of absence for thirty days, from October 5, 1907.
- TUTTLE, JAY, Acting Assistant Surgeon. Leave of absence granted for sixteen days, from September 16, 1907, amended to be effective October 3, 1907.
- WELDON, W. A., Acting Assistant Surgeon. Leave of absence granted for one month, from September 10, 1907, revoked.

Boards Convened.

Under date of September 28, 1907, boards of medical officers were convened as follows, for the purpose of conducting medical examinations of candidates for appointment as cadet engineer in the Revenue Cutter Service, the examinations to be held October 1, 1907:

At Newport News, Va., Assistant Surgeon G. L. Collins, Chairman; Acting Assistant Surgeon A. C. Jones, Recorder.

At Boston, Mass., Surgeon R. M. Woodward, Chairman; Assistant Surgeon T. W. Salmon, Recorder.

At Philadelphia, Pa., Surgeon G. M. Gassaway, Chairman; Passed Assistant Surgeon T. Clark, Recorder.

A board of medical officers was convened to meet at Baltimore, Md., September 30, 1907, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Surgeon L. L. Williams, Chairman; Passed Assistant Surgeon J. T. Burkhalter, Recorder.

A board of medical officers was convened to meet at Chicago, Ill., October 2, 1907, for the physical examination of candidates for appointment as cadets in the Revenue Cutter Service. Detail for the board: Surgeon G. B. Young, Chairman; Passed Assistant Surgeon B. S. Warren, Recorder.

A board of medical officers was convened to meet at Cleveland, Ohio, October 4, 1907, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon H. S. Mathewson, Chairman; Acting Assistant Surgeon W. A. Baird, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending October 5, 1907:

- BOYER, P. L., First Lieutenant and Assistant Surgeon. Granted leave of absence for one month.
- BROWN, H. L., First Lieutenant and Assistant Surgeon. Ordered to Fort Riley, Kas., for duty.
- CRAIG, C. F., Captain and Assistant Surgeon. Ordered to Fort Leavenworth, Kas., for duty.
- HOWELL, PARK, Captain and Assistant Surgeon. Ordered to the Military Prison, Fort Leavenworth, Kas., for duty.
- HUMPHREYS, H. G., First Lieutenant and Assistant Surgeon. Ordered to Camp Captain John Smith, Jamestown Exposition, for temporary duty.
- KENDALL, W. P., Major and Surgeon. Granted thirty days' leave of absence, on a surgeon's certificate of disability.
- KENNEDY, J. M., Major and Surgeon. Granted leave of absence for one month.
- LEWALD, L. T., First Lieutenant and Assistant Surgeon. Left Fort Slocum, N. Y., on leave of absence for fourteen days.
- MORSE, C. F., Captain and Assistant Surgeon. Left Fort Howard, Md., on leave of absence for ten days.
- PHALEN, J. M., Captain and Assistant Surgeon. Orders for sailing on October 5th for the Philippines revoked; after discharge from witness duty before the U. S. Court, ordered to proceed by the first available transport to the Philippines for duty.
- SMITH, L. L., First Lieutenant and Assistant Surgeon. Granted leave of absence for seven days.
- WICKLINE, W. A., First Lieutenant and Assistant Surgeon. Ordered to the Army General Hospital, Presidio of San Francisco, Cal., for duty.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending October 5, 1907:

- CLIFFORD, A. B., Assistant Surgeon. Ordered to duty in the Naval Medical School Hospital, Washington, D. C.
- COLE, H. W., JR., Assistant Surgeon. Orders to the Naval Training Station, Newport, R. I., revoked; detached from the *Alabama* and ordered to the Naval Training Station, Charleston, S. C.
- DORSEY, B. H., Passed Assistant Surgeon. Ordered to the *Washington*.
- DUNN, H. A., Passed Assistant Surgeon. Ordered to additional duty with Naval Recruiting Party No. 2.
- HALE, G. D., Assistant Surgeon. Ordered to the Naval Medical School, Washington, D. C., for a course of instruction.
- HAYWARD, A. B., Assistant Surgeon. Ordered to the Naval Medical School, Washington, D. C., for a course of instruction.
- JOHNSON, M. K., Surgeon. Detached from the Naval Training Station, Charleston, S. C., and ordered to the Naval Training Station, Newport, R. I.
- JONES, E. L., Assistant Surgeon. Detached from the *Milwaukee* and ordered to the *Maryland*.
- MILLER, J. T., Assistant Surgeon. Ordered to the Naval Medical School, Washington, D. C., for a course of instruction.
- WHEELER, L. H., Assistant Surgeon. Detached from the *Raleigh*, when placed out of commission, and ordered home to await orders.
- WICKES, G. L., Assistant Surgeon. Detached from the *Cincinnati*, when placed out of commission, and ordered home to await orders.

Births, Marriages, and Deaths.

Married.

- DUER—CORBIT.—In Wilmington, Delaware, on Thursday, October 3rd, Dr. Edward L. Duer and Miss Louise Corbit.
- EMERY—MERCER.—In Newark, N. J., on Thursday, October 3rd, Dr. George B. Emery and Miss May Mercer.
- HAYWARD—HESS.—In Philadelphia, on Saturday, September 28th, Dr. Alexander Bayly Hayward and Miss Anna Stewart Hess.

Died

- CHAMBERS.—In New York, on Saturday, September 28th, Dr. Matthew Stoddard Chambers, aged seventy-one years.
- DAKE.—In Ocean Park, California, on Tuesday, September 24th, Dr. Benjamin Franklin Dake, aged seventy-six years.
- DODD.—In Atlanta, Georgia, on Tuesday, September 24th, Dr. J. T. Dodd, aged seventy-eight years.
- KIMPTON.—In Charlestown, Massachusetts, on Tuesday, October 1st, Dr. Edwin L. Kimpton, aged fifty years.
- KITCHEN.—In Cleveland, Ohio, on Monday, September 30th, Dr. Henry W. Kitchen, aged sixty-four years.
- LILIENTHAL.—In Albany, N. Y., on Sunday, September 29th, Dr. Henry Lilienthal, aged fifty-three years.
- MCLENNAN.—In Chicago, on Monday, September 23rd, Dr. Alexander S. McLennan, aged seventy-two years.
- MCMANUS.—In Brooklyn, N. Y., on Wednesday, October 2nd, Dr. James McManus, aged forty-nine years.
- SEITZ.—In San Rafael, California, on Sunday, September 22nd, Dr. W. de St. Paul Seitz, aged fifty-seven years.
- SIMES.—In Cape May, N. J., on Saturday, September 28th, Dr. J. Henry C. Simes, of Bela, Pennsylvania.
- SMITH.—In Long Branch, California, on Thursday, September 26th, Dr. J. T. Smith, aged seventy-seven years.
- STIGER.—In Schooleys Mountain, New Jersey, on Tuesday, October 1st, Dr. Henry Stiger, of New York, aged seventy-four years.
- THURLOW.—In Boston, on Sunday, September 29th, Dr. J. Howard Thurlow.
- TODD.—In Roxborough, Pennsylvania, on Thursday, October 3rd, Dr. William C. Todd, aged eighty-three years.

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A CONTRIBUTION TO HEREDOSYPHILOLOGY.*

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Such has been the advance due to recent investigations that it is evident our early concepts concerning hereditary syphilis were largely erroneous and inadequate.

The following postulates summarize the accepted canons of belief on this subject:

1. Hereditary syphilis is peculiar to and generally limited to the period of first infancy. In bad cases the child is killed outright quite early.

2. The absence of general manifestations at birth or in the first years of life warrants the assumption that the child has not been infected.

3. Early treatment in default of symptoms is not contraindicated, but is not urgently essential.

4. In many unexplained cases spontaneous involution of the diathesis may occur quite early.

5. Seeming immunity and absence of lesions in very early and infantile life warrant the belief that the child has escaped infection.

6. The disease may be cured by active treatment, and thereafter nothing is to be feared.

7. In the majority of cases the disease is exanthematic and only attacks the superficies of the body.

8. Visceral, osseous, and cerebrospinal manifestations are indicative of malignant development.

9. Late lesions are very exceptional, and their appearance (without the primordial outbreak) at later periods is rarely seen.

The ideas contained in the foregoing postulates are largely visionary and dangerously misleading. Such doctrines should no longer hold sway. It is time to fully appreciate the gravity of hereditary syphilis in all instances and only to accept established facts concerning it.

The following summary of conclusions is warranted by up to date observations, studies, and results:

1. The absence of very early manifestations in heredosyphilis is no criterion that the infant is not infected. Spontaneous involution of the diathesis is most rare, and can never be asserted. It is not a hazard accident.

2. In many cases the early exanthematic manifestations may be wanting, but later on specific or dystrophic lesions may show themselves.

3. Treatment of the infected infant should always

*Read in part to the 111th International Dermatological Congress, New York, September 13, 1907.

be promptly begun and persisted in as sedulously as in the adult acquired disease.

4. Age and treatment tend to cure the child.

5. The view that inherited syphilis is at first superficial and later becomes deep and visceral is false, since the whole organism is involved from very early life.

6. Syphilis hereditaria tarda is not exceptional; it may occur at about the eighth and twelfth years, and even earlier, and frequently is encountered at all periods up to the thirtieth year of life, and perhaps later.

7. The opinion that the birth of one or several heredosyphilitic infants is invariably followed by the procreation of other and later infected children or by constant miscarriages, and that such a mother may become permanently sterile is not warranted by facts, since luetic mothers may give issue to several infected children and by means of active, prolonged treatment and by the lapse of time may be so relieved or cured as to enable them to give birth to seemingly untainted offspring. Such a result is obtainable in most cases if proper care is exercised.

The developments in heredosyphilology concerning the *Spirocheta pallida* (or as Schaudinn preferred to call it, *Treponema pallidum*) have been very illuminating. If it is not the true causal agent in syphilitic infection, this microorganism is certainly in some way concerned in its inception and course. The fact of its hereditary transmission is startling and seemingly convincing. It appears that in hereditary syphilis it attains its most extensive generalization; it literally invades the whole organism.

Frohwein¹ found it in several placentæ; in the blood of the umbilical vein, by which it is carried to the liver and there produces its most severe manifestations, and hence throughout the whole economy, to the skin, to all ganglia, to the suprarenal capsules (to which it seems to have a special predilection), to the lungs, spleen, and to all viscera. Many other scientists have confirmed these findings.

Busche² and Fischer found it on cartilaginous surfaces and near the osseous medulla; Bertarelli³ in the periosteum and medulla of bone, and Frohwein in the cartilage in cases of osteochondritis. The report of Queyrat, Levaditi, and Feuille⁴ on a case carefully studied in all its aspects is most illuminating and

¹Monatsschrift für Dermatologie, Wiesbaden, April 1, 1890, No. 14, p. 100.

²Virchow's Archiv für Anatomie, Histologie, B., N. 20, pp. 70-80, 1884, 1906; May 10, pp. 70-80, 1885, and 47, for the first months and Sept. 1, 1885, 1, pp. 81-91, 1906, to which is appended a plate.

³Archiv für Dermatologie und Syphilis, July 7, 1897.

⁴Annuaire de Dermatologie et de Syphilis, December, 1905.

convincing. It was that of a woman, twenty-three years old and five years syphilitic, who became pregnant in March or April, 1905, and on November 20th gave birth to a well formed, macerated foetus, whose foetal movements had ceased eight days previously. At the autopsy, eighteen hours later, myriads of *Spirochæta pallida* were found in the liver and spleen, around the vessels, and in other tissues generally. In this case the child being dead before birth, there was no possibility of microbic invasion through the lungs or the alimentary tube.

It will be noted that this virulent foetal infection of the child occurred in the fifth year of the syphilis of the insufficiently treated mother.

We are as yet only on the threshold of scientific knowledge of this important branch of medicine. On this whole subject we need long continued, painstaking observation and investigation. More attention should be paid to the chronology and late evolution of the hereditary taint.

The following chronicle extending over a period of thirty-seven years and involving twelve individuals may be accepted as a personal recital based on careful study and observation.

The father became syphilitic in December, 1869, presenting a typical chancre and papular and roseolous syphilides. He was a robust man, twenty-four years old, temperate and reasonably careful of his health. He took little treatment, had mild lesions for several years and ceased all medication after four years. He lived to be fifty-two years old, indulged actively in athletics, and died of aortitis and nephritis, perhaps of specific origin. How much this, the first genitor, contributed to the pathological synthesis embodied in the fecundation of his progeny is an inscrutable problem.

His wife is now alive and fifty-seven years old. In February, 1866, when eighteen years old, she was married and in the same year had a miscarriage due to trauma. In 1867 she gave birth to a healthy girl, *A*. She came under my observation in November, 1870, and was then in the seventh month of her third pregnancy. In her third month she had been infected with syphilis by her husband. I found her body covered with a papular syphilide, interspersed with pigmented spots of a faded roseola. About the vulva were large masses of hypertrophied condylomata lata. She had cranial alopecia, pharyngeal angina, and laryngitis, was weak, thin, and anæmic. She proved always a careless and dilatory patient, hence the activity of the poison was persistent. During eight years she had many relapses, so that her body became covered with gummatous ulcers and scars.

This woman, the second genitor, was certainly the active source of infection in the gloomy cyclorama herein unfolded.

In January, 1871, she gave birth to a female child (she being syphilitic six months), which seemed well developed and healthy. In four months this infant (*B*) presented roseola, mucous patches and coryza, was emaciated, cross and peevish. At its sixth month this infant presented many specific osseous and articular lesions on the extremities. Under treatment the osteochondritic swellings subsided and the health improved.

This child being the third, died of crop when three years old. Her sister *A* (the second child) was healthy until her fourth year, when she was infected, presumably by *B* or the mother. She had typical secondary manifestations of the skin and mucous membranes following an initial lesion on the lower lip.

This child suffered severely from so called rheumatism, chiefly nocturnal. Very soon osseous lesions developed on the radius, ulna, and the metacarpal bones,

cific treatment the bone lesions disappeared, and the child became seemingly well.

This child was the victim of acquired syphilis, while its sister, her infector, inherited the disease. It is interesting to note the close similarity of the lesions in each child and the extended involvement of the osseous system in both. *A* lived to be five years old and died of dysentery.

The mother became pregnant again in 1872, and gave birth to a dead child. The same condition occurred in 1873, and resulted in a macerated foetus. We may class these children *C* and *D*.

In a year the mother gave birth to a seemingly healthy girl (*E*), which without perceptible syphilitic manifestations lived two and a half years, and died of gastro-enteritis.

During these pregnancies the mother had taken treatment sparingly and intermittently, but had occasional gummatous infiltration.

It is probable that the seeming immunity of *E* was due to the medication of the mother. At any rate she became more tractable at this period and spasmodically persisted in taking medicine (mixed treatment).

The fecundity of the mother was certainly phenomenal. Two years after the birth of *E* a male child (*F*) was born, which for a long period seemed entirely healthy and strong. This child is now a man thirty-two years old, who has been always a hard worker and never presented syphilitic manifestations or dystrophies until his thirtieth year. Then he developed a gummatous osteomyelitis of the proximal phalanges of the left index finger and gummatous infiltration (histologically verified) into the investing connective tissue. Incision was necessary; local and general antisyphilitic treatment produced a cure in four months, with atrophy of the bones. The *Spirochæta pallida* was not found in the blood nor the tissues. (It would scarcely be found at that late day and hardly in large numbers and an active state.) This man was not infected with acquired syphilis at any time. He now has a five year old child which seems perfectly healthy. His wife has been well and strong.

The mother after the birth of *F* remained anæmic and pale, and presented for several years sparse crops of small gummatous nodules. She took treatment sporadically, chiefly when she realized that she was pregnant. She then gave birth to four boys in succession, who are now respectively twenty-eight, twenty-five, twenty-three and eighteen years old. We will designate them as *G*, *H*, *I*, and *J*. These men seem perfectly healthy. They have presented no evidence of inherited taint; certainly no dystrophic manifestations. They have been entirely free from rheumatism. Two are married and have healthy wives and children.

The tenth child, *K* (there being eleven in all, the first having appeared before the luteic era), is to all appearances a healthy and comely girl eighteen years old. She always seemed well developed, without any blemishes, active and alert. At her eighth year she had slight swellings and pain in both ulnæ, which lasted several months and disappeared, it is said, as a result of simple remedies. When sixteen years old she began to suffer from nocturnal rheumatism, headache, pain in the back and dyspepsia. She was treated in many ways, by many doctors and got no relief. Her mother then suspected that her own old infection was the cause of the daughter's illness and she sought my aid. I found extensive nodular hyperplasia of both tibiae (subcutaneous surfaces) and an elevated, deeply seated mass over the sacrum. These osteoperiostic lesions, probably gummatous, were the seat of tenderness by day and pain by night. Systematic inunctions of mercurial ointment were ordered locally, together with 10 to 20 grain doses of potassium iodide t. i. d. internally. The result was simply magical; the hyperplasia melted away; the

remained her constant friend until her death in the house of the artist Rubens. It was the age of special privilege, when the nobility ruled and gambled and spent, while the populace worked and paid. As Okey remarks, "the insolence of the aristocracy was intolerable, and the orator of the third estate, speaking on his knees, according to usage, warned the court that despair might make the people conscious that a soldier was none other than a peasant bearing arms and that when the vine dresser took up the arquebus he might one day cease to be the anvil and become the hammer."

Through the inflexible genius of Richelieu, whose favor Riolan never enjoyed, the power of the throne became more and more absolute, and that political structure was consummated by reason of which the Fourteenth Louis was able to declare, "I am the State!"

The principle of authority as expressed in the state had its counterpart in the schools, and particularly in the great university of Paris. In philosophy and theology scholasticism reigned supreme, while the dead hand of Galen lay heavily upon the medicine of the time. The great centres of scholasticism, such as Paris, so influenced medicine that there it, too, became scholastic, and the importance attached to disputations in the medical curriculum is of itself sufficient to indicate the spirit in which this study was conducted. To the Parisian physician theory and speculation were paramount, and it is interesting to note as an illustration of this statement, that the majority of the epoch making advances in the medicine of the seventeenth and preceding centuries were not made by Frenchmen.

Into this atmosphere of political and scholastic tradition and authority, John Riolan was born in 1577. His education was carried out under the supervision of his father, the elder John Riolan, and of his uncle Simon Piètre, both of whom stood high in the exclusive medical faculty of Paris. That the future opponent of Harvey early came under those conservative influences, that were so strongly to mould his mind and career, one may observe by referring to the expressed opinions of his father.

Twice the elder Riolan was honored by his election to be dean of the medical faculty, because of his firm attachment to the Hippocratic doctrines and his opposition to the chemical physicians and the surgeons. He was a confirmed Galenist and his scorn of Paracelsus was boundless, for he remarks: "I prefer to err with Hippocrates whose knowledge has been so long approved by all nations, than to be right with Paracelsus, that impious pseudophysician, who is quite ignorant not only of polite literature, but of philosophy as well." The surgeons also he held in very low esteem, for in his view of them, they were and should remain, mere mechanics, whose hands, like the pencil of the artist, should do only what is demanded of them by the will of the physician.

It is not difficult therefore to imagine what ideas would be instilled into the mind of his son by this sturdy old father who, addressing the Parliament of Paris, described the ideal physician as a man who is learned in philosophy and philology, especially natural philosophy, who knows the causes and the symptoms of disease, who is acquainted with the principles, the functions, the spirit of the human body,

and the use and temperaments of its different parts, who is not ignorant of the faculties and functions of the mind, who prescribes for the sick and the well, the proper amount of air, food, drink, exercise, and sleep, and who knows the properties and uses of the numberless remedies, both simple and compound. I like to fancy him warning the young Riolan to beware of that insolent fellow Paracelsus, with his retorts and his chemical fumes, and likewise all such innovators who dare to cast a doubt upon what the master Galen has written for the guidance of all future physicians.

So well did the son understand his father that "to see the physic of Galen kept in good repair" became the object of his most laborious endeavor. And the deep pity of it all is, as Professor Osler says, "that such mental blindness should have stricken a really great man, for he was a brilliant anatomist and teacher, the author of the best anatomical textbook of its day, a man of affairs, profoundly versed in literature, a successful practitioner, and for years the head of the profession in France."

Regarded historically, Riolan stands at the parting of the ways, when the old order was changing, giving place to the new, and strange ideas were abroad in all the land. The spirit of the Renaissance was at work, and the ideas of that wonderful era, devoted to "good learning," as Erasmus puts it, were working like leaven in the minds of men in the seventeenth century. No longer blinded and misled by the authority of great names, scholars were studying Nature upon the earth and in the heavens, with their own senses. Half groping in the twilight between darkness and dawn, they were coming to realize that truth is a development to which each generation contributes its moiety. The infallibility of Galen had been denied in the sixteenth century by Vesalius whose doubting scalpel had given ocular proof to his students at Padua, that many times the master was in error. At Pisa and at Padua the new schools of physics were beginning to flourish; in England Robert Boyle and Robert Hooke, and at Brussels Van Helmont were conducting original experiments in chemistry.

In 1616 came Harvey's immortal Lumleian lectures on the *Movement of the Heart and Blood in Animals*, Bacon published his *Novum organon* in 1620, and in 1622 Gaspar Aselli discovered the lacteals. When men under the inspiration of the new learning began to conduct experiments for themselves, they quickly saw that many of the ancient beliefs could not stand the searching light of criticism, and they found moreover, how difficult it was to pour the old wine into the new vessels. But this was the task which Riolan set himself to perform, with what success we shall see later on. He beheld the ancient standards being deserted on all sides, and in his efforts to keep the physic of Galen in good repair, he was led to attempt the impossible feat of reconciling an highly speculative system, of medicine with the results of experimental physiology. He was roused to anger against those who would destroy the ancient tradition of medicine and reconstruct it upon the basis of the new discoveries. He would not, and I doubt not that he could not, surrender the heritage of the past, with all that such surrender implied, and yet in some fashion, he was compelled to accept the present. So he tried to unite them; but he failed.

And yet, despite its incongruities, it was a noble failure, the record of which he published in Harvey's very city of London, and which we may read at length in the *Opuscula anatomica nova*.

Riolan begins his book with the *Monitio ad lectorem*, in which he expressed his desire to further the elucidation of a difficult subject, and then gives a brief summary of his position, which is substantially as follows:

Harvey and his followers, he remarks, when they treat of the circulation of the blood, favor the opinion of Aristotle concerning the sanguinification carried on in the heart; they maintain that all the blood flows from the liver to the heart where it becomes arterial, and that this blood alone is nourishing. They further believe that the blood is everywhere distributed from the heart by means of the arteries, and that the veins are merely canals for returning the blood to the heart from all the parts to which it has been carried. Accordingly, they declare that the circulation of the whole blood is accomplished through the veins and the arteries many times during each day, and that blood is continually supplied to the heart for redecoction and reheating, whereupon it is carried from the right ventricle of the heart along the duct of the artery-like vein through the substance of the lungs; thence through the vein-like artery to the left ventricle of the heart, where it is made vital, and by the heart's contraction is distributed throughout the body by way of the arteries; having reached the periphery, it passes into the veins which return it to the right ventricle of the heart, and thus a perpetual circulation of the blood is accomplished.

Now I, says Riolan, quite disagree with Aristotle regarding the work of sanguinification, which I place in the liver, although the blood is supplied to the heart in order that it may be made arterial; and this being diffused through all the arteries continually, passes into the larger veins for circulation; so that in its course every vessel furnishes its blood to the different parts.

I shall show, then, that not the total mass of the blood, but merely a portion of it circulates, while the other portion which is contained in the portal vein and in the smaller branches of the vena cava and aorta has no natural circulation at all. That blood only circulates which is contained within the larger branches of the vena cava and aorta, from the neck to the ends of the extremities, and which passes through the middle septum of the heart from the right to the left ventricle without entering the lungs. Thus it happens that twice or thrice within each day, the blood both venous and arterial is during its progress distributed to all the parts. According to this theory of the circulation of the blood, the physics of Galen suffers no alteration, as would happen on the hypothesis of Harvey; nay more, it will be illuminated in the study of diseases, and in the use of medicines; and, moreover, physicians and surgeons will learn how useful in the art of healing is this new circulation of the blood. Such then, my lord, is the new doctrine which I cheerfully submit to the examination and criticism of learned physicians.

It will be seen, therefore, that Riolan accepts the general theory of the circulation of the blood, but Harvey's thesis he will have none of, because it must overthrow the Galenic mechanism; and so he

proceeds to announce a circulation theory of his own. Quoting from their writings he undertakes to prove that Aristotle, Empedocles, Hippocrates, Erasistratus, and others of the ancients were not ignorant of some sort of circulation of the blood, and therefore he says the doctrine is not absurd as so many have believed it to be. But the hypothesis of Harvey, says Riolan, is indeed truly absurd, for to begin with Harvey, following the lead of Columbus, denies the passage of the blood from the right to the left ventricle through the pores of the septum, and asserts that it passes through the lungs. But this is obviously not true, replies Riolan, for the heart, out of that blood which has been drawn from the vena cava into the right ventricle, retains the most pure portion and transmits it into the left ventricle, while the rest is sent into the lungs. Now, in order that this may occur, the septum is perforated by a multitude of small pores directed obliquely, although in the dead body these are obscure, whether the heart be warm or cold.

In this passage we find Riolan still clinging to the ancient idea that the blood passes from the right into the left ventricle through the pores of the septum, an idea it should be remembered, which never had the slightest experimental or anatomical basis for its existence.

Proceeding to his discussion of Harvey's theory of the pulmonary circulation, Riolan strangely asserts that there is no such thing in health, although he is constrained to admit that in abnormal conditions such as fevers, on account of the agitation of the blood, that portion of it which cannot pass through the septum is transmitted to the left ventricle through the lungs. And still burdened with his Galenic physiology he argues thus:

If the blood circulated from the right ventricle through the lungs, it would lose in its transit much of its heat and spirits, and because of its mixture with air and the fanning motion of the lungs, it would become cooler than that blood which is contained in the vena cava. Moreover, in the lungs it would be polluted by the pituitary excretion, and hence it would come to the left ventricle without any separation of the pure from the impure; for this is accomplished in the right ventricle where the polluted is separated from the arterial blood before the latter passes through the septum. Therefore, says Riolan, it is clear that the more pure and subtle portion of the blood permeates the septum, while the impure portion reaches the lungs, which are, so to speak, the emunctories of the heart, as the spleen is of the liver. Hence, it is not to be wondered at that the lungs are subject to so many diseases, since they receive a large part of the impurities in the circulating blood.

While incorrectly denying the pulmonary circulation which Harvey correctly maintained, Riolan contended for the existence of an anastomosis between the arteries and the veins which Harvey erroneously denied.

Speaking of anastomosis, Harvey writes: "Neither in the liver, spleen, lungs, kidneys, nor any other veins, is such a thing to be apprehended as the ancients and the vulgar have imagined the interparenchyma of these organs so friable that it could be shaken like dust from the fibres or sucked away with a needle, and I could prove the blood of every

subdivision, and see every capillary filament distinctly. I can, therefore, boldly affirm that there is neither any anastomosis of the vena portæ with the cava, of the arteries with the veins, or of the capillary ramifications of the biliary ducts, which can be traced through the entire liver, with the veins."

Riolan, on the contrary, defends anastomosis, for he observes: "Now I will demonstrate that the effusion of the blood into the flesh of the extremities and its quick return into the veins is impossible, because the arterial blood, so subtle, active, and pulsatile, having been effused into the flesh outside the arteries, would in those parts produce a tumor like an aneurysm unless there were venules so arranged as to take it up immediately. Therefore, the veins do not receive the arterial blood from the flesh itself, but rather are joined to the arteries by anastomoses, so that this transition is rendered more easy."

Let us pass now to the most important and, I am sure, the most curiously interesting part of Riolan's dissertation, namely, his new opinion concerning the circulation of the blood. "This," he writes, "is my belief. The heart is perpetually in motion from the beginning to the end of life, and is divided into two cavities containing the blood which flows constantly from one into the other. Now the motion of the heart cannot be maintained without the blood which favors it, and at the same time supplies material for elaborating the arterial blood. This material I believe to be derived either from the liver or from the trunk of the vena cava. And this I prove as follows, presupposing the existence of the chyloferous lacteal vessels. The liver prepares the blood for the heart and perfects it within its tissues. A large portion of this blood is conveyed to the portal vein, to be distributed to all parts of the primary area (*primæ regionis*, that is, the abdomen). The second and larger portion is transmitted to the heart by the vena cava to be mixed with other blood. Hence, I establish two varieties of blood, that which is simply venous (*venosum simpliciter*) occupying the portal vein, and that which is mixed and contained in the vena cava. Each is entirely separate from the other, and has no communication with the other except within the liver or through the passage of the portal blood into the cava. Now it is certain that only that blood circulates which is contained in the larger branches of the vena cava and aorta, these branches extending directly from the neck to the ends of the limbs without any interruption or deviation in their course. The blood in the portal vein does not circulate, nor the blood in the brain except sluggishly, because it has not a free entrance and exit; neither does the blood in the smaller branches of the vena cava flow back into the larger branches of the cava and aorta, because it is absorbed by the parts for their nutrition.

Briefly then, says Riolan, I suppose that the blood prepared in the liver is straightway transmitted to the heart, where it is elaborated into arterial blood. Thence passing drop by drop through the middle septum, it is thrown into the aorta and its branches. Having reached the extremities of the limbs it passes to the veins, and on its way supplies blood to their branches, which accompany the arteries.

In the distribution of the blood, I constitute the larger branches of the vena cava and aorta to be the vessels for circulating the blood and for supplying it to all the parts through their branches. The blood,

however, which has been supplied to these smaller branches does not return again to the larger vessels, but is taken up by the parts throughout the body for their nutrition. Furthermore, I believe that the blood of the primary area (abdomen) is all arterial, and that it does not flow back to the liver to be returned to the heart, but rather is absorbed for the nutrition of the parts, while the portal vein carries chyle to the liver for the manufacture of the blood. The arterial blood from the aorta is carried to the spleen by the large splenic artery. And besides the splenic there is the celiac artery which distributes its blood to the other parts of the abdomen.

If we summarize the views of Riolan, we find him teaching: First, that in health there is no circulation of blood through the lungs; second, that the blood in the abdomen, whether in the portal vein, the splenic, celiac, or other arteries, does not circulate at all; third, that the only blood which does circulate is that which flows in the limbs through the larger branches of the cava and aorta, while even here there is no circulation of the blood in the venules and arterioles because this is absorbed for the nutrition of the parts.

When we endeavor to arrive at some understanding of the reasons that inspired Riolan in his opposition to the new theory of the circulation of the blood, we find the foremost to be his extraordinary reverence for the ancient system of medicine. And he was not alone either in his opposition or his reverence, for no man, it is said, who had attained to the age of forty years was found to adopt the doctrine of the circulation; it had to win its way under the patronage of the youthful and unprejudiced spirits of the age. To Riolan, the physiology of Galen, with its humors and spirits, its refrigerations and decoctions, was too venerable a thing to be subjected to the plebeian process of experimental verification. With truly patrician mind, he held his way upon the heights of speculation, and as Harvey remarks of him, "his fear is lest the doctrine of the circulation destroy the ancient system of medicine. Not yielding implicitly to the truth, which it appears he could not help seeing, but rather guided by caution, he fears speaking plainly out lest he offend the ancient physis, or perhaps seem to retract the physiological doctrines he supports in his *Anthropography*." Everywhere in his dissertation we find him, with his grand manner, disposing of the obvious facts of experimentation by asserting their contravention of the ancient physiology. And therefore I have called him Conservative. He tried, like many another before and since, to stay the onward march of truth; that he failed does not surprise us. And the consummation of that failure came in 1673, when Louis XIV founded a special chair of anatomy at the Botanical Gardens, for the teaching of the new discoveries—those very botanical gardens in whose foundation Riolan had taken the most active part!

222 BROADWAY.

Operations on Tonsils.—Before operating for pharyngeal or hypertrophied tonsils make sure that these are not merely an expression of status lymphaticus. If they are, do not employ an anæsthetic. Also determine whether the patient is a hæmophilic. If he is, do not operate at all. From *Four Hundred Surgical Suggestions*.

BRIEF CONTRIBUTIONS TO BIOLOGICAL CHEMISTRY. FIRST SERIES (1-6.)

BY W. A. TALTAVAL, M. D., and W. J. GIES, M. S., PH. D.,
New York.

(From the Laboratory of Biological Chemistry of Columbia University, at the Collg. of Physicians and Surgeons, New York.)

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1. Does quinic acid affect the output of uric acid?
2. A chemical study of a bacillus causing septicæmia in the rabbit.
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1. DOES QUINIC ACID AFFECT THE OUTPUT OF URIC ACID?

Introduction.—In a paper published about nine years ago, Weiss² mentioned well known clinical observations to the effect that fruits or fruit juices could be used advantageously in the treatment of gout. In a few experiments on himself he found that ingestion of fruits was followed at once by a decreased output of uric acid and an increased excretion of hippuric acid. He endeavored to ascertain, in some experiments on himself, which of the common constituents of ordinary fruits accounted for these effects. His results indicated that potassium bitartrate, tannic acid, and sugar were without influence on the quantities of uric acid and hippuric acid excreted in the urine. In one experiment, however, he noted a marked decrease in the elimination of uric acid, and a significant increase in the output of hippuric acid, after administration of quinic acid, $C_7H_{12}O_6$.³ He concluded, therefore, that quinic acid was the constituent of fruits that brought about the clinical effects referred to.

About a year later Weiss⁴ observed, as others had before him, that the ingestion of food rich in nuclear material, such as pancreas, was followed immediately by a decided increase in the quantity of uric acid in the urine. In one of the experiments on himself he endeavored to determine the effect of quinic acid on the uric acid output after eating thymus (calf). The result of that experiment suggested the conclusion that quinic acid interfered with, even counteracted, the usual influence of ingested thymus or other nuclear material on the elimination of uric acid. Weiss⁵

accordingly recommended quinic acid as a therapeutic and prophylactic remedy in "uric acid diathesis," particularly in gout.

During the succeeding three years numerous clinical studies of the effects of quinic acid and quinic acid compounds,⁶ especially in connection with gout, yielded results of considerable therapeutical value, although with decided discordance as to the effect of quinic acid on uric acid excretion.⁷

Our attention was drawn to this subject about five years ago by the clinical results that were then being obtained with quinic acid, sidonal, and similar products. In our study of the literature of the subject, however, we were impressed by the fact that Weiss's conclusions regarding the effect of quinic acid on uric acid elimination, lacked experimental justification. It appeared to us that Weiss observed very little of a definite character in this connection, and that he assumed altogether too much from very meager data, especially in his second paper. The experimental summaries upon which he based his broad conclusions were those of only two experiments. They are subjoined, and the reasons for our doubts in this connection may be seen at a glance below:

Summaries from Weiss's Papers.

A. (1897).⁸ Daily diet: 400 grammes of beef, 200 grammes of bread, 50 grammes of butter, 60 grammes of sugar, 3 grammes of salt, and 2 litres of water.

Day of Expt.	Urine volume.	Defecation.	Uric acid, Gramm.	Hippuric acid Gramm.	Quinic Gramm.
2.....	1.135	Normal.	0.5324	Trace.	
3.....	.883	Normal.	0.1860	0.5781	1.0 (noon)
4.....	.922	Normal.	0.2990	0.4808	
5.....	1.090	Normal.	0.2178	0.0921	

B. (1869).¹ Daily diet: 150 grammes of beef, 250 grammes of calf thymus, 200 grammes of bread, 50 grammes of butter, 90 grammes of sugar, 3 grammes of salt, 1½ litre of water.

Day of exp t.	Urine volume, c.c.	Uric acid, Gramme.	Quinic acid, Grammes.
2.	1.430	0.7477	50
3.	1.472	0.8017	50
4.	1.485	1.1964	—
5.	1.450	1.5869	—

The indefiniteness of the results pertaining to uric acid excretion induced us to take up the matter experimentally.¹⁰ Before undertaking experiments on ourselves or other people, however, we preferred to determine the effects of guanine acid on the output of uric acid from animals that ordinarily eliminated very little uric acid.

Experiment 1.—(Days 28–33).—The experiment about to be described was conducted on a well nourished healthy dog by the modification methods in vogue in this laboratory. The dog, which weighed nearly 38 lb., was caged in a cage well adapted for quantitative metabolic work. The

1. A summary report of the research appeared in the *Annals of the Entomological Society of America*, 1905, p. 100. A draft of the *Annals of the Entomological Society*, p. xv. Also cited and collated with *History of the Entomology*, p. 59, 1905.

2. *W. J. Gahan, The phylogeny of the Coleoptera*, p. 39, 1898.

the 1970s, the United States and the Soviet Union had a "cold war" in which they were not at war, but they were not friendly either. They were in a state of "cold war" because they were not at war, but they were not friendly either. They were in a state of "cold war" because they were not at war, but they were not friendly either.

$\chi^2 = 1.0$ (1 d.f.) $P = 0.31$ $W = 0.99$ $g = 0.99$ $h = 0.99$ $k = 0.99$ $l = 0.99$ $m = 0.99$ $n = 0.99$ $o = 0.99$ $p = 0.99$ $q = 0.99$ $r = 0.99$ $s = 0.99$ $t = 0.99$ $u = 0.99$ $v = 0.99$ $w = 0.99$ $x = 0.99$ $y = 0.99$ $z = 0.99$ $aa = 0.99$ $bb = 0.99$ $cc = 0.99$ $dd = 0.99$ $ee = 0.99$ $ff = 0.99$ $gg = 0.99$ $hh = 0.99$ $ii = 0.99$ $jj = 0.99$ $kk = 0.99$ $ll = 0.99$ $mm = 0.99$ $nn = 0.99$ $oo = 0.99$ $pp = 0.99$ $qq = 0.99$ $rr = 0.99$ $ss = 0.99$ $tt = 0.99$ $uu = 0.99$ $vv = 0.99$ $ww = 0.99$ $xx = 0.99$ $yy = 0.99$ $zz = 0.99$ $aaa = 0.99$ $bbb = 0.99$ $ccc = 0.99$ $ddd = 0.99$ $eee = 0.99$ $fff = 0.99$ $ggg = 0.99$ $hhh = 0.99$ $iii = 0.99$ $jjj = 0.99$ $kkk = 0.99$ $lll = 0.99$ $mmm = 0.99$ $nnn = 0.99$ $ooo = 0.99$ $ppp = 0.99$ $qqq = 0.99$ $rrr = 0.99$ $sss = 0.99$ $ttt = 0.99$ $uuu = 0.99$ $vvv = 0.99$ $www = 0.99$ $xxx = 0.99$ $yyy = 0.99$ $zzz = 0.99$ $aaaa = 0.99$ $bbbb = 0.99$ $cccc = 0.99$ $dddd = 0.99$ $eeee = 0.99$ $ffff = 0.99$ $gggg = 0.99$ $hhhh = 0.99$ $iiii = 0.99$ $jjjj = 0.99$ $kkkk = 0.99$ $llll = 0.99$ $mmmm = 0.99$ $nnnn = 0.99$ $oooo = 0.99$ $pppp = 0.99$ $qqqq = 0.99$ $rrrr = 0.99$ $ssss = 0.99$ $tttt = 0.99$ $uuuu = 0.99$ $vvvv = 0.99$ $wwww = 0.99$ $xxxx = 0.99$ $yyyy = 0.99$ $zzzz = 0.99$ $aaaaa = 0.99$ $bbbbb = 0.99$ $ccccc = 0.99$ $ddddd = 0.99$ $eeeee = 0.99$ $ffffff = 0.99$ $ggggg = 0.99$ $hhhhh = 0.99$ $iiiii = 0.99$ $jjjjj = 0.99$ $kkkkk = 0.99$ $lllll = 0.99$ $mmmmm = 0.99$ $nnnnn = 0.99$ $ooooo = 0.99$ $ppppp = 0.99$ $qqqqq = 0.99$ $rrrrr = 0.99$ $sssss = 0.99$ $ttttt = 0.99$ $uuuuu = 0.99$ $vvvvv = 0.99$ $wwwww = 0.99$ $xxxxx = 0.99$ $yyyyy = 0.99$ $zzzzz = 0.99$ $aaaaaa = 0.99$ $bbbbbb = 0.99$ $cccccc = 0.99$ $dddddd = 0.99$ $eeeeee = 0.99$ $fffffft = 0.99$ $gggggt = 0.99$ $hhhhht = 0.99$ $iiiiit = 0.99$ $jjjjjt = 0.99$ $kkkkkt = 0.99$ $lllllt = 0.99$ $mmmmmt = 0.99$ $nnnnnt = 0.99$ $ooooot = 0.99$ $pppppt = 0.99$ $qqqqqt = 0.99$ $rrrrrt = 0.99$ $ssssst = 0.99$ $tttttt = 0.99$ $uuuuut = 0.99$ $vvvvvt = 0.99$ $wwwwwt = 0.99$ $xxxxxt = 0.99$ $yyyyyt = 0.99$ $zzzzzt = 0.99$ $aaaaaa = 0.99$ $bbbbbb = 0.99$ $cccccc = 0.99$ $dddddd = 0.99$ $eeeeee = 0.99$ $fffffft = 0.99$ $gggggt = 0.99$ $hhhhht = 0.99$ $iiiiit = 0.99$ $jjjjjt = 0.99$ $kkkkkt = 0.99$ $lllllt = 0.99$ $mmmmmt = 0.99$ $nnnnnt = 0.99$ $ooooot = 0.99$ $pppppt = 0.99$ $qqqqqt = 0.99$ $rrrrrt = 0.99$ $ssssst = 0.99$ $tttttt = 0.99$ $uuuuut = 0.99$ $vvvvvt = 0.99$ $wwwwwt = 0.99$ $xxxxxt = 0.99$ $yyyyyt = 0.99$ $zzzzzt = 0.99$ $aaaaaa = 0.99$ $bbbbbb = 0.99$ $cccccc = 0.99$ $dddddd = 0.99$ $eeeeee = 0.99$ $fffffft = 0.99$ $gggggt = 0.99$ $hhhhht = 0.99$ $iiiiit = 0.99$ $jjjjjt = 0.99$ $kkkkkt = 0.99$ $lllllt = 0.99$ $mmmmmt = 0.99$ $nnnnnt = 0.99$ $ooooot = 0.99$ $pppppt = 0.99$ $qqqqqt = 0.99$ $rrrrrt = 0.99$ $ssssst = 0.99$ $tttttt = 0.99$ $uuuuut = 0.99$ $vvvvvt = 0.99$ $wwwwwt = 0.99$ $xxxxxt = 0.99$ $yyyyyt = 0.99$ $zzzzzt = 0.99$ $aaaaaa = 0.99$ $bbbbbb = 0.99$ $cccccc = 0.99$ $dddddd = 0.99$ $eeeeee = 0.99$ $fffffft = 0.99$ $gggggt = 0.99$ $hhhhht = 0.99$ $iiiiit = 0.99$ $jjjjjt = 0.99$ $kkkkkt = 0.99$ $lllllt = 0.99$ $mmmmmt = 0.99$ $nnnnnt = 0.99$ $ooooot = 0.99$ $pppppt = 0.99$ $qqqqqt = 0.99$ $rrrrrt = 0.99$ $ssssst = 0.99$ $tttttt = 0.99$ $uuuuut = 0.99$ $vvvvvt = 0.99$ $wwwwwt = 0.99$ $xxxxxt = 0.99$ $yyyyyt = 0.99$ $zzzzzt = 0.99$ $aaaaaa = 0.99$ $bbbbbb = 0.99$ $cccccc = 0.99$ $dddddd = 0.99$ $eeeeee = 0.99$ $fffffft = 0.99$ $gggggt = 0.99$ $hhhhht = 0.99$ $iiiiit = 0.99$ $jjjjjt = 0.99$ $kkkkkt = 0.99$ $lllllt = 0.99$ $mmmmmt = 0.99$ $nnnnnt = 0.99$ $ooooot = 0.99$ $pppppt = 0.99$ $qqqqqt = 0.99$ $rrrrrt = 0.99$ $ssssst = 0.99$ $tttttt = 0.99$ $uuuuut = 0.99$ $vvvvvt = 0.99$ $wwwwwt = 0.99$ $xxxxxt = 0.99$ $yyyyyt = 0.99$ $zzzzzt = 0.99$ $aaaaaa = 0.99$ $bbbbbb = 0.99$ $cccccc = 0.99$ $dddddd = 0.99$ $eeeeee = 0.99$ $fffffft = 0.99$ $gggggt = 0.99$ $hhhhht = 0.99$ $iiiiit = 0.99$ $jjjjjt = 0.99$ $kkkkkt = 0.99$ $lllllt = 0.99$ $mmmmmt = 0.99$ $nnnnnt = 0.99$ $ooooot = 0.99$ $pppppt = 0.99$ $qqqqqt = 0.99$ $rrrrrt = 0.99$ $ssssst = 0.99$ $tttttt = 0.99$ $uuuuut = 0.99$ $vvvvvt = 0.99$ $wwwwwt = 0.99$ $xxxxxt = 0.99$ $yyyyyt = 0.99$ $zzzzzt = 0.99$ $aaaaaa = 0.99$ $bbbbbb = 0.99$ $cccccc = 0.99$ $dddddd = 0.99$ $eeeeee = 0.99$ $fffffft = 0.99$ $gggggt = 0.99$ $hhhhht = 0.99$ $iiiiit = 0$

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TABLE I
Properties of the copolymers prepared by the TiCl_4 - $\text{Al}(\text{C}_2\text{H}_5)_3$ catalyst system

Copolymer	Feed composition, $\text{C}_2\text{H}_5\text{MgBr}:\text{C}_2\text{H}_5\text{MgI}$	Feed composition, $\text{C}_2\text{H}_5\text{MgBr}:\text{C}_2\text{H}_5\text{MgI}:\text{C}_2\text{H}_5\text{MgCl}$	Feed composition, $\text{C}_2\text{H}_5\text{MgBr}:\text{C}_2\text{H}_5\text{MgI}:\text{C}_2\text{H}_5\text{MgCl}:\text{C}_2\text{H}_5\text{MgBr}_2$
1	1:1	1:1:1	1:1:1:1
2	1:1	1:1:1	1:1:1:1
3	1:1	1:1:1	1:1:1:1
4	1:1	1:1:1	1:1:1:1
5	1:1	1:1:1	1:1:1:1
6	1:1	1:1:1	1:1:1:1
7	1:1	1:1:1	1:1:1:1
8	1:1	1:1:1	1:1:1:1
9	1:1	1:1:1	1:1:1:1
10	1:1	1:1:1	1:1:1:1
11	1:1	1:1:1	1:1:1:1
12	1:1	1:1:1	1:1:1:1
13	1:1	1:1:1	1:1:1:1
14	1:1	1:1:1	1:1:1:1
15	1:1	1:1:1	1:1:1:1
16	1:1	1:1:1	1:1:1:1
17	1:1	1:1:1	1:1:1:1
18	1:1	1:1:1	1:1:1:1
19	1:1	1:1:1	1:1:1:1
20	1:1	1:1:1	1:1:1:1
21	1:1	1:1:1	1:1:1:1
22	1:1	1:1:1	1:1:1:1
23	1:1	1:1:1	1:1:1:1
24	1:1	1:1:1	1:1:1:1
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30	1:1	1:1:1	1:1:1:1
31	1:1	1:1:1	1:1:1:1
32	1:1	1:1:1	1:1:1:1
33	1:1	1:1:1	1:1:1:1
34	1:1	1:1:1	1:1:1:1
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49	1:1	1:1:1	1:1:1:1
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51	1:1	1:1:1	1:1:1:1
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61	1:1	1:1:1	1:1:1:1
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63	1:1	1:1:1	1:1:1:1
64	1:1	1:1:1	1:1:1:1
65	1:1	1:1:1	1:1:1:1
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73	1:1	1:1:1	1:1:1:1
74	1:1	1:1:1	1:1:1:1
75	1:1	1:1:1	1:1:1:1
76	1:1	1:1:1	1:1:1:1
77	1:1	1:1:1	1:1:1:1
78	1:1	1:1:1	1:1:1:1
79	1:1	1:1:1	1:1:1:1
80	1:1	1:1:1	1:1:1:1
81	1:1	1:1:1	1:1:1:1
82	1:1	1:1:1	1:1:1:1
83	1:1	1:1:1	1:1:1:1
84	1:1	1:1:1	1:1:1:1
85	1:1	1:1:1	1:1:1:1
86	1:1	1:1:1	1:1:1:1
87	1:1	1:1:1	1:1:1:1
88	1:1	1:1:1	1:1:1:1
89	1:1	1:1:1	1:1:1:1
90	1:1	1:1:1	1:1:1:1
91	1:1	1:1:1	1:1:1:1
92	1:1	1:1:1	1:1:1:1
93	1:1	1:1:1	1:1:1:1
94			

temperature of the room was kept comfortable. The daily food consisted of 250 grammes of prepared hashed meat,¹³ 70 grammes of cracker meal, 30 grammes of lard, 10 grammes of bone ash,¹⁴ and 500 c.c. of water. These ingredients of the diet were mixed and given daily in one meal at 9 a. m. After a preparatory period of about a week, during which approximate nitrogenous equilibrium had been attained, the experiment, as recorded below, was started (December 10, 1902).

At the conclusion of a "fore" period of nine days, quinic acid enclosed in a small ball of the weighed portion of the hashed meat was administered at meal time daily, for twelve days, in doses ranging from 1 to 20 grammes. An "after" period of six days followed, during which no quinic acid was administered.

Uric acid was separated by the Ludwig-Salkowski¹⁵ method, which had been employed by Weiss. In every case the amount of the crystallized uric acid obtained was estimated by dissolving it in concentrated sulfuric acid and titrating with *n*/20 potassium permanganate, as recommended for the method described by Folin and Shaffer.¹⁶ Purin bases were determined by Salkowski's¹⁷ method; nitrogen by the Kjeldahl process. Our quantitative data are summarized below:

QUANTITATIVE DATA ON THE EFFECTS OF QUINIC ACID ON THE EXCRETION OF URIC ACID.

Day of experiment.	Body weight, Kilos.	Dose, Grammes.	Urine.			
			Volume, c.c.	Specific gravity.	Uric acid, milligrammes.	Purin bases, milligrammes.
I.—Fore Period.						
1.....	17.30	..	530	1.018	.....	.....
2.....	17.35	..	515	1.016	.....	.....
3.....	17.41	..	560	1.018	.....	.....
4.....	17.49	..	560	1.018	.....	.....
5.....	17.52	..	519	1.019	.....	.....
6.....	17.56	..	635	1.019	.....	.....
7.....	17.70	..	540	1.016	24.00 ¹⁸	3.40 ¹⁹
8.....	17.47	..	601	1.018	.....	.....
9.....	17.58	..	535	1.019	.....	.....
II.—Quinic Acid Period.						
10.....	17.60	1	652	1.018	20.16	11.48
11.....	17.66	2	605	1.018	21.58	6.08
12.....	17.62	3	530	1.019	17.25	2.70
13.....	17.74	4	738	1.018	23.66	5.57
14.....	17.63	5	620	1.020	9.83	4.56
15.....	17.55	6	659	1.019	10.83	2.73
16.....	17.40	7	581	1.026	10.16	3.64
17.....	17.69	8	492	1.020	9.58	2.36
18.....	17.75	9	575	1.019	11.16	10.13
19.....	17.88	10	605	1.020	5.16	5.74
20.....	17.91	20	198	1.025	1.00	0.90
21.....	17.64	10	636	1.029	18.66	3.88
III.—After Period.						
22.....	17.42	..	301	1.023	3.25	0.67
23.....	17.27	..	921	1.018	12.91	1.18
24.....	17.40	..	330	1.019	2.91	0.90
25.....	17.48	..	851	1.018	20.41	1.01
26.....	17.53	..	693	1.017	4.58	1.70
27.....	17.50	..	505	1.023	2.91	1.52
28.....	17.48	..	801	1.021	21.66	6.58
IV.—Summaries (Daily Averages for Urine). ¹⁹						
			Volume, c.c.	Milli-	Milli-	Nitrogen, grammes.
				grammes.	grammes.	
I. Unperiodic (9 days).....			552	21.00	3.10	8.69
II. Quinic acid period (12 days).....			574	13.27	4.98	8.76
III. After period (7 days).....			600	9.81	1.91	9.75

¹³ Gies, *American Journal of Physiology*, v, p. 235, 1901; also Gies and collaborators, *Biochemical Researches*, i, p. 69, 1902.

¹⁴ Gies's original observations on the effect of bone ash in the food on the consistency and character of dog feces were made on several dogs prior to the beginning of this work. Occasional reference has been made to the matter by Gies and others, e. g., in a paper from this laboratory by Borg and Welker (*Journal of Biological Chemistry*, i, p. 371, 1900), and by Gies and Shaffer (*American Journal of Physiology*, vi, p. 110, 1904). A special study of metabolic effects of inorganic phosphorus will be described in the near future. The amount of bone ash may be given at one meal or in 12 meals, without impairing the appetite or seriously disturbing the general condition.

¹⁵ Ludwig and Vogel, *Analytische des Harns*, p. 327, 1898.

The animal showed no signs of sickness at any time during the experiment. The only abnormality we observed was a very marked diarrhoea on the sixteenth day (during the quinic acid period). The reaction of the urine was acid continuously. The larger doses of quinic acid increased somewhat the elimination of feces.

The analytic results show that there was a steady increase in the average daily output of urine, a fairly regular decrease in the average daily excretion of uric acid, a somewhat irregular decline in the average daily elimination of purin bases and an appreciable increase in the nitrogenous catabolism from the beginning of the experiment.²⁰ The effects were not marked enough, however, to warrant the conclusion that they were due to the quinic acid administered. The results are, in fact, indecisive, although there is a suggestion of a tendency to decreased output of purin substances. It seems probable that the dog was not in perfect nitrogenous equilibrium at the beginning of the experiment. It is quite as probable that he was also not in purin equilibrium at the start. The excretory results referred to may have been expressions, therefore, of ordinary fluctuations and not of influences exerted by the quinic acid.

We were about to undertake additional experiments when Hupfer's²¹ paper in criticism of Weiss's results appeared. Hupfer independently took the skeptical position we, and several others before us, had assumed with regard to Weiss's results. In experiments on himself, Hupfer arrived at conclusions completely destructive of Weiss's opinion that administration of quinic acid decreased the output of uric acid,²² without, however, affecting the correctness of the many clinical observations of good results that followed quinic acid treatment of gout.²³ Its favorable effects in this connection have not yet been made clear.

General Conclusion.—Our results are of special interest because they seem to show that quinic acid did not materially affect either the endogenous or exogenous metabolism of uric acid in an animal of a type which ordinarily excretes only trifling quantities of that substance, and, in the main, oxidizes freely purin products of both internal and external origin.

2. A CHEMICAL STUDY OF A BACILLUS CAUSING SEPTICEMIA IN THE RABBIT.²⁴

²⁵ Folin and Shaffer, *Zeitschrift für physiologische Chemie*, xxxii, p. 752, 1901.

²⁶ Soubrier and Vogel, *loc. cit.*, p. 829.

²⁷ For twenty-four hours, days five to nine. The urines of days 1 to 4 were not analyzed.

²⁸ The corresponding average results that were obtained from analysis of "composite" urines of each period verified the results here tabulated. The recorded results for nitrogen content were obtained by analysis of samples of the composite urines.

²⁹ The urinary P_2O_5 in each period was found to be practically the same.

³⁰ Hupfer, *Zeitschrift für physiologische Chemie*, xxxvii, p. 302, 1903.

³¹ Hupfer's conclusive observations led us to turn our attention temporarily to other work, and before we could repeat our experiment Dr. Taltavall was obliged to discontinue. We have been unable to resume the work together. In the meantime sufficient evidence has accumulated against Weiss's opinion and in support of Hupfer's criticisms to make further study in this connection unnecessary. McCruden, *loc. cit.*

³² Weiss argued that Hupfer's results were not of general application. See *Zeitschrift für physiologische Chemie*, xxxviii, p. 124, 1904.

³³ This study was undertaken at the suggestion of Dr. A. J. Lartigue, who supplied the bacillus. Dr. Lartigue was under the impression that it had not before been described, although he thought it resembled the *loc. cit.* bacillus. Dr. Lartigue gave to it the provisional name of *bacillus of rabbit septicemia*. When injected into rabbits the bacillus produced in them symptoms of septicemia and death in a few hours. Until the appearance of Dr. Lartigue's publication on the subject, the facts given here may be regarded as pertaining to an unidentified bacillus causing septicemia in rabbits.

Culture.—In our chemical study of this bacillus we at first used synthetic culture media made after the formula of Fraenkel; but we found, as our work progressed, that simpler media served equally well, potassium being the only base necessary to the development of the organism. Thus, good results were obtained in media consisting of about two parts of dipotassium phosphate, four parts of potassium aspartate and six parts of potassium lactate, dissolved in one thousand parts of water. This, our standard culture medium, seemed preferable for our purpose, in that, containing only one possible source of nitrogen—the aspartate—it facilitated our study of the availability of other substances as sources of nitrogen. Tartaric acid and the alcohols mannite and glycerol were found to serve well as substitutes for lactic acid.

The simplest and easiest method of preparing the standard medium was found to be as follows: One gramme of phosphoric acid, two grammes of aspartic acid, and four grammes of lactic acid were transferred to separate beakers; each was dissolved in distilled water and treated with dilute potassium hydroxide solution until the well mixed solution just ceased to redden blue litmus paper. The mixed contents of the three beakers were then diluted to the required volume with distilled water, boiled and filtered. As thus prepared the medium turned red litmus blue, did not redden blue litmus, and showed a reaction of about $+1.3$, with phenolphthalin as indicator. In all our work, test tubes of the medium suitably tinged with litmus were used to show the reaction of the culture.

In the standard medium, sterilized and inoculated in the usual manner, the growth of our bacillus became evident within twenty-four hours. The fluid developed more and more cloudiness, a film formed on the surface, and soon flakes fell to the bottom of the flask. The reaction throughout remained alkaline to litmus.

Chemical Qualities of the Standard Cultures.—One litre of such a culture was examined at the end of three weeks. Its reaction with phenolphthalin was -0.1 . A portion subjected to distillation at the ordinary pressure yielded much ammonium carbonate. A portion strongly acidified with phosphoric acid and distilled yielded considerable formic acid. A portion acidified with sulphuric acid and shaken with ether yielded to the ether small amounts of lactic and succinic acids. [The succinic acid evidently resulted from the decomposition of the aspartic (amino-succinic) acid.]

Nucleoprotein (?).—A small amount of a protein having been found in solution in the culture fluid, 500 c.c. of the culture were used for isolating the substance in quantity, as follows: After passing through a porcelain filter, the fluid, still opalescent, was faintly acidified with acetic acid and mixed with five times its volume of 95 per cent. alcohol. After several days a slight deposit had formed. The precipitate was washed with alcohol, then with small quantities of very dilute acetic acid, and finally with a little water. (The washwater and dilute acid failed to dissolve any of the protein.) The residue was dissolved in 0.5 per cent. solution of sodium carbonate, the solution was filtered, and the protein was reprecipitated by acidifying with acetic acid and adding five volumes of alcohol. The final precipitate,

washed with water and alcohol and dried over sulphuric acid, weighed only eleven milligrammes. With only so minute a quantity available no satisfactory analysis of the substance could be made; but with this and another sample from a culture grown subsequently the following facts were learned: The substance gave the Millon, biuret, and xanthoproteic reactions strongly. It was practically insoluble in water and dilute acids. It was soluble in dilute alkalis and from such solutions was precipitated by saturation with ammonium sulphate or sodium chloride. Thus it resembled certain compound proteins in its behavior, and was probably a nucleoprotein. Its presence in the culture fluid seemed to be due to the alkaline reaction of the medium. Possibly it resulted from cellular degeneration. The substance was not found in solution in acid-reacting cultures. Very small doses of this protein caused symptoms of septicæmia and death in rabbits in a few hours.

Availability of Proteins.—We observed that the bacillus could not draw its necessary nitrogen from fibrin, casein, acidalbumin, or alkali albuminate when any of these was substituted for aspartic acid in the culture medium. A growth, it is true, appeared in every case, but it was weak. It ceased after five or six days, and was undoubtedly dependent upon the small amount of proteose necessarily formed from each protein in the process of sterilizing. On the other hand, protoproteose was found to be an excellent substitute for aspartic acid. The protoproteose was obtained from Witte's peptone in the following manner: A strong solution of the peptone was saturated with sodium chloride. The gummy deposit that was formed after standing several hours was thoroughly washed with a saturated solution of sodium chloride, dried as much as possible by pressing between layers of filter paper, and redissolved in water. The solution was dialyzed in running water over night, the result being that most of the admixed sodium chloride diffused out and a sufficiently strong solution of protoproteose remained in the dialyzer, together with a deposit of heteroproteose, which was removed by filtration. In this filtrate, with the proper proportions of potassium lactate and dipotassium phosphate, the organism grew luxuriantly. After three weeks only a trace of protein remained.

Proteolytic Power.—The organism's proteolytic power, in the usual sense of the term, was tested by allowing it to grow in a flask of the standard medium containing shreds of fibrin. The culture remained alkaline throughout the experiment. The fibrin apparently underwent no change, even in six weeks. As compared with the control, the culture showed little if any increase in the amount of protein precipitable by alcohol.

Oxidizing Power.—The oxidizing power of the organism was tested by allowing it to grow in a flask of the standard medium containing two per cent. of mannite and two per cent. of glycerol, respectively. The flask containing the mannite showed an acid reaction within twenty-four hours. The growth thereafter was slow and ceased in about two weeks. At the end of three weeks the reaction with phenolphthalin was -0.1 . The color of the culture was strongly acid. The filtered fluid gave no protein reactions. Ether extracted from the fluid a small amount of free succinic acid. After acidifying with sulphuric acid, ether extracted a large amount of

succinic acid, together with some lactic acid. Distilled with phosphoric acid, the distillate had an acetous odor and a strong acid reaction, and was found to contain formic acid and an aldehyde. A portion of the culture, neutralized with calcium carbonate at 100° C., filtered and concentrated, reduced Fehling's solution and yielded with phenylhydrazine-acetate a small amount of crystalline osazone apparently identical with phenylglucosazone. The control gave no such reactions.

Oxalic, tartaric, racemic, erythritic, mannonic, and mannosaccharic acids and ethyl alcohol, all possible products from mannite, were absent. That the aldehyde present was derived from the mannite and not, as one might reasonably suspect, from the lactic acid in the culture medium, was shown by the fact that the same products were found in cultures in mediums free from lactic acid—as, for instance, in a solution of potassium phosphate, potassium aspartate, and mannite. The amount of the aldehyde, as determined by the iodoform reaction, increased with the age of the culture.

The glycerol medium showed an acid reaction within forty-eight hours, and growth in it stopped in about a week. Examined after three weeks, the culture had a faint pleasant odor resembling that of pineapple, and gave strong aldehyde reactions. Ether extracted from the acidified solution, besides succinic and lactic acids, a small amount of a substance—not identified—crystallizing in minute prisms, which tended to arrange themselves in stellate clusters. The distillate had the pineapple odor, was neutral to litmus, and gave faint aldehyde reactions. Dioxycetone, a crystalline ketone which is formed, together with glyceraldehyde, in the mild oxidation of glycerol, was not found in this culture—possibly because our method of isolation was faulty.

Influence on Carbohydrates.—The action of the organism on carbohydrates was determined with the aid of test tube cultures. Glucose represented the monosaccharids; sucrose and lactose the disaccharids; and dextrin and starch, the polysaccharids. The glucose culture became acid within twenty-four hours and developed an odor like that of the mannite culture. The sucrose culture remained alkaline throughout and gave no evidence, with Fehling's solution, of any inversion of the sugar. The lactose culture likewise remained alkaline and gave no evidence of cleavage into glucose and galactose. In order to determine whether or not the organism could produce lactic acid from lactose, a culture medium was used consisting of a solution of potassium phosphate, potassium aspartate and potassium tartrate containing one per cent. of lactose. After three weeks the fluid was concentrated to a syrup and the syrup was examined for lactic acid in the usual way. No lactic acid was found.

The starch culture remained alkaline throughout and developed no reducing power on Fehling's solution. The results with the dextrin culture were unsatisfactory, as the dextrin was subsequently found to have been contaminated with a small amount of maltose.

Influence on Fat.—Olive oil was used as the representative of the neutral fats. The oil did not interfere with the growth of the organism. The reaction remained alkaline throughout. After three weeks the fluid was filtered, the filtrate was completely precipitated with barium chloride, the washed precipi-

tate was boiled with alcohol, the alcohol was filtered boiling hot, the precipitate formed in the filtrate on cooling was decomposed with dilute sulphuric acid and the solution was extracted with ether. No oleic acid was found in the ether extract.

3. TOXICOLOGICAL NOTES.

The great difficulty occasionally experienced in attempting to establish definitely by chemical means the presence of poisonous matters in foods and other biological products that have apparently been the cause of particular toxic symptoms, or in organs that might be supposed to contain the poison responsible for the symptoms noted, is well known. We have lately had experiences forcibly reminding us of this, in the study of the following typical cases:

Absence of Detectable Ptomaines from Poisonous Cheese.—A piece of cheese (225 grammes), to which decidedly toxic symptoms were correctly ascribed, apparently, was presented by Dr. Lartigau for examination. The symptoms were similar to those given by Vaughan and Novy²⁶ for poisonous cheese. The cheese was ground up in a mortar with the aid of some quartz sand, sufficient water was added to give the mixture the consistence of thick cream, and the whole was allowed to stand in a flask about four hours. The extract, after filtering through paper, was an opalescent, yellowish white, acid reacting fluid.

A portion of the fluid was examined for tyrotoxin by Vaughan's method,²⁶ with negative result.

Another portion was examined for proteins. On neutralization of the extract a precipitate failed to form. Coagulable protein was absent. The usual tests for primary proteoses failed to reveal their presence. Secondary proteose, however, was detected. The latter was precipitated in relative abundance by the addition of a large excess of alcohol. The greater portion of the soluble protein in the extract was found to consist of deuteroproteose, with some pepsin.

After precipitating the proteose by adding a large excess of alcohol and removing the precipitate by filtration, the filtrate yielded on evaporation relatively large amounts of leucin and tyrosin. It also contained some tryptophan, as was shown by strong reactions with bromine water and chlorine water.

The unused residues, solid and liquid, were combined and examined by the Stas-Otto method for alkaloidal substances, with negative results.

In all probability the poisonous matter in this particular case consisted of toxic proteose, although this was not suspected until after practically all of the material had been used up. The seeming certainty that ptomaines were responsible for the symptoms noted had been entirely misleading.

Absence of Iodine from the Liver in a Case of Iodoform Poisoning.—A portion of the liver of a patient who died from iodoform poisoning was presented by Dr. Larkin for examination with reference to the presence or absence of iodine. The fresh piece of liver submitted to us weighed 140 grammes. It was first cut up as minutely as possible in a meat chopper and then extracts were made successively with (1) 90 per cent. alcohol; (2) distilled water, and (3) 5 per cent. solution of sodium carbonate. The extracts were treated separately after fusion with sodium carbonate and potassium nitrate, ac-

²⁶ Vaughan and Novy, *Cellular Toxics*, etc., p. 212, 1902.
Vaughan and Novy, *loc. cit.*

cording to the method devised by Pecirka²⁷ for estimating iodine in urine. The results were negative in all cases. A large portion of the residue insoluble in alcohol, water, and sodium carbonate was also treated by the same method, after fusion with sodium carbonate and potassium nitrate, but also with entirely negative results.

4. SOME CHEMICAL DATA ON AN ECHINOCOCCUS CYST.

Dr. Lartigau presented for examination the tunic and contents of an echinococcus cyst removed from a human liver by a surgical operation.

The cyst contents consisted of a clear, reddish yellow, alkaline reacting fluid of 1.010 specific gravity, holding in suspension many hooklets and scolices. It contained in solution a large amount of chloride, a moderate amount of sulphate, a trace of phosphate, some succinic acid, and a trace of protein. The fluid reduced Fehling's solution strongly and, with phenylhydrazine hydrochloride, yielded typical crystals of phenylglucosazone.

The cyst wall was examined with reference to the amount of reducing substance obtainable from it by boiling with acid. Hammarsten²⁸ has stated that hyalin, which is the chief organic constituent of the walls of hydatid cysts, yields, when boiled with dilute sulphuric acid, as much as fifty per cent. of its weight of a variety of sugar, which is reducing, fermentable, and dextrogyrate. In our tests, portions of the cyst wall were dried to constant weight at 100° C., the resultant brittle, horny masses were reduced to powder in a mortar and one gramme samples of the powder were boiled in 100 c.c. of five per cent. sulphuric acid for three and a half hours, water being added from time to time to replace that lost by evaporation. The final solution in each case was diluted to exactly 100 c.c., and of this, to c.c., after

neutralization, was titrated with Fehling's solution. The result was that 5 c.c. of Fehling's solution was completely reduced by exactly 10 c.c. of the fluid under examination. Thus the solid matter of the cyst wall yielded material which manifested the reducing power of an amount of glucose equal to 25 per cent. of the weight of the original dry matter.

Accepting as correct Hammarsten's statement to the effect that hyalin yields about 50 per cent. of reducing substance, we may conclude that, of the solid matter in the cyst wall examined by us, about 50 per cent. was hyalin, if the reducing power of the sugar thus produced from hyalin was about the same as that of glucose. In all probability it was less, just as it is likely that its molecule was larger than that of glucose. Therefore the proportion of hyalin in the solid matter of the cyst was probably more than 50 per cent.

5. ON THE GENERAL COMPOSITION OF HUMAN PLACENTA.

The placenta has never been subjected to detailed chemical study. Dr. J. G. M. Bullova began such a study in this laboratory several years ago, at Gies's suggestion, but, after obtaining a few preliminary results on general composition, was obliged to discontinue the work. It is our intention to resume investigation in this connection, but we desire to record here now, in the way of preliminary observations, the data obtained by Dr. Bullova for normal and moderately calcareous placentas.

The placentas were obtained at the Sloane Maternity Hospital. They were subjected directly to general analysis a few minutes after their elimination, and in the state in which they were removed from the body. The analytic methods were these commonly employed.

²⁷ Hammarsten, *Methods of Physiological Chemistry*, 6th ed. (American edition), p. 590, 1904.

ANALYTIC DATA FOR GENERAL COMPOSITION OF HUMAN PLACENTA

SITUATION OF PORTIONS TAKEN.			FRESH PLACENTA						DRIED PLACENTA	
			PERCENTAGE COMPOSITION							
			FRESH							
			Solid Matter							
I. Normal	No.	Grammes	Water	Total	Organic	Inorganic	Organic	Inorganic		
Marginal, including large vessels	1 a	20.530	81.06	18.04	15.55	2.49	94.78	5.22		
	b	20.960	80.06	19.04	18.82	1.22	99.67	0.33		
Near periphery, no large vessels included	2 a	19.68	83.75	16.25	—	—	—	—		
	b	18.168	84.56	15.43	14.42	1.01	95.4	4.6		
Near junction with cord, including large vessels	3 a	33.065	82.74	17.26	15.84	1.42	97.7	2.3		
	b	19.400	82.40	17.60	15.56	2.04	96.9	3.1		
At junction with cord, including large vessels	4 a	29.485	80.75	19.25	15.15	4.10	92.24	7.76		
	b	22.210	83.75	16.25	15.06	—	92.24	—		
Sections selected at random	5 a	24.5.8	81.96	18.04	16.92	1.12	95.5	4.5		
	b	24.290	82.4	17.6	16.2	1.42	93.10	6.9		
Average		22.432	82.84	17.16	16.4	1.15	93.11	6.89		
II. Echinococcus										
Peripheral, dry, broken	6 a	31.435	79.91	20.08	18.00	2.08	94.4	5.6		
	b	24.430	80.75	19.25	14.82	4.42	86.18	13.82		
Marginal portions, selected at random	7 a	31.410	79.42	20.58	18.00	2.58	94.4	5.6		
	b	30.389	82.78	17.22	15.5	1.72	92.2	7.8		
Near junction with cord	8 a	27.07	81.07	18.93	16.67	2.26	92.2	7.8		
	b	27.44	79.60	20.40	19.40	1.0	94.4	5.6		
Average		29.5	80.5	19.5	17.0	1.8	92.2	7.8		

6. PRELIMINARY OBSERVATIONS ON THE EFFECTS AND ELIMINATION OF CONNECTIVE TISSUE MUCOID²⁹ AFTER SUBCUTANEOUS OR INTRAVENOUS INJECTION.

Early in the fall of 1899 the writer began in this laboratory a study of the general effects of injected connective tissue mucoid. About a year afterward, Dr. Morris Stark cooperated in furthering the experiments, but could not assist in their completion. More urgent work prevented the writer from continuing the investigation, and his subsequent discovery of the fact that mucoid salts³⁰ may be made with comparative ease³¹ induced him to delay further investigation of the pharmacological effects of mucoid until the outcome of his chemical study of the mucoid salts warranted its resumption. (Further remarks in this connection are offered below.)

Levin, in the meantime, published the results of similar experiments,³² undertaken independently from a different standpoint. Levin's very interesting work was carried out primarily to ascertain the influence of mucoid after thyroidectomy. He said:

It has been established that the removal of the thyreoid gland is very injurious; for many species of animals, as well as for man, it is fatal.

Various theories have been offered in explanation of this phenomenon. It may be due to the fact that some substance, which has either been previously transformed by the cells of the thyreoid or else neutralized by some other substance produced by the gland, in the absence of the latter, accumulates in the blood and poisons the organism. But the nature of this toxic substance has never been established. The discovery of an increased amount of mucin (mucoid) in the tissues in myxedema, as well as in thyroidectomized animals, led Horsley³³ and others to suppose *a priori*, that the symptoms of cachexia thyreopriva may be due to accumulation in the blood of mucin (mucoid), which is normally transformed by the thyreoid. In view of these possibilities, and since I was unable to find in the literature any physiological or pharmacological study of the influence of mucin (mucoid) on an organism, it seemed to me desirable to test the matter experimentally.

Levin stated, in conclusion, that "mucin (mucoid) accumulated or introduced into the blood of a normal organism produces a certain depressive effect upon the central nervous system; it is not fatal to a normal organism, but is decidedly fatal to an organism deprived of its thyreoid. Mucinæmia (mucoid-æmia) then may be the pathological condition of an organism resulting from the absence of the thyreoid function. But this conclusion does not exclude the possibility of other abnormalities arising from the same cause."

As was stated before some recent observations in this laboratory on mucoid salts³⁴ make it desirable thoroughly to investigate the pharmacological effects of mucoid compounds, but, as considerable time must elapse before the chemical study of the salts can be completed and the pharmacological work can be undertaken to greatest advantage, we desire to present

here a summary of the results of our preliminary observations, as illustrated by a few of the records of the experiments, which have not hitherto been published.

The mucoid used in the experiments was a mixed tendomucoid prepared by Cutter and Gies.³⁵ It dissolved readily and completely in dilute sodium carbonate solution.

*Effects of Subcutaneous Injection (Exp. III).—*A 6 per cent. solution of tendomucoid in 1 per cent. Na_2CO_3 was prepared.³⁶ Of this solution, 217 c.c., containing 13.18 grammes of mucoid, were injected subcutaneously into a healthy dog, weighing 12 kilos. The injection was made on the left side, near the lumbar region, while the animal was under light ether anaesthesia. The animal died in twenty-four and three quarter hours.

The dog remained standing several hours after the injection and was reluctant to walk, because movement was painful. Once in a recumbent position the animal refused to rise, and when placed in any uncomfortable posture refrained from seeking to change it. Depression was very marked in about twelve hours, when the legs were cold and cedematous, and thick mucus ran slowly from the mouth. In twenty hours there was involuntary micturition and defecation, and the dog could not easily be aroused. At the twenty-fourth hour depression was profound, the eye reflex was very weak. The animal died from asphyxia. There were no general terminal convulsions. The heart continued to beat five minutes after the cessation of respiration. During the first five hours respiration rose from 38 to 78, then gradually fell to 14 ten minutes before death.

During the first twelve hours of the experiment the dog drank small quantities of water frequently, but refused food. During the second twelve hours, even water was refused. Urine was frequently voided in small volumes. The voluntary eliminations of urine during the first twenty hours were 90 c.c., 50 c.c., 26 c.c., 23 c.c., 36 c.c. (over night), 11 c.c. The last of these fractions of urine was acid to litmus, the preceding fractions were strongly alkaline and turbid.

As soon as the heart ceased to beat autopsy was begun. The subcutaneous areas contained a large volume of clear, slightly reddish liquid, which began to coagulate as soon as it was removed. The blood also clotted readily. There was no intraperitoneal liquid. The lungs were somewhat cedematous, and there was considerable mucus in the trachea and bronchii.³⁷ No other noteworthy observations were made—all the remaining parts appeared to be normal.

Considerable mucoid was present in the subcutaneous liquid, but little was contained in the blood.

²⁹ *Medicine*, 10, p. 74, 1906; ix, p. 115, 1907. Also *American Medicine*, 1 (N. S.), p. 158, 1906; *Science*, xlii, p. 980, 1906; *Journal of the American Medical Association*, xlii, p. 500, 1907; *Journal of Biological Chemistry*, ii, *Proceedings of the American Society of Biological Chemists*, p. xxxix, 1907; *Proceedings of the American Society of Biological Chemists*, i, 1, p. 48, 1907.

³⁰ Cutter and Gies, *American Journal of Physiology*, vi, p. 155, 1901; also Gies and collaborators, *Biochemical Researches*, i, reprint 5, 1903.

³¹ Much of the alkalinity of the solution was neutralized by the mucoid.

³² "The injection of alkaline carbonates into the blood induces a more active secretion from the bronchial mucous membrane according to Calvert, while Rossbach found it to have the opposite effect." Calvert, *Textbook of Pharmacology and Therapeutics*, etc., 2nd edition, p. 232.

²⁹ We use the term mucoid, instead of mucin, to indicate connective tissue.

³⁰ M. J. and G. Gies, *American Journal of Physiology*, vi, 1902; *Proceedings of the American Physiological Society*, p. xxvii, 1901; *Ann. Exp. and Med. Biol.*, 3, p. 74, 1903.

³¹ *American Journal of Physiology*, vi, 1902; *Proceedings of the American Physiological Society*, p. xli, 1902; *Ann. Exp. and Med. Biol.*, 3, p. 74, 1903.

³² *American Journal of Physiology*, vi, p. 50, 1900.

³³ *Proceedings of the Royal Society of London*, 67, p. 1, 1894, and the *British Medical Journal*, January 31, 1894, p. 1.

³⁴ *Proceedings of the Society for Experimental Biology*

Samples of each (300 c.c.) were heated on a water bath to precipitate coagulable proteins. The filtrate from the coagulum in the serous fluid yielded a fairly heavy precipitate on treatment with a moderate excess of 0.2 per cent. hydrochloric acid; the filtrate from the blood coagulum became only slightly turbid. The precipitates yielded considerable reducing substance on hydration.

All the samples of urine yielded, after filtration, slight flocculent precipitates on acidification with 0.2 per cent. hydrochloric acid. The urines were very concentrated, however, and relatively large amounts of the eliminated mucoid remained in solution in the fraction after acidification. The urine voided before injection did not become turbid on acidification.

The combined mucoid precipitates from the total volume of urine that was eliminated during the first twenty hours succeeding injection weighed, after thorough washing and drying, 0.0539 gramme, or about 0.4 per cent. of the quantity injected. This mass yielded sulphate, reducing substance and biuret reacting material on hydrolysis.

In another experiment (IV), in which only 150 c.c. of a 3.3 per cent. solution of tendomucoid (in 1 per cent. solution of Na_2CO_3) were injected subcutaneously into a 10 kilo dog, the effects were not so striking. Defecation was frequent and salivation noticeable at times. After forty-eight hours, however, the animal was suffering so severely that it was put to death with chloroform.

Except for the extended oedematous area about the point of injection and extending forward ventrally, autopsy revealed nothing abnormal. Mucoid was present in the oedematous fluid.

The combined urines obtained from this dog yielded, on acidification strongly with 0.2 hydrochloric acid, 0.1043 gramme of mucoid, or 2.09 per cent. of the amount originally injected. The normal urine failed to yield a precipitate on acidification.

Levin stated that "into each of eight normal rabbits of between 1,000 to 2,000 grammes in weight he injected hypodermically from $\frac{1}{2}$ to $\frac{3}{4}$ gramme of mucin (mucoid) in 1 per cent. solution of sodium carbonate," and that "all the rabbits remained perfectly healthy after the injection." The volumes of solutions he used must have been 50 to 75 c.c. His animals received more carbonate per kilo than ours, but not as much mucoid per kilo as the dog used in the experiment with fatal termination (III). Apparently the rabbit is more resistant to the conditions of these experiments than dogs.³⁰

This work did not progress far enough to indicate exactly the effects of the sodium carbonate in the mucoid solutions. In one experiment (VI), however, the injection of 150 c.c. of 1 per cent. Na_2CO_3 solution in a dog weighing 9 kilos, developed oedematous effects comparable to those of the experiment just referred to (IV), but the results were less marked and appeared later. There was no salivation such as occurred in the experiments with the alkaline mucoid solutions. In this case also the combined urines yielded a mucoid-like precipitate that weighed 0.0704 gramme. Possibly the mucoid was

dissolved from the tissues by the carbonate. The result indicated a similar contribution to the urinary mucoid of the other experiments.

That the determinations of the content of mucoid in the urines was not quantitatively accurate has already been indicated. At the same time it is certain that mucoid was eliminated by the kidneys after its subcutaneous injection.

Solvent Action of Urine on Mucoid.—Before experiments on mucoid elimination can be conducted satisfactorily an accurate method for the quantitative estimation of mucoid in urine will have to be devised. Work in this direction also remained unfinished, but will be resumed with other phases of the subject in the near future.³¹

It was found, however, that normal acid reacting urine dissolves powdered dry tendomucoid and that much of the dissolved mucoid can be precipitated by acidifying the urinary solution quite decidedly with 0.2 per cent. hydrochloric acid. The addition of a small quantity of 10 per cent. sodium chloride solution before acidification prevented the precipitation of the mucoid from the urine containing it, a fact showing the great disturbing influence of the associated salts on the quantitative estimation of the mucoid.

When a fairly concentrated solution of tendomucoid in dilute lime water was added to normal acid reacting urine, all the mucoid remained in solution, even when the whole mixture had an acid or amphoteric reaction (to litmus).

These observations make it appear probable that the urine can be at all times an efficient carrier of mucoid.

Decomposition of Mucoid After Subcutaneous Injection.—In a few experiments there was evidence of the elimination of considerable reducing substance after injection of the mucoid solution, presumably derived from the mucoid itself. Further observations in this connection will be necessary, however, before such a decomposition can be positively announced.

Effects of Intravenous Injection.—Levin found that intravenous injection of tendomucoid (50 c.c. of 3 per cent. solution in 1 per cent. sodium carbonate) caused marked decrease of blood pressure. This result was obtained by him in five experiments on five different dogs. He said:

On five dogs I studied the influence on the blood pressure of an intravenous injection of a mucin (mucoid) solution. Into every one I injected 50 c.c. of 3 per cent. solution of mucin (mucoid) in 1 per cent. sodium carbonate. In every experiment, as seen on the tracings, the blood pressure was markedly decreased. This decrease was not due to the influence of murex (mucoid) on the inhibitory mechanism of the heart, since both vagi were cut in every experiment previous to the injection. That it was also not due to the influence of mucin (mucoid) on the peripheral vasomotor nerves I proved by the following experiment: On a dog both vagi and the splanchnic were cut, and then, when the blood pressure reached its lowest point, mucin (mucoid) was injected intravenously. The blood pressure fell again. Every subsequent stimulation of the peripheral end of the splanchnic increased the blood pressure. As soon as the stimulation ceased, the blood pressure fell

³⁰ While recently we were studying the effects of mucin (mucoid) in the tissues, we were to expect no reaction, and the description cannot be given. Rabbits that I injected with large quantities of pure tendomucoid, mucoid almost daily for two to four months showed absolutely no decomposition of it, either locally or constitutionally. (Wells, *Chemical Pathology*, p. 357, 1907.)

³¹ May and Gies, *Proceedings of the American Society for the Advancement of Chemistry*, 1907, 34, 1907, also *Journal of Biological Chemistry*, 1907, 34, 1907.

again to the level reached by the mucin (mucoïd) injection.

The decrease of blood pressure after the intravenous injection of mucin (mucoïd) was due consequently to its direct influence upon the vasomotor centres, which, in the presence of mucin (mucoïd) in the blood, became depressed. It is interesting to note that the influence of mucin (mucoïd) on the nervous system is of a depressive character, and of the same depressive character are the nervous symptoms in cachexia thyreopriva (not tetanic).

We had two similar experiments, with identical effects on blood pressure. Levin recorded no observations on urinary flow under such conditions. We found that the volume of urine was markedly decreased for a time by injection of the mucoïd solution, diminishing apparently with the fall of blood pressure.

In one experiment (VII) we injected, at seven intervals in a period of four hours, a total of 200 c.c. of mucoïd solution containing 5 grammes of mucoïd (0.025 gramme per c.c.). In the other experiment (VIII) a total of 100 c.c. of solution and the same amount of mucoïd (5 grammes) were injected in 40 and 60 c.c. doses (one hour and thirty minutes interval). In the former experiment the animal was purposely bled to death. In the latter it bled to death by accident.

The following section of one of the protocols (VII) shows at a glance the effect on urinary elimination:

URINARY ELIMINATION IN A DOG AFTER INTRAVENOUS INJECTION OF ALKALINE MUCOÏD SOLUTION.

No.	Periods: 20 minutes.— Time.	(Mucoïd injection.— Time.		Urine. Volume.	
		c.c.		c.c.	
1	10.52-11.12	.....	.....	4.9	5.2
2	11.12-11.32	.....	.....	4.9	.....
3	11.32-11.52	11.32-11.34	25	2.1	.....
4	.....	11.38-11.39	10	3.0	.....
5	.....	11.43-11.45	15	2.1	.....
6	11.52-12.12	.....	.....	3.6	.....
7	12.12-12.32	.....	.....	4.7	.....
8	12.32-12.52	.....	.....	5.9	.....
9	12.52-1.12	.....	.....	.....	.....

The flow of urine decreased as the blood pressure fell and increased as the pressure returned to normal.

The combined filtered urine fractions that were obtained after injection in this experiment (VII) to the end, and amounting to 28 c.c., were treated with 5 c.c. of 36 per cent. acetic acid. The mucoïd precipitate thus obtained weighed, after washing and drying, 0.2071 gramme, or 4.14 per cent., of the quantity originally injected. The urine before injection was free from acid precipitable substance.

The blood at the end of the experiment contained considerable mucoïd. The amount was not determined.

In the second experiment (VIII) of this series a normal elimination of 5.8 c.c. of urine in twenty minutes was decreased to 0.5 c.c., 0.8 c.c., 1.8 c.c., 2.6 c.c., 2.8 c.c. in successive twenty minute periods after intravenous injection of 40 c.c. of the 5 per cent. mucoïd solution. A second injection of 60 c.c. of the same solution stopped the flow of urine entirely. Respiration was speedily increased from 24 to 44, and remained rapid for an hour. After entire cessation of urinary flow for two and a half hours, the injection of 60 c.c. of 10 per cent. salt solution immediately raised the blood pressure and started the urinary excretion, increasing it at once to 2.1 c.c.

in twenty minutes. At this point the fatal accident occurred that has already been referred to.

In this experiment, also, blood pressure and urinary elimination increased or decreased synchronously.

The exact effects of sodium carbonate itself in this connection remain to be determined in the contemplated further study of the subject.

Each of the filtered urines of this experiment (VIII) yielded mucoïd on acidification with 0.2 per cent. hydrochloric acid. The total amount of mucoïd recovered from the combined filtered urines after acidification with 0.2 per cent. hydrochloric acid was 0.3636 gramme, or 7.27 per cent., of that originally injected.

Resumption of these particular experiments will be undertaken as soon as some work now in progress in this laboratory, on the quantitative determination of mucoïds in biological materials, can be successfully terminated.⁴⁰

437 WEST FIFTY-NINTH STREET.

A PARTIAL RESUME OF THE PROPHYLAXIS OF TROPICAL DISEASE.*

(Published under the imprimatur of the American Society of Tropical Diseases.)

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Having in mind the trite saying that the speaker should say something that he knows, say it briefly and stop, and realizing fully that any attempt to cover the whole or any considerable part of the subject assigned me, would be prolix, I shall confine my remarks to the subject of yellow fever prophylaxis, after barely touching upon leprosy and plague.

Leprosy.

The present status of our knowledge of leprosy compels the statement that the only prophylaxis which can avail anything is the enforcement of existing quarantine laws, under which most nations forbid the landing of a leper on their soil under any circumstances, and demand the complete segregation of all lepers already within their borders. The uncertain period of incubation renders any other measure of precaution an absurdity from the start.

Plague.

The prophylaxis of plague presents for study more of practical interest because more can be accomplished, but even here we deal with a question which is only sporadically presented to us in America.

The findings of Major Lowson, of I. M. S., in Hong Kong, that his English employees addicted to the use of soap and water and the wearing of shoes and puttees, escaped scot free, though daily handling bubonic plague, and that of our own workers in San Francisco, Kinyoun, Blue, M. J. White, and Kellogg, to the same effect, point rather strongly toward personal cleanliness and freedom from abrasions of lower extremities as the best of prophylaxis against this variety, while the readiness with which any one receives infection from the pneumonic form is still stronger evidence of the theory that plague must enter by either a skin abrasion

⁴⁰ May and Gies, *loc. cit.*

* Read before the American Society of Tropical Medicine, June 7, 1907.

or a delicate membrane, and not through the sound skin. Again, the puttee protection indicates the flea and gives us a clue to our line of procedure, which is to destroy rats and fleas in any plague spot or on any ship leaving such spot.

The small vitality of the *Bacillus pestis* itself makes our task, as far as the bacillus is concerned, relatively easy. The tremendous vitality of the flea is probably the greatest difficulty we have to encounter, not even excepting the danger of conveyance through desiccated rats that can only be disinfected by burning.

The application of an absolutely safe quarantine against plague is practically impossible because it would mean the destruction of commerce, and no system capable of practical application is or can be absolutely effective so long as stupidity or venality exist.

Regarding practical quarantine, we should consider that a vessel thirty days out from a plague port is probably not infected, unless something has appeared on board during the voyage, to indicate plague. Should, however, any case have occurred, we must not permit such a vessel to touch the shore until we have destroyed her infection, and to this end we use four per cent. sulphur dioxide gas for a period of at least twelve hours, to insure the destruction of all animal life, and subsequently cremate the remains thereof.

Dealing with plague on land, it has been found that washing down rooms with a 1 to 1,000 solution of bichloride of mercury, followed by sulphur, and this, in turn, by white wash and by full and free ventilation and sunning, wherever possible, is most effective, although in many instances nothing seems certain of success. Haffkine's and Lustig's inoculations are effective, but hard to introduce, except through force, with the very class needing them, and our experience in California prompts the statement that for contacts, Yersin's serum, and for others, straight personal cleanliness, is, after all, the ideal personal prophylaxis.

Yellow Fever.

With the advent of the white man in the west began his four century war with *yellow jack*, and it must be confessed that the dominant race among men has been badly worsted, and until 1900, seemed in a fair way to remain worsted.

No unknown enemy can be successfully combated, and the whole world owes a debt of gratitude to Reed, Lazear, and Carroll, because, through the work of this immortal trio, we know how yellow fever is transmitted and have more than a hint as to the nature of its specific cause. It would be a fitting capstone to the monument of fame already erected in our hearts to them, if the surviving member of the Commission could crown his life work by having been the exact causative agency.

Knowing its method of transmission to be through the mosquito, we can, with the aid of the following facts as to the nature of the insect and the local conditions confronting us, indicate our line of procedure.

1. The *Stegomyia* breeds generally in artificial containers.

2. It prefers clean water, although, under com-

mon. Dr. Carroll has died since this paper was written. An error.

pulsion, that is to say, in the absence of clean water, it may even utilize a cesspool.

3. It has been classed by Dr. Howard as a really domesticated animal, and is distinctly a house mosquito that cannot stand the glare of the sun.

4. It thrives best in a humid climate.

5. It has no inclination to travel, and, while undeniably doing so, it is always as a matter of accident, her migrations, as a rule, being limited to feet rather than to miles.

6. It is almost certainly an exotic, and ought to be with absolute certainty, an exile.

Here an apparent digression is necessary in order to state certain facts leading up to certain deductions.

The people of our south coast are envired by atmospheric humidity, and this, with long summers, fosters a riotous growth of insect as well as vegetable life.

Those cities of the south which have been most often the victims of yellow fever are those in which there is no notable altitude above the sea level, and which have deficient drainage, and New Orleans, be it known to those who have not observed it for themselves, is, for a portion of the year, actually below the river level, and all of her sewage and her vast area of surface drainage must, of necessity, be pumped out day by day. Having only a very limited supply of potable water, other than that furnished by the inevitable cistern, some 70,000 of which are to be found within her limits; with mud streets, many of them grass grown, flanked by 750 miles of open sewers and providing in damp weather, an ideal harboring ground for the mosquito; with a cosmopolitan population accustomed to the widest possible latitude of individualism and prone to resent any interference by the authorities with what they conceive to be their personal rights; with no effective means of compelling the report of cases unless the physician in attendance considers them to be yellow fever, New Orleans offers, from the standpoint of yellow fever elimination without regard to any other matter, a striking example of natural disadvantages. The Public Health and Marine Hospital Service at the inception of its work in 1905 in New Orleans, was confronted with no less than 616 known cases beside widely scattered but undoubtedly existing unknown cases, impossible to locate at the outset, and making necessary a general destruction, so far as human means could accomplish it, of all mosquitoes of the particular variety mentioned, it being, in the nature of things, impossible to locate all the infected mosquitoes after an epidemic is in full swing.

With such facts as these in mind and noting the vastness of the task of mosquito extermination, it seems that prevention of ingress of yellow fever to such localities is for the present imperative, and to this end we must continue to quarantine and must carry the war into Africa.

Beginning at the tropic port which we suspect of infection, where by a fumigation with even so little as one per cent. sulphur dioxide, applied simultaneously in all the parts of a vessel just before sailing, we destroy all mosquitoes, and, doing so, destroy all risk as so far as the ship itself is concerned.

According to the United States Public Health and Marine Hospital Service, the percentage of mosquito mortality due to the smoking of carbolic acid

Then let us suppose that we renew our risk by taking passengers or crew from the infected port and that one of these is stricken on the voyage.

If, then, there are no stegomyiæ aboard, there is no transmission, but in the exceptional case in which some may have hatched aboard, one or more of these might become infected through biting the patient during the first three days of illness. Here our margin of safety lies in the fact that for about twelve days the infection is latent, and before that time expires our ship will reach a quarantine, even if the master is so ignorant as not to destroy the mosquitoes himself.

On arrival at quarantine our authorities, after seeing that all openings were sealed so that no mosquitoes were driven out rather than killed, would fumigate with sulphur very thoroughly, remembering that we are now where a mistake might produce deplorable results. Finally, when the one hundred and thirty-seventh hour incubative period has elapsed since the last possible exposure of each and all, let them go.

When a ship arrives at her wharf after leaving quarantine, you naturally suppose that this is the end of prophylaxis—but not so. In the case of any ship from the tropics, we must know the health status of her personnel six days after she sailed, as otherwise some *accidental infection from an unsuspected port* might be let loose on the community.

Regarding detained ships, experience shows that ships under surveillance are never the bearers of disaster. It has always been borne by those from a supposedly clean port. The essential point is that *the personnel of all ships from all tropic ports should be kept under observation to complete six full days.* This is difficult, but can be done, and if a system of giving each passenger a modest rebate check on his passage money, to be honored upon presenting himself to duly constituted health authorities, could be put in effect, the number unfound on final inspection would be less than one in ten thousand. As it is now, experience justifies the statement that our own citizens can be relied upon very nearly to that extent, and even among foreigners we find less than five per cent. to give wrong addresses, and less than one half of one per cent. of the total personnel covers those whom we cannot find at all, as against an estimated five per cent. lack of efficiency in ordinary methods.

In actual practice the inspecting officer meets the ship and identifies each passenger on landing, so that if correct addresses are given, there can be no failure later. This system, except the rebate check, is by order of Surgeon General Wyman now in operation in New Orleans and Mobile, and it is to be desired at all ports.²

Now let us suppose that all of our precautions have been evaded; that there is a broken link somewhere in our chain, and that we find ourselves confronted with an outbreak of yellow fever so well established that the origin of many cases is obscured. Then we must resort to such measures as the following:

A thorough organization if not already existent is a prerequisite to good work, and must be had at

once. The essential parts of such an organization are:

1. A central office in touch with all parts and provided with a perfect record system so that every detail may be referred to at a moment's notice.

2. Division officers under the command of competent executives to personally direct the work and provided with a force of intelligent workers sufficient in number to cover the division fully, at least once a week.

3. A school of instruction in detail work of mosquito destruction.

4. All employees should be trained to act in squads of three or four, and the proportion of untrained to trained men in any squad should, so far as possible, be held down to one in three, and in this kind of work more than in any other known to me, the master's hand must be ever on the helm. The division chief must be sleepless in his vigilance, for nothing short of absolute efficiency will attain promptly, the end in view.

Now we will consider the actual working details: Upon the announcement of a case, either actual or suspected, the whole house preferably, but the sick room certainly should be screened against the ingress of mosquitoes to be infected, and the egress of those infected.

A room should be prepared by carefully screening doors and windows, pasting up cracks and fumigating with sulphur and, the patient's condition permitting, he should be removed thereto at once and the whole house fumigated in all its parts, to insure the destruction of all mosquitoes.

The fire places and chimneys become harboring points, and the latter should be closed at the top before fumigation, in order to kill, *not drive out*, any insects therein. The screeners and pasters must be quiet as well as effective in their work, and in doing it they must neither drive the mosquitoes out, nor disturb the patient. In this connection I wish to pay tribute to Professor A. L. Metz, of Tulane, who, in 1905, proposed and organized and taught so thoroughly a training school for screeners, pasters, and fumigators that these men learned to do their work, even such as was necessary in the sick room itself, without complaint against them by either family or physician.

After the patient recovers sufficiently to move about, which is generally within the twelve days required by the infection to become dynamic, it is then wise, as an extra safeguard, to again fumigate the whole house.

Just here it is fitting to say that experience fully justifies the assertion of Dr. Carroll, that in dealing with yellow fever outbreaks, the best (and only reliable) policy is to treat all cases of fever as worthy of suspicion. There is no doubt that under such a plan thousands of unnecessary disinfections will be done, but it is, if you will pardon the paradox, just as necessary as any other part of the work as long as it is true that no man can always be relied upon to make an exact diagnosis in any disease, wherein the causative entity is not definitely known. We must not wait for a definite diagnosis, but disinfect first, and then await the leisure of the family physician, who will sometimes make, after this disinfection, a diagnosis he dared not make before. This is not intended to be ill natured, it simply means that there

² This law, which was delivered the State of Texas has adopted this system, and Dr. Brundage is working in hearty co-operation with the Service.

are black sheep in every fold and some spineless men in every profession. We all know this, and we want facts, not flattery. Of the "ninety and nine good sheep which went not astray," we need say nothing here.

Now let us turn to the wider field of the general destruction of mosquitoes in all cisterns, tanks, rain barrels, cesspools, tubs, buckets, old bottles, street and roof gutters, catch basins, water closets, tanks, and bowls, and even such unsuspected places as the church fountains and cemetery vases. Each and all must be sought out at regular intervals of not more than five days, and covered with a thin film of petroleum, or salted up to five per cent., or treated with cupric sulphate, or *emptied and dried*, simple emptying does not fill the requirement. If 150 degrees kerosene is used, it will not damage drinking water in any way, and a very mild solution, 1 to 200,000 supric sulphate, will not injure vegetation.

Doing this we arrest reproduction by closing every avenue to the breeding ground, even the occasional ones like the cesspool and gutter to which the insect might resort in the absence of clean water. Coincidentally we should, wherever possible, enlist the sympathies of the public in the interest of a wholesale destruction of the living insects by a general fumigation, but a word of caution is due just here, against allowing the public to gather from this the idea that they can or will be trusted to do for themselves the special fumigation which must be done in actual cases of fever, and done with such absolute accuracy as will guarantee that all the insects are shut in and exposed for a time minimum of two hours to a volumetric minimum of two per cent. of sulphur dioxide. This must not even be entrusted to the family physician.

We must officially fumigate every house, the premises of which are contiguous to those infected, both for the furtherance of the good work of general destruction, and as another of those extra precautions which are always in good taste in this work.⁸

Special officers should periodically inspect every water container in the whole community, and harsh though it be, the penalty for the presence of larvæ in any container should be the discharge of the employee whose duty it is to keep that particular spot in order. Other officers should make house to house visitations to ascertain the presence and character of any sickness; not to see the sick, but in order that the central office may get in touch with the family physician.

The ingress and egress of persons to and from the city must be watched, and to lesser extent, the vehicle of egress. Incoming persons may be absolutely controlled by the means heretofore suggested, and if such means were universally adopted it would, of course, render egress comparatively safe for the outside towns, provided no person known to be from an infected house, was allowed to depart.

Reference to vehicles now brings us to one of the most interesting phases of this discussion, which is the extent to which the *Stegomyia calopus* travels, as well as the circumstances under which she does so, and, finally, what is to be done. We must not rea-

son from analogy with other species and be led into error, because others do travel. The *stegomyia* is domesticated and may be justly likened to the quiet Swiss peasant, while the *Culex sollicitans* is like the wandering Bedouin. Rising from her native marsh, she willingly drifts with the wind. Unlike the *stegomyia* she has no home and wants none.

The rarity with which infected *stegomyia* migrate has been indicated many times by the frequency with which houses so close to the infected dwelling as to be almost contiguous, and with coincident open windows, have escaped infection. It is further illustrated with regard to railroad cars by the fact that in each case in which we have been able to trace the manner of infection in a city or town, it has been found that the locality was infected by some person who, arriving there during the incubative period of the disease, subsequently developed the fever. In no instance has there been any legitimate evidence which would point to any other method of infection.

The idea prevailing among some people with regard to the traveling of the infected mosquito is ill founded. It unquestionably does travel, but only because in the incipency of its life it has taken its habitat in a car instead of a house, or because, accidentally imprisoned in a box or drawer, it is carried, *volens volens*; but rare, indeed, are such cases, and after studying yellow fever in Ocean Springs, in 1898, while doing postepidemic work there, the definite conclusion was reached that "yellow fever crossed the street here in a pair of shoes and in no other way."

Transportation has always been the most serious difficulty confronting us in yellow fever outbreaks, largely because of public timidity (on the outside). In 1905, because of popular clamor, we disinfected cars, both passenger and freight. We relayed passenger coaches and cut out Pullman traffic, so far as direct entry into the city was concerned. Most of this car disinfection and relaying was unnecessary, and in support of that view I wish to call attention to the fact that, having an abiding faith in the ideas stated, I purposely omitted any relay or disinfection of the Louisville and Nashville Railroad coaches out of New Orleans, going to the Alabama State line, where they were relayed upon the demand of Alabama. These coaches went from the city of New Orleans, traversing the entire width of eastern Louisiana and southern Mississippi, a distance of 116 miles, every day and every night, without any precautions whatever being taken until some weeks after the beginning of the outbreak, and then the windows were screened.

These cars were boarded at the Louisiana frontier by Mississippi national guardsmen who served as quarantine guards, and who traveled in the cars with the passengers from the western to the eastern border of the State of Mississippi and back again, day and night, in dry and in humid weather, for the whole period during which yellow fever existed in New Orleans. There were some score of them so exposed to any infection which might have existed in these coaches, but not a single one of these men so acting as train inspectors, nor any of the train crews, was taken sick with any kind of fever whatsoever, and I wish, in concluding this particular portion of my remarks, to emphasize the fact that these coaches traveled up and down Bayou Fields Street

⁸ Mosquito extermination is most effective if so timed as to catch the late autumn crop of larvæ, and killing persisted in till the insects stop laying. This prevents October eggs to hatch in April, and is more potent for good than ten times the same work at any other season.

in the city of New Orleans, on both sides of which street the infection was rampant, as well as up and down the river front of the city, passing the original infected area where the infection was most prevalent, thus determining, at least to my mind, as strongly as circumstantial evidence may determine anything, that the *infected* stegomyia does not travel to any noticeable degree; that it *remains*, as nearly as it may, at the place *where it first tasted blood*, and will not voluntarily leave a house, much less cross a street. I have stated this before, but deem it of so much importance that it should be repeated and emphasized at every opportunity.

The case in which it cannot find food, water, and seclusion in the habitat it chooses at its birth, is rare indeed, and finding these, it needs no more.

While deadly dangerous when concealed, yellow fever is so easy of control, *if only* the medical profession and the *people will be frank and honest* with the health officers, that it seems a crime against humanity that we must needs quarantine such a disease. There is no more rationalism in quarantining yellow fever than there would be in quarantining typhoid. Indeed, there is less, because it may be stated as an absolute and invariable law, that a case of yellow fever known in the first two or three days of its existence, and to which proper measures can be applied, presents absolutely no menace to the community, nor even to the family resident in the house with it. Until, however, such laws are enacted and enforced as will make the concealment of a case of yellow fever, either through the complaisance of the family physician or the cowardice of the family, a crime and an absolute impossibility, there will continue to be more or less quarantine, probably more. Such laws are deemed by many people an interference with individual liberty and incompatible with the rights of American citizenship and other similar buncombe *ad nauseum*. The only other alternative, and a most excellent one, too, will be the passage and enforcement of laws insuring through the medium of paving, drainage, sewerage, and water supply, the proper sanitation of our cities, these being matters which offer so many other advantages in addition to the removal of yellow fever, as to make them the most imperative needs that confront those living in the zone.

We may rid the United States of yellow fever, but we will never rid it of its susceptibility to that disease until these four requirements are complied with, and the possession of these public utilities will also do away with many of the other "ills that flesh is heir to."

It is irrational to go on, year after year, fighting only the infected mosquito, when we can, with a little more trouble, destroy all mosquitoes once and for all. To put the matter plainly to the business man who is, after all, the court of last appeal, let us say to him: "Make an investment now in good health, and it will pay you enormous dividends in increased business, in reduced loss of time by yourself and your employees, and in that priceless boon which comes only to the man free from any taint of disease, the one only thing that makes our north superior to our south, the pure joy of living."

We of the south should do with purposeful minds what our northern cities have done, when aiming

simply at comfort, they paved and drained and sewered their streets, and by purely accidental coincidence, obtained immunity from yellow fever.

There is no question but that drainage, sewerage, and paving will reduce the general average of humidity to a great extent, and in so reducing it, will also reduce the growth of the minor animal and vegetable life which we wish to minimize. Superadded to these, there should be an abundant and potable water supply, eliminating, absolutely, any other source of water, the cistern and rain barrel of the Gulf coast being, from a sanitary standpoint, the abomination of desolation. All these things may seem so essentially the primaries of sanitation that one is almost ashamed to recommend them, but they are, indeed, the most essential of all the moves which a municipality can make in the interest of its people's health from the standpoint of yellow fever prophylaxis, and until they are made, no community lying within what is known as infectible territory can hope for immunity.

The ideal condition at which we should aim, and this aim is not altogether utopian, is to so reduce humidity in cities within the radius of infectibility as to promote a condition of aridity so marked that, except in public parks alone, the growth of small animal and vegetable life must be cultivated artificially. Such aridity is ideal for any city, and more especially for those which have to deal with the risk of receiving yellow fever, and constitutes in itself the *ultima Thule* of yellow fever prophylaxis.

If I have injected into this discussion too much of my own work, I ask your pardon, for I have been thus guilty only because the whole story must be told if we would get at the remedy.

Surgeon General Wyman, in a recent address in Charleston, said: "The question: 'Am I my brother's keeper?' is more and more being answered Yes." Thank God, this is true, and I ask you who are specialists in the prevention of disease, to join hands in an effort to enlist the sympathy, not only of our own brethren, but of all mankind, to the end that we may so swell the volume of this responsive *Yes* that it shall resound throughout the whole earth. Let us endeavor to teach to all men, that no man has a right to so live his life that his carelessness and neglect of duty shall jeopardize the lives and happiness of innocent women and children, and to indelibly impress upon their consciences what they owe to their fellow men, until it shall be that he who so fails in his duty that his fault shall injure these innocent ones, shall be branded with the mark of Cain, and like his ancient prototype, be driven out by his fellows to be a vagabond and an outcast upon the earth.

AN AID TO THE DIAGNOSIS OF TUBERCULOSIS IN INFANCY AND CHILDHOOD.*

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Hospitals.

A very interesting clinical aid to the diagnosis of tuberculosis in infancy and childhood has been occupying the attention of pædiatrists in Europe for some time. As I have seen the diagnostic value of such reaction in several hospitals, I deem it suffi-

* Read in part and specimen presented to the Section in Pædiatrics, New York Academy of Medicine, October 10, 1907.

ciently important to invite your attention to its consideration.

The question as to whether a child is tuberculous is sometimes difficult to determine. Many conditions simulate tuberculosis. We are all familiar with cachectic and marasmic conditions and the numerous gastrointestinal and syphilitic derangements which yield a clinical picture so similar to tuber-



FIG. 1.—Latent tuberculosis; positive reaction.

culosis, that the exclusion of tuberculosis *per se*, will be an advantage in reaching a conclusion.

The tubercle bacillus, while present in very many tuberculous conditions, is frequently not found in spite of painstaking care. The method advocated by von Pirquet is so simple that, if adopted generally, it will not only furnish a rapid and valuable aid to the diagnosis of latent tuberculosis in children, but also help to eliminate a doubt if one exists. The difficulty in determining the presence or absence of tuberculosis in institutions must appeal to every one. With such aid we are in a position to weed out of institutions and asylums all those tuberculous infections which may ultimately prove serious.

The positive nature of this reaction has been verified by many clinicians, by Moro in Munich, by Moser in Vienna, and others. Von Pirquet also found that in twenty-three cases in which the inoculation gave negative results, there was no evidence of tuberculosis found *post mortem*.

The dose of tuberculin formerly injected subcutaneously was 0.02 mg. up to 1 to 5 mg., which dose, however, caused such severe reaction that only those children without fever could receive such treatment. This caused Baginsky to warn not to exceed the smallest doses without harm to the children injected.

The Reaction.—Surrounding the inoculated region we notice swelling and redness. There is also a papule. This papule is easily distinguished from the control. It is usually 10 millimetres in width. In addition to what has just been said it is advisable to note the time at which the reaction appears. An early reaction with maximum intensity is frequently seen twenty-four hours after the inoculation. This is known as an early reaction. A torpid reaction occurs sometimes in forty-eight hours after inoculation, rarely later. Von Pirquet believes that these torpid reactions are due to healed tuberculous processes, which statement, however, remains to be studied by the post mortem examination. Such late reactions are usually found in older children.

Intensity of the Reaction.—The size of the papule noted is usually about 10 millimetres in width. If, however, the papules are larger than this then we must suspect either a hypersensitive condition causing such strong reaction, as for example, in that class of cases in which tuberculin injections also cause strong reaction, in scrofulosis, joint and bone tuberculosis. The reaction is such that the eye can usually detect the papule at a distance from the bedside. Where, however, the reaction is so mild that it is hard to recognize the papule, then it is better to call it negative.

Color of the Reaction.—Usually a light red color, gradually transformed into a pigmentation that is visible weeks after such inoculation.

Reaction in Nurslings.—In infants, or rather nurslings, the reaction disappears quickly, so that a positive reaction frequently leaves no trace after six days. Very weak, cachectic children frequently show a slight hyperæmia or a cyanotic appearance.

The reaction is not present in the last stages of miliary tuberculosis, meningitis, and in some severe cachectic conditions in which it is well known that large injections of tuberculin can be given without producing any reaction.

Out of a series of one hundred and thirteen nurslings, five gave a positive reaction, three of these showed, *post mortem*, the presence of tuberculosis. In another series, in which tuberculosis was not suspected, 16 per cent. gave a positive reaction. A very instructive table shows that in a series of:

Fifty-seven children between four and twelve months, two gave a positive reaction; forty-three children between one and three years, two gave a positive reaction; thirty-one children between three and five years, three gave a positive reaction; thirty-four children between five and eight years, ten gave a positive reaction; forty-four children between eight and fourteen years, fifteen gave a positive reaction. All of these children suffered from latent tuberculosis.

A point noted was that cases of scrofula showed very intense reaction. The cutaneous inoculation



FIG. 2.—Scrofulosis; very strong reaction.

with tuberculin, likewise the subcutaneous injections of tuberculin, presumes that specific antibodies exist in the system in order to obtain a positive reaction.

A peculiarity noted by von Pirquet and reported also by Moro in Munich is that cases of bone and joint tuberculosis and of scrofulosis showed more intense reaction than cases not so affected.

RESULT OF THE REACTION ON A SERIES OF CASES OF POSITIVE TUBERCULOSIS (C. VON PIRQUET).

	Positive.	Negative.
Syphilosis.....	0	1
Lupus and lichen scrofulosus.....	5	1
Cadex.....	13	1
Spondylitis.....	3	1
Contus.....	1	..
Cold abscess.....	3	..
Fungus.....	3	..
Bronchial glands (with the Röntgen ray).....	3	..
Clinical positive pulmonary tuberculosis.....	18	..
Pulmonary tuberculosis proved in autopsy.....	7	4
Tuberculous meningitis.....	6	5
Totals.....	69	11

When Koch first injected tuberculin subcutaneously, severe reactions followed. This was one of the main objections to its use for diagnostic purposes. There were three distinct reactions noticeable after such subcutaneous injections:

(a) An exacerbation of inflammatory symptoms noticeable on the tuberculous local lesions, and this clinical manifestation caused Koch to advocate tuberculin as a specific therapeutical remedy.

(b) A biproduct in conjunction with the injection is fever. This proved to be an excellent diagnostic means in determining the presence or absence of tuberculosis in children as well as in animals.

(c) The reaction at the site of the injection caused Escherich to regard the same as an indication of how sensitive the system was. C. von Pirquet found that by inoculating the upper layers of the cutis there is an infinitesimal quantity of tuberculin absorbed in as much as there is only a local redness and swelling, termed by Escherich a *Stich* reaction. Fever reaction and general systemic reaction are not noted. Von Pirquet found that out of seven hundred cases inoculated by him there was a febrile reaction in but three cases. Theoretically, it is not impossible that tuberculin could be absorbed and produce fever. In some cases the first inoculation was negative, whereas the second one produced a positive reaction. In two of these cases the autopsy showed cheesy bronchial glands.

Method of Inoculation.—It is necessary to produce only an abrasion of the cutis and unnecessary to scarify into the deeper structures. It is therefore unnecessary to have a bloody surface when this inoculation is made. The skin should be washed with absorbent cotton saturated with ether before inoculating.

Solution Used.—Von Pirquet uses 1 part of tuberculin diluted with 1 part of a 5 per cent. carbolic glycerin and 2 parts of a physiological salt solution. Of this solution 2 drops are inoculated by means of a platinum needle in two injections, and a third place is scarified without inoculation as a control. It is advisable to leave the tuberculin solution on the inoculated areas for several minutes to permit absorption to take place.

Another dilution that can be used. In another hospital I found that the solution used was tuberculin, 1 part, and normal salt solution, 3 parts. This mixture yields a brownish liquid from which one or two drops are used for an inoculation.

Limitations.—I have previously stated that this reaction is not found in the last stages of miliary tuberculosis nor in tuberculous meningitis, because at such times the condition of the system is so transformed that there is a tolerance of the maximum doses of tuberculin without apparent effect. In

some children it is wise if the first inoculation proves negative to again inoculate after one or two weeks. In one case reported by von Pirquet the first inoculation was negative, while the second was positive.

Complications.—Rhinitis has frequently followed the inoculation of tuberculin. In like manner Moro reports a series of cases of conjunctivitis phlyctæ-nulosa. No other complications were noted.

Von Pirquet believes that if children in institutions could be inoculated once in every six months we could then be able to isolate those suspicious cases, and herein lies the great value of such tuberculin test as a prophylactic measure against tuberculosis. The simplicity of inoculating in the same manner as we vaccinate with vaccine virus renders the method easily applicable in both hospital as well as private practice.

I take great pleasure in acknowledging my indebtedness to Dr. C von Pirquet, of the St. Anna's Children's Hospital in Vienna, for the specimen, and also to Dr. Paul Moser, primarius of the children's wards in the Kaiser Franz Josef Hospital in Vienna, for the privilege of studying the technique of this method of tuberculin inoculation.

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65 EAST NINETEETH STREET.

PLASTIC OPERATIONS.*

By JOSEPH E. JOHNSON, M. D.,
 Memphis, Tenn.

The case which I present is that of Mrs. C., of Dallas, Texas, age twenty-six.

At the age of four months she sustained a severe burn involving the forehead and the scalp, as shown in Fig. 1, and the entire left cheek. The cicatrice of the scalp and forehead which continued over the nose was nonelastic and drew the nose upwards, as shown in Fig. 2. The lower eyelid was drawn down, and the upper lid drawn up.

The first proceeding was to remove all of the scar tissue from the left cheek and cover the denuded area (Fig. 2 a) with a flap of skin from the chest (Fig. 2 b), making a pedicle at the shoulder. After ten days it was sufficiently adherent to sever and suture the posterior edge of the graft. A small portion of the end of this flap sloughed and the defect was filled with a flap from the arm.

The next consideration was to get a band of elastic hair bearing tissue across the forehead; this was raised from the right side of the scalp, two and a half inches wide, pedicling at the temple (Fig. 2 c). After ten days the

* Read before the Memphis and Shelby County Medical Society, October 12, 1906.

twisted pedicle was severed and turned into the defect. Behind this the scalp was slid together.

From Fig. 1 it will be observed that the drawing of the cicatrices from the forehead and scalp on to the nose had made a broad flat covering over the upper part of the nose, necessitating the removal of a triangular piece of tissue in the centre of the forehead (Fig. 1 *a*), the base, one inch broad, on the nose, which made the skin fit over the upper part of the nose, as shown in Fig. 1.

Next we come to eyebrows. A semilunar piece of skin was removed on each side (Fig. 1 *b*), and two grafts from above the pubes were sutured in place with horse hair. The results will be noted in Fig. 3. We had a fairly good brow on each side. This hair would grow for two weeks and shed; this continued for three months. Six months later it looked very well. I know of no similar graft.

Last comes the nose. First, we removed all tension from the nose; then cutting around the nose from the base of the triangle, the entire covering of the short nose was turned down to be used as a lining for the extended nose. The cartilages were freed and by diagonal incisions were elongated. The lining was notched to remove excess and to give a smooth surface. This left the entire covering of the nose removed. This was covered by a flap of skin from the arm, which was carefully sutured and the arm strapped to the head for ten days, when the flap was firmly adherent. It was severed and the edges carefully rolled in by making the lining one fourth inch shorter than the covering. The alæ nasi was somewhat shorter on the left side, on account of the removal of so much scar tissue, which extended nearly to the bone.

There was a folding of the skin next the left eye (Figs. 4 and 5), which was relieved by removing a semilunar portion of skin from the temple and drawing the edges together. The margin of the eyelid was raised by a V shaped incision and dissecting the layers

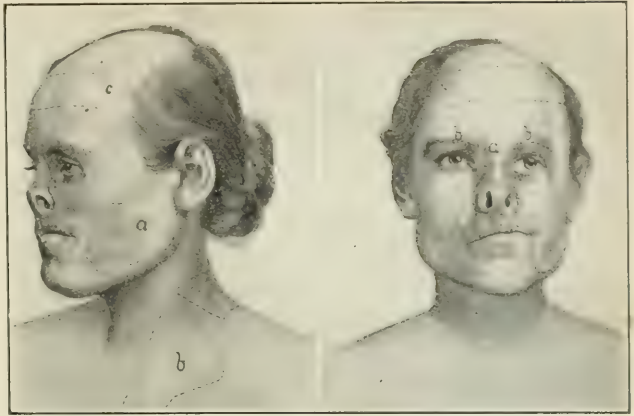


FIG. 2.—Profile of patient before operation.

FIG. 1.—Front view of patient before operation, with diagram of operation.

apart, it was mattress sutured through the conjunctiva.

The scarring is not very noticeable. When she uses cosmetics she is not repulsive looking and will not attract attention.

With the use of horse hair as suture and a small full curved Hagedorn needle we practically eliminate scarring.

GOODWYN INSTITUTE, 608.

THE LOCALIZATION OF FOREIGN BODIES IN THE EYE WITH THE X RAY, WITH DESCRIPTION OF A NEW APPARATUS.

By WALTER IRWIN LEFEVRE, M. D.,
Cleveland.

The exact location of a foreign body in the eye is of serious moment to the patient, and its position will determine the course of action pursued by the oculist. Several methods of localization have been



FIG. 3.—Front view of patient after operation.

FIG. 2.—Side view of patient after operation, showing side of nose.

FIG. 1.—Profile of patient after operation.

advocated by different workers, but all practical methods have evolved into that of taking two radiographs at different angles through the head from side to side. A lateral and anterior posterior view would be ideal, but on account of the bony structure of the skull, this view is impractical. One worker

so the trap door is small and the patient has a better rest for the head, when the plates are being changed. The "land marks," or guide wires, are pasted upon the patient with adhesive plaster, as shown in Fig. 2. The wires crossing at the outer canthus, dividing the eye ball into quadrants. The wire pointer is ar-

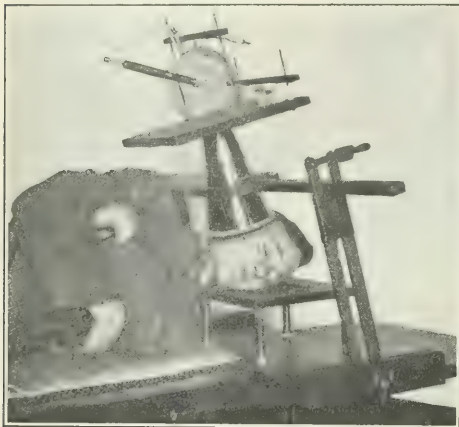


FIG. 1. Showing apparatus in position for first picture.



FIG. 2.—Showing method of fastening wire "land marks" on the face.

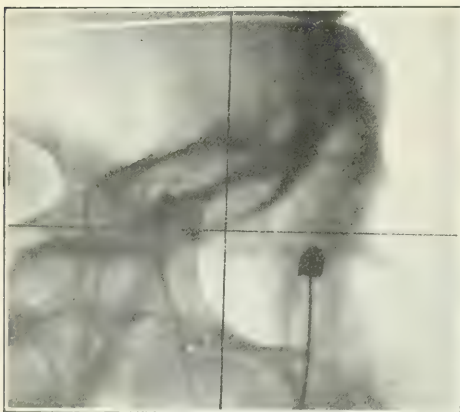


FIG. 3. Showing position of foreign body in first picture.

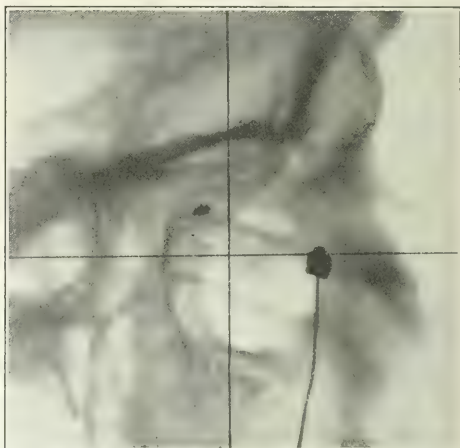


FIG. 4. Showing position of foreign body in second picture.

has gone so far as to advocate putting the plate in the roof of the mouth, with the light over the eye, but this is almost impossible to do.

The method I am about to describe is based upon that of taking two lateral views at different angles. The method is not new, but the apparatus for accomplishing it is.

The patient lies on his side, with the injured side next to the plate holder, as shown in Fig. 1. This table plate holder has a little hinged trap door, which allows the plate to be placed upon it and then locked into place. In this way the plate can be changed without moving the patient. I use a 4 by 5 plate

ranged so that the pointer is in front of the pupil. With this method the cross wires are in contact with the plate, and as near the eye as it is possible to get them. The position of the cross wires as they touch the plate will be the same in both views.

The first picture is taken with the apparatus, as shown in Fig. 1. Then the plate is changed and the paddle with the tube in the tube holder shifted to exactly the same angle on the other side of the perpendicular. This is accomplished by having cleats set permanently so that the side uprights will go just so far and exactly the same to both sides of the perpendicular. When the uprights are perpendicular

the centre of the anode of the tube is directly over the spot where the wires cross. This is arranged with a plum bob and the paddle then marked, so that it can be set and locked quickly and accurately. The uprights have little steel bars that are grooved and

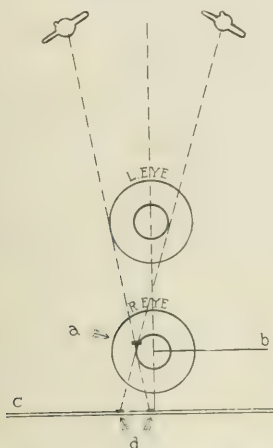


FIG. 5.—a, Position of foreign body (front view); b, wire pointer; c, plate; d, shadows of foreign body.

mortised in a slot, so that when these are placed in position they engage and hinge on the bar, passing through the base board. In this way the uprights are accurately hinged at exactly the same height. When not using the compressor for eye localization

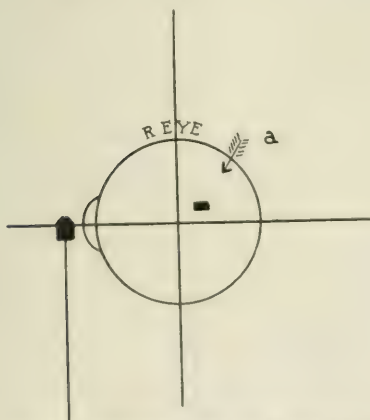


FIG. 6.—a, Position of foreign body (lateral view); b, wire pointer; c, plate; d, shadows of foreign body.

work these little bars are slipped out and then the uprights can be adjusted to any height. When used for ordinary work the little table is removed from the base board.

When the two views are taken in this way we have a perfect pair of stereoscopic pictures. If viewed through a stereoscope the foreign body will stand out in relief so that its position can be located. How-

ever the stereoscope is not necessary, as the position can be readily calculated by measuring the distance the foreign body has moved on the two plates. We know the angle from which the source of the light comes. Lines are drawn from the source to the respective points of the shadow on each plate. Where these lines cross will indicate the distance of the body from the plate or where the wires cross. Both radiographs will show its distance posterior to the marker in front of the pupil. The mean distance between the two shadows will show its exact position relative to the horizontal wire. Then we have its distance from the plate, its depth back of the pointer in front of the eye and its distance above or below the median line of the eye. The cross wires can be fastened to the face or stretched across the little table. When placed on the face they can be left in position until the measurements are made.

For reports to be sent to a distance, charts can be used as shown in the drawing. The chart illustrates the case shown in the radiographs. Experimental work should be done with a skull, so that the findings can be substantiated. A piece of potato can be shaped like the eyeball and placed in the orbit. The foreign body does not necessarily have to be in the "eye" of the potato.

708 TO 712 ROSE BUILDING.

THE DIFFERENTIAL DIAGNOSIS BETWEEN CHRONIC AND RECENTLY ACQUIRED HERNIÆ FROM A MEDICOLEGAL STANDPOINT.

By HARLEY J. BUTTE, M. D.,
Philadelphia.

In reviewing the different authorities as well as the literature for the past several years, I find very little information relative to the distinctive diagnosis between old or chronic and recently acquired herniæ.

From a strictly surgical standpoint the subject is not one of special importance, except in the direction of proper treatment at the proper time, as operation for strangulation, etc., or prescribing a proper fitting truss.

In the medicolegal sense, however, the subject is one of greater importance. It especially interests the general practitioner, as well as the specialist, either of whom may be called upon, especially in our larger cities where conditions of such a nature are encountered so frequently, to give a professional opinion, not only to the patient as regards the approximate length of time a hernia may have existed, but later may be called on to substantiate this opinion under oath.

By a little careful thought this opinion, either *pro* or *contra*, may be supported by more or less relative definite facts. In reaching conclusions, it is really essential, especially in those cases that are strictly medicolegal in character, to base an opinion almost entirely upon the objective evidences present.

While the history of the case, together with symptoms described by the patient (collaborative symptomatology) are important, unfortunately in the great majority of patients who seek advice for such conditions, too much importance must not be placed upon the subjective history, especially where one has

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damages is contemplated, or actually instituted. The reason for this is selfevident.

No fast and hard rule can be laid down on the objective symptomatic side of the case, nevertheless the use of a little common sense, together with some experience in this direction, will go a long way toward clearing up the question at hand, at least to a reasonable degree.

Before distinguishing between the varieties of herniæ, I desire to call your attention to a few facts as regards traumatism in its relation to ruptures in general. Herniæ really comprise three separate and distinct parts, viz., (a) the viscus; (b) the opening through which the viscus protrudes; and (c) the sac or covering of the viscus. Unless otherwise specified, these remarks concern the indirect form of hernia, which is the variety most commonly encountered.

Our best authorities, both English and American, lean towards the belief that the great majority of such herniæ are congenital, at least in the sense of a congenital predisposition, either in the form of an abnormally long mesentery, a relaxed abdominal wall, or, to quote Ashurst, "an imperfect closure of the ventral orifice of the vaginal process of the peritonæum and persisting patulousness of that canal."

Again, there may be an acquired predisposition, as laborious occupation, following pregnancy, or long illness. No less an authority than Da Costa directly refers to this latter question in the following words: "The common cause of hernia is repeated muscular effort which increases intraabdominal tension (straining at stool, coughing, lifting weights, jumping, the sexual act, and straining to make water). The sac exists for a longer or shorter time before the hernia enters it. The sac of a congenital hernia is present at birth; the sac of an acquired hernia gradually forms. A sac may exist for years and yet remain empty. When bowel or omentum enters it from some strain or effort, the parts were long prepared to receive the extruded mass. This extrusion may occur gradually; it may occur suddenly. If it occurs suddenly, the sufferer believes that his hernia was formed then and there, but as a matter of fact, the extrusion of bowel or omentum and its entrance into the sac are but the last of a long series of antecedent and preparatory changes. Finally, a hernia appears, and usually does so doing effort. In rare cases traumatism may cause a hernia immediately, no sac existing before the accident. It does so in the inguinal region by stretching or tearing the internal ring, the inguinal canal at once enlarging. Such a condition is a true traumatic hernia, traumatism being the sole cause and not simply the exciting cause."

Your attention is especially called to Da Costa's statement, "repeated muscular effort," in other words, the mere fact that a hernia is first noticed by the patient after lifting a heavy bucket of water, or after a violent fall, does not necessarily imply that the hernia in its entirety had been caused by this particular violence, but the way for the actual protrusion of the hernia had been formed by previous muscular effort, in other words, this last effort was the culminating ætiological factor, or, to use a familiar phrase, the straw that broke the camel's back. As a rule herniæ located at atypical places are traumatic in ætiology, because there is no predisposition

to a sac like formation, and the hernia was originally caused by an actual tear or separation of the tissues of the involved area protecting the part.

Umbilical herniæ, really classed as nontraumatic in character, often congenital, are usually first seen in childhood. However, traumatism sometimes increases the size of the hernia. In this respect traumatism is simply a question of augmentation and not a causative factor.

Incisional, or postoperative, herniæ following abdominal section, etc., are sometimes traumatic, the result of sudden violence. However, the traumatism in this respect is really an exciting cause, the predisposing cause being the devitalization of the parts already below par.

The direct form of inguinal hernia through the middle or inner portions of Hesselbach's triangle is not likely to occur as a result of traumatism, or otherwise, because the conjoined tendon and muscular structures at this particular part of the triangle constitute a natural barrier and form relatively a natural anatomical convexity from which the gut tends to slip off, in other words, this portion of the abdominal wall viewed from the inside presents less of a depression than is found either to the outer side of Hesselbach's triangle or below Poupart's ligament external to Gimbernat's ligament; as the bowel impinges on the abdominal wall, if it escapes at all, as noted before, it will naturally do so at some other place, which is the outer third of Hesselbach's triangle because of the lack of muscular and tendon support here. Therefore the rupture does not, as a rule, escape through the conjoined tendon, but to the outer side thereof. The internal ring is more of a natural pocket through which a hernia could and does escape, provided any abnormal weakness predisposes. In other words, the natural defence described in connection with the conjoined tendon is absent in this instance. When a direct inguinal hernia does occur through the inner part of Hesselbach's triangle, it is slow in development, being a gradual separation of the fibres of the conjoined tendon.

As might be inferred by what has just been previously mentioned, a direct inguinal hernia through the outer portion of Hesselbach's triangle is by far more likely to occur than the same variety of hernia through the inner side of Hesselbach's triangle, because of the relative weakness of the internal oblique and transversalis muscles at this point. However, such a hernia really lies in the oblique position, even though it conforms with the definition of the direct variety.

Broadly speaking, one of the chief principles of all operations for the radical cure of hernia is based upon this anatomical feature and position of the conjoined tendon, which constitutes a natural defence or protection against the development of a hernia. In other words, the very object of the different operations just referred to is to set up a mechanical defence so as to dam the way of the protruding gut, really a method fashioned after the principle involved in connection with the position of the conjoined tendon.

The reason why a certain per cent. of radical operations for herniæ fail is retrograde changes or loss of tone of the abdominal structures which are the seat of the operation. In other words, the blocking

resulting from the operation is not permanently established, which fact goes to show the great importance of carefully looking after the patient's post-operative general physical condition, both local and constitutional.

At this point I desire to call your attention to two varieties of inguinal herniæ, especially noted in older persons. Sudden violence occurs, protrusions may or may not appear immediately; however, some distress is not unlikely to be felt locally and even constitutionally. The patient is placed in bed, where he remains some time, and when he gets up he first notices the protrusion, which is explained on the ground of a general loss of tone, both constitutional (shock) and local, due to straining of muscles, omentum, etc.

As regards another factor besides the viscus in the formation of herniæ, an abnormal feature is the lengthening consequent upon the loss of tone of the ligaments, causing relaxation of that part of the bowel previously held up in normal position, and which is now, on account of the general ptosis, caught within the grasp of the ring. If ilium relaxation, it is simply mesentery; if it is cæcum, it is the ilio mesenteric ligaments.

Coming to the actual differences between chronic and recently acquired herniæ, I desire to call your attention to the following:

(a) With regard to the shape of the sac of the hernia, in the acute variety the protrusion at first is a mere bulging into the inguinal canal, forming a bubonocoele, the tumor being cone shaped, with the apex pointing outward and the base at the internal ring. As the hernia becomes subacute or chronic, it escapes through the orifice (external ring), increases in size, due to intra-abdominal pressure, changes its shape, the base becoming globular and pointing outward, while the apex of the cone-like mass forms into the neck of the sac and points towards the abdominal wall. In other words, from a topographical standpoint the form of the hernia is simply turned end to end as it proceeds from the acute into the subacute and chronic stages.

(b) Again, in the recently acquired hernia, the consistency of the muscular sac shows practically normal tone, while in one of long standing the sac is relaxed, flabby, and later presents that peculiar puckered appearance.

(c) In herniæ of the subacute or chronic stages, especially in the chronic stage, there is also present that peculiar pigmented appearance rather evenly distributed over the surface of the hernia, due to the separation of the muscular fibres and the resulting venous stasis in the superficial veins. The condition here corresponds to the *linea nigra*. In herniæ of some years' duration, the phenomenon just described is present in a marked degree.

(d) With regard to the shape and size of the ring, several important factors are centred here. In chronic herniæ the ring is abnormally large the edges thickened and smooth, due to friction and caused by the in and out movements of the viscus. This thickness and smoothness of the ring indicates slow formation. On the other hand, in acute herniæ the edges of the ring are thin and uneven. Another factor often met with in the region of the ring in these chronic herniæ is the thickening of the omentum, really adhesions felt above the ring, which con-

dition is not present in the case of the acute variety.

While discussing the subject of adhesions, of course, the omentum may be adherent within the sac to such an extent as to cause an irreducible omental hernia.

Contrary to what seems to be the general belief, the size of the opening of the ring is not of itself the all important factor in the formation of rupture. In at least ten per cent. of cases routinely examined one will find a ring larger than normal, yet in many of these cases no actual protrusion of a viscus exists, showing that the size of the ring is only one of several factors in the formation of a hernia. This is especially true in children. In some of the cases the ring is of such size as to raise a doubt, especially before you have the patient cough, as to whether a possible rupture might not be present, and this doubt is increased when in some instances a false impulse is felt upon coughing, which impulse really simulates a form of true hernia. The cause of the impulse mentioned is due to one of two things, viz., excessive fat around the cord, or a transmitted impulse from the conjoined tendon, which lies back of the external abdominal ring.

I might add, that in the case of children where a very recent hernia exists, especially after it has been reduced after having only been down a few times, there is often practically no difference in the size of the two rings. Consequently, the presence of a hernia is frequently overlooked.

(e) With regard to the reducibility of a hernia, a matter of great importance in medicolegal instances, a few points may be brought out in this respect. In the chronic form of hernia, on account of the large and smooth ring, unless adhesions are present, or strangulation, due to this or other causes, the hernia slips in and out without the least difficulty. Even in some of the larger herniæ when the patient lies down the hernia will reduce itself spontaneously, due to the large size of the ring, provided adhesions, air, or faecal matter do not interfere.

(f) With regard to the presence or absence of acute inflammation, which is also an important item, the recently acquired form of hernia is invariably associated with evidences of acute inflammation, viz., local swelling, heat, soreness, etc., due to two causes: First, the injured peritonæum, resulting from the stretching of the same, really a localized peritonitis; and, secondly, the recent tear of the abdominal muscular fibres, causing a localized inflammation and soreness, while in the old hernia the only source of inflammation present is due to irritation or possible inflammation of previously formed adhesions.

(g) As regards the shape and size of the inguinal canal, as is well known, the normal canal extends upwards, backwards, and outwards from the external to the internal ring, whereas in the acute form of hernia the internal ring is often pulled downwards and inwards until it is almost directly back of the external abdominal ring, and instead of being the normal length of the canal, one and one half inches, it is really insignificant (may be nothing), being only represented by the thickness of the abdominal wall.

(h) As regard the presence or absence of truss marks, which is an important mechanical factor as to whether the hernia existed prior to some particular accident, these truss marks, due to mechanical irritation, are familiar to all, and of course would

be absent in a recently acquired form. It is essential to examine for truss marks both anteriorly and posteriorly; also well to note these marks as to whether the patient has been wearing a single or double truss.

(i) Another thought in this direction, though a small matter, is one of some importance and has a bearing in the direction mentioned, and that is that when a truss has been worn for some length of time the pubic hairs are matted down, curled up and worn off to a considerable extent, due to mechanical pressure and friction.

(j) With regard to the scrotal herniæ so often met with where there is a large relaxed pouch it is unnecessary to state that such conditions can only be found in ruptures of years' standing. When such cases are encountered, it is well nigh impossible to associate them with any recent traumatism, except in the direction of possible augmentation.

(k) As regards the ability of a truss to support a hernia, I might add that a proper fitting truss should always hold in place a recent hernia, whereas in the chronic form often the best made and best fitted truss is a failure in the direction of holding the hernia in place on account of the large ring and large size of the tumor, together with the presence of possible adhesions, which always play an important rôle in irreducibility.

(l) As regards the constitutional effects of a recently acquired hernia, there is no doubt but that marked constitutional symptoms occur at the time of a recently acquired hernia result of traumatism, as the presence of nausea, vomiting, and explained on the ground of the interference with the splanchnic nerves, together with circulatory disturbances, i. e., shock.

In conclusion I give the following summary as regards the more important features contained in this paper relative to the diagnostic points between the varieties of herniæ under discussion:

RECENTLY ACQUIRED HERNIA.

Hernia is cone-shaped, base points inward, apex outward.

Sac shows good muscular tone.

Absence of pigmentation.

Ring is small, thin, and has uneven edges.

No signs of adhesions.

As a rule rather difficult to reduce, but returns easily.

Presence of acute inflammatory signs—redness, soreness, etc., due to the injured peritoneum, together with torn muscle fibres.

The inguinal canal is normal in outline.

Absence of truss marks.

Proper fitting truss should always hold hernia in place.

Pubic hairs are not disturbed, as no truss has ever been worn.

CHRONIC HERNIÆ.

Hernia apex inward, base globular and pointing outward.

Sac relaxed, flabby, and later is puckered.

Presence of pigmentation, due to separation of the muscular fibres of the sac and resulting in venous stasis in the superficial veins.

Ring is large, its edges thickened and smooth, due to friction (in and out movements of the viscus).

Thickening (adhesions) may be present, due to omental byperthrophy above and below the ring.

Reducible spontaneously and returns easily on account of large ring unless adhesions exist.

The only source of inflammation is due to friction or inflammation of previously formed adhesions.

The inguinal canal is displaced.

Truss marks may be present.

Best fitting truss may not be able to hold the hernia up.

Pubic hairs are worn off and curled up, the result of mechanical pressure if the truss has been worn for any length of time.

No constitutional disturbances, unless strangulation, etc.

Therapeutical Notes.

Ointment for Soft Chancre.—Szanto applies the following upon a piece of gauze, and covers it with an impermeable dressing:

R Salicylic acid,1.0 gramme;
Petrolatum,30.0 grammes;
Tincture of benzoin,2.0 grammes.

M.

Hydrogen Dioxide Tampons for Epistaxis.—Lermoyez (*Le Scalpel*, through *Lyon médical*, September 1, 1907) reported an obstinate case of epistaxis, which had resisted hot irrigations, and ferric chloride, but which had ceased promptly after the introduction into the nostril of tampons of absorbent cotton moistened with hydrogen dioxide. They were renewed three times and the bleeding stopped in ten minutes. The bactericidal effect is important, as well as the hæmostatic.

Treatment of Poisoning by Cresol Compounds.—Friedlander calls attention to the grave consequences of poisoning by compounds of cresol, especially lysol, which contains half of its weight of cresol (*Revue de thérapeutique médico-chirurgicale*, September 1st). He advises (as a result of experiment upon rabbits) to first wash out the stomach, and then administer sweet oil, or the whites of eggs in large quantity. Water should not be drunk, as it favors absorption of the poison.

Nephritis Following Use of Oil of Cade.—Swoboda (*Wiener klinische Wochenschrift*, June 6, 1907) reports the case of a child, four years of age, who received an application of an ointment containing 3 per cent. of oil of cade. Some hours later there was observed œdema and other evidences of nephritis, with tube casts in the urine. The latter was scanty and fell below 500 c.c. There could not have been in all more than 0.50 gramme (gr. viiss) of oil of cade absorbed. The child had never had œdema before.

Antiseptic Spray for Scarlatinal Ulceration of the Throat.—Gy and Claret (*Bulletin général de thérapeutique*, September 8, 1907) recommend the following combination to be used in a spray in young infants where it is difficult to make topical applications for scarlatinal sore throat:

R Salicylic acid,1.0 gramme;
Phenic acid,4.0 grammes;
Boric acid,20.0 grammes;
Tincture of eucalyptus,4.0 grammes;
Glycerin,50.0 grammes;
Alcohol,50.0 grammes;
Water (sterilized by boiling),
q. s. ad 1,000.0 grammes.

M.

Treatment of Tic Douloureux by Electrolytic Introduction of the Salicylic Ion.—René Desplats (*Journal des sciences médicales de Lille*, September 7, 1907) reports his experience with the method introduced by Leduc, of treating obstinate spasmodic neuralgia of the face, by electrolytic introduction of salicylic acid ions. He gives the clinical notes of those cases in which this method was successful. In all of them other methods of treatment had been unsuccessful, and in one the extirpation of the Gasserian ganglion had been under consideration. The treatment is easily applied. The negative pole is to be covered with absorbent cotton and moistened with

a solution of salicylic acid in distilled water (strength not stated). A current of 25 milliampères is passed for half an hour. This is reduced subsequently to 20 milliampères, and the time lengthened to one hour. The séances are repeated every three or four days, until all pain and tenderness have disappeared. In the most obstinate case, the symptoms had not entirely disappeared by the tenth sitting, but his condition was that of great comfort as compared with his previous one. In most cases the spasm of the muscles and the severe pain were observed to be relieved greatly by the first application, and the subsequent improvement was rapid. In fact, the results were so encouraging that the author states that in similar cases in the future he would always have recourse to this method at the beginning of the treatment.

Ointment Without Fat for the Treatment of Varicose Ulcers and Eczema.—Unna (*Journal de médecine de Paris*, September 15, 1907) uses the following formula:

R	Zinc oxide,	100 grammes;
	Gelatin,	100 grammes;
	Glycerin,	40.0 grammes;
	Water,	40.0 grammes.

M.

The gelatin is to be soaked in three fourths of the quantity of water, to which is then added three fourths of the glycerin, and the mixture heated on a water bath until solution is complete. The zinc oxide, or any other powder employed, is to be rubbed up in a mortar with one fourth of the glycerin, and the remainder of the water, and is next combined with the gelatin solution. This paste is applied, while warm, to the surface and a bandage is run on over it.

Results of Extirpation of Goitre.—Chalier (*Lyon médical*, September 8, 1907) reports the case of a woman, forty-three years of age, who had been suffering with goitre for twelve years. She also had the usual nervous symptoms, fine trembling of the fingers, eyelids, and the tongue, insomnia, and constant tachycardia (pulse, 140 per minute). The eyes, however, were not prominent, there was no nystagmus, no contraction of the visual field, no inequality of the pupils. There was only slight deficiency of synergy in the movement of the lids and of the globe, and a little difficulty in convergence. Patient demanded treatment for the tachycardia, as it was accompanied by insomnia and other evidence of nervous excitement. The growth was almost in the median line and about the size of an orange. There were no signs of compression of the larynx. An incision in the middle line, under local anesthesia of the skin, revealed the growth, which was readily peeled from its capsule. It was found to be an adenoma. The wound healed promptly. The point of interest is that there was an almost immediate cessation of Basedow's symptoms, after simple ablation of the goitre. The palpitations ceased, and the pulse rate came down to 100, the trembling disappeared, and the nervousness and insomnia gave no more trouble. The author remarks that both on clinical and therapeutical grounds we should separate cases of exophthalmic goitre from those of goitre without exophthalmos. The former are much more grave in character, and are never benefited by surgical means, whereas the latter are either improved

or cured by a simple operation for the removal of the affected thyroid body.

Extract of the Posterior Lobe of the Hypophysis as a Cardiac Tonic in Heart and Kidney Diseases.—A. Trerotoli (*Rivista critica delle cliniche medica*, through *Le Bulletin médical*, September 11, 1907), as the result of an experimental investigation made with the extract of the posterior lobe of the hypophysis, both in organic and functional heart disorders, and in kidney affections, declares that this extract, given hypodermically is a powerful cardiac stimulant. The extract was obtained from the posterior lobe of the hypophysis of an ox, in the following way: The lobe was isolated and crushed in a small mortar, and triturated with about three c.c. of normal salt solution, and then filtered. Each day, for three successive days, this filtrate was sterilized by boiling for ten minutes. In the clinical observations of the author, he injected hypodermically from one to four cubic centimetres. This was always followed by a strengthening of the pulse, which sometimes diminished its frequency; and this occurred equally in the cardiopathies and the nephrities; but it was observed particularly in cases with valvular lesions and hypertrophy of the left ventricle. The strengthening of the cardiac action was often accompanied by a disappearance of the arrhythmia. As regards the arterial pressure, it became slightly lower immediately after the injection, and increased later. These effects attained their maximum in fifteen or twenty minutes after the injection, and persisted for at least one hour. No unpleasant or unfavorable secondary effects were observed. The injections can be repeated two or three times a day without inconvenience.

Suppression of Hæmorrhoidal Losses as a Cause of Pemphigus.—Professor Armozan (*Journal de médecine de Bordeaux*, September 8, 1907) is disposed to regard hæmorrhoids as something more than purely local lesions, and thinks that in some cases, at least, they may serve, by the hæmorrhages to which they give rise, as a means of removing from the organism certain excrementitious substances, toxins, or noxious principles, which do not find a sufficient way of escape through the natural excretories. He reports the case of a man, fifty years of age, who had for years been a sufferer from bleeding hæmorrhoids, which appeared to be getting worse. He also had an eruption of pityriasis versicolor upon his chest, which had resisted all treatment. Otherwise, his health appeared perfect. A previous operation for the piles, having failed, he submitted to a radical operation by excision with the thermocautery. The results this time were entirely successful, and in a fortnight, he found that he could defecate readily, without pain, and without loss of blood. His health now continued good for several months, and the pityriasis spontaneously disappeared. Business and social duties became very pressing, and gave him much mental trouble; especially a death in his family profoundly affected the patient. At this time, he found, upon his chest, one morning a pemphigoid lesion the size of a large pea (initial). Shortly afterwards, others came on his back, his limbs, and even his face. Soon after, numerous themselves into groups, mostly on the forearm, the external aspect of the limbs, around the umbilicus, and on the flanks. There

were also a number of disseminated lesions. The bullæ formed crusts, but did not ulcerate. They generally lasted about eight or ten days, and appeared in successive crops, so that they could be seen in all phases of their evolution. The axillary lymphatics were much swollen, those of the groin less so. After a visit to the seashore in August (the disease had begun in March) for his health, the disease became much aggravated. In place of five or six a day, thirty or forty new lesions developed. The itching was most marked before the bullæ appeared. Rest was impossible, but appetite and digestion continued sufficient. The urine was normal. All the usual remedies produced no result beyond temporary alleviation. Local applications likewise failed. The condition was growing worse, and the patient was completely discouraged and threatened suicide. At this time, Arnozan determined to restore the blood losses, and adopted the following plan: (1) A leech to the anus daily; (2) two warm baths (25 to 30 minutes) daily; (3) use of a dusting powder of starch (50 parts), Venetian talc (40 parts), and bismuth subnitrate (10 parts); (4) stopping all internal medication, (5) every four or five days, giving thirty grammes of castor oil, on the day of taking the oil, the morning bath to be omitted; (6) the diet to continue as before (milk, starchy food, white meat). From the very beginning of this treatment the disease moderated and, on the day he took the oil, he had a short interval of relief and comfort. At the end of a month, the lesions were drying up, and only a few appeared from time to time. The face, back, anus, and trunk were cured, there remained only a few lesions on the thighs. The patient had regained health and energy, and could eat and sleep well. The baths were continued occasionally, and from time to time the castor oil was given as a precaution, and the diet was still restricted for a short time longer. He was then given from three to ten drops of Fowler's solution daily. The cure was soon complete. This occurred fifteen years ago and the patient has never had a return of the disease, but on the contrary, his health has continued excellent. The reporter concludes with some remarks upon the question of operation in bleeding hæmorrhoids. In one group of cases, where there is anæmia from loss of blood, the operation is necessary to stop this spoliation, and, after it is performed, the patient may require several months before the blood becomes normal. In a second group, the system accommodates itself to the small daily losses of blood, and when an operation is performed, a condition of plethora is soon observed. In certain patients this may lead to the appearance of some grave dermatosis; and in such cases the history of an operation for hæmorrhoids is important, and an examination of the blood both before and after such intervention would give, without doubt, useful indications from the point of view of both prognosis and treatment.

Bismuth Subnitrate Cure in Affections of the Stomach.—An interesting article by G. Lion appeared in the *Archives des maladies de l'appareil digestif*, August, 1907 (through *La Tribune médicale*, August 31st). He points out in this communication the fact that this remedy was appreciated highly by Trousseau and other physicians of the last century, but its use was almost entirely aban-

doned, because of the frequency of cases of poisoning, due to impurities in the drug. Recently, its use has been revived, especially in Germany. Hayem, at the Congress of Lisbon, gave a masterly review of its therapeutical applications. In its pure state, as now provided, it is absolutely innocuous. It is especially valuable in all cases of painful gastritis. It acts favorably on gastrorrhagia, and it also reduces abnormal fermentations. Owing to its chemical effect upon hydrochloric acid, it has been especially employed in the condition of hyperchlorhydria; but, as shown by Hayem, it can be used with equal success in hypopeptics and even among apeptics. The improvement is prompt and the relief very marked in all cases of painful crises of the stomach (early or late pains, cramps, burnings, intolerable pains, sensations of weight, uneasy feelings, unseasonable pangs of hunger, etc.). In severe cases, it may be impossible to give the bismuth at the beginning; but as soon as the acute period has passed, it can be exhibited with the most favorable results. Its calming effects are obtained generally during the second or third day of treatment, but more frequently not until the sixth day. In nervous dyspepsias, and in gastric crises of central origin, only temporary relief can be looked for. In gastric ulcer, its use has become classic, it relieves pain, stops reflex irritation, and its protective properties favor rapid healing of the lesion. Even in cancer of the stomach, its beneficial effects are sometimes remarkable in relieving pain, but they are only temporary, and the patients are obliged to take it constantly. This very fact of its long continued use is an indication of cancer of the stomach, which of itself may have some value in a case of difficult diagnosis. Bismuth subnitrate has a positive effect upon the reflex phenomena; retching, vomiting, eructations, which all cease at the same time as the pain. In hæmatemesis or gastrorrhagia, it has been employed with advantage. In place of giving small doses, it is advisable to give a single large dose, once daily, while fasting, of 10 grammes in 150 or 200 grammes of water. In a certain case of ulcer, the author observed this favorable action, and also found that, on discontinuing the remedy, the pains and hæmorrhages returned on two occasions; and that they again ceased upon resuming the treatment. The administration should be kept up for six weeks, in order to secure definite cessation of the accidents. The action of bismuth subnitrate in overcoming abnormal fermentation is of great service in numerous digestive disorders. There is only one contraindication to this remedy, and that is a stenosis of the gastrointestinal canal, wherever situated. In a case of cicatricial stenosis caused by a stomach ulcer, Hayem found a semisolid mass of bismuth held together by mixture with mucus, and constituting a real foreign body, the formation of which should have been avoided. In cases of moderate stenosis, single doses of bismuth may from time to time be given with advantage, providing its elimination be carefully supervised. The tendency to constipation, which has been alleged to be caused by bismuth, is rarely seen, and when it occurs is easily overcome by enemata of olive oil, or by simple injections. Sometimes its prolonged use is attended by looseness of the bowels; but this is readily controlled by suppressing the remedy for a time, or by diminishing the dose.

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AN EXPANSIBLE ARMY MEDICAL CORPS.

Everybody knows that whenever we have occasion to call a large volunteer army into existence its medical service is tardy in proper development and the troops suffer in consequence. There are several reasons for this unsatisfactory state of things. One of them is the fact that the medical corps of the regular army is not large enough to serve as an efficient nucleus of the large medical force required. Another is the radical error committed in the appointment of temporary medical officers from civil life on the sole ground of their capability as practitioners of medicine. War calls for men with some military training, whether in the line or in the staff.

In the October number of the *Military Surgeon* Major Frederick P. Reynolds, of the Medical Department of the army, presents an outline of a plan for the suitable expansion of the medical service in time of war. He estimates that for an army of 300,000 officers and men (including the present regulars and 200,000 volunteers) 1,800 medical officers would be required. If Congress should authorize the increase of the regular corps to 420, as is hoped, there would still be 1,380 medical officers to be obtained in addition. Major Reynolds would have the medical corps consist of 48 colonels, 72 lieutenant colonels, 420 majors, and 1,260 captains and lieutenants. He would make 14 new colonels, 30 new lieutenant colonels, and 125 new majors by advancing officers of the regular medical corps in active service one grade "by volunteer commission," and

raise all the remaining lieutenants to the rank of captain.

The additional medical officers to be appointed from civil life should be, so far as possible, men of experience in Cuba or the Philippines. At least they should have had training in militia regiments. Major Reynolds thinks that for a number of years to come enough men could be selected from the regular medical officers not in service at the time and from former contract surgeons. Volunteer promotion, he says, should be equally attainable by all medical officers. The scheme seems to us reasonable and feasible. It is certain that some plan ought to be adopted for guarding against repetition of our past mistakes. In the long run no army is more efficient than one made up of volunteers, but the early defects of a volunteer army are apt to lead to disaster, and they are certainly very costly.

THE PLEA OF INSANITY.

Dr. James Hendrie Lloyd, neurologist to the Philadelphia Hospital, contributed to the July number of the *American Journal of Insanity* a most interesting historical review of the subject of legal requirements and judicial procedures applying to the trials of alleged lunatics accused of murder and some other forms of felony. The gross injustice to the prisoner, which prevailed until less than a hundred years ago, is well contrasted with the exaggerated leniency of the present day, when the accused is petted instead of persecuted, and that, too, quite without regard to the manifest certainty of his having committed the act charged against him or to the absurdity of his counsel's plea of insanity.

It seems that in England until the year 1836 the accused was not allowed to have counsel, and it was not very long before that that his right to call witnesses was allowed. The theory was that the judge was also the counsel for the prisoner, charged with seeing to it that no injustice was done him and that he was not convicted except on evidence that was unmistakable. "When," says Dr. Lloyd, "a reader of to-day tries to imagine the notorious Judge Jeffreys acting as counsel for a prisoner on trial before him for treason to the house of Stuart, he gives up the attempt." He tells of the case of an insane apothecary who, after ten weeks of solitary confinement, was dragged into court and tried for high treason. He was then "in such a mental state that even the court saw plainly that he was 'moped mad.'" Nevertheless, he was hanged.

The defense of insanity was sometimes set up in old times, but it was so rarely effective that in time it came to be hardly ever resorted to. It is difficult to understand by whom the plea was brought forward, unless it was set up by the judge for the pur-

pose of being knocked down, for the real victim of delusional insanity resents, even at the risk of his life, the imputation that he is insane, and in the times under consideration persons accused of high crimes were not allowed counsel. However, the plea was sometimes made, and in that case the accused was required to prove his own insanity; that is to say, he was required to attempt to demonstrate that he was insane when he himself not only denied it, but strenuously resented the suggestion. In certain forms of insanity the victims are intellectually very capable. We all know how clever they are in argument. If we grant their premises (founded on delusions), we are forced to admit the validity of their conclusions. Hence it often happened that the very ingenuity shown by the accused in trying to prove himself insane was taken as proof positive of his sanity. This is not strange when we remember that in a trial held within the last two hundred years we find it laid down in the judge's charge that a man cannot be acquitted on the defense of insanity unless he is "totally deprived of his understanding and memory, and doth not know what he is doing, no more than an infant, than a brute, or a wild beast." This was in the year 1724. It was not until the reign of George III that the doctrine was established that proof of an insane delusion was a good defense.

There is this to be said, according to Dr. Lloyd, in palliation of the old practices, that the jurists of the times were keenly alive to the possible abuses of the defense—"to all the arts and wiles and trumped up pleas that make our present criminal trials too often such public scandals." Undoubtedly the pendulum has swung too far in the direction of leniency, which is not always intentional on the part of judge and jury, but often the necessary result of faulty legislation. One hardly knows whether there is the greater horror to be felt over the cruelty of past times or over the exaggerated tenderness of the present day.

A NEW METHOD OF ARTIFICIAL RESPIRATION.

At the Seventh International Physiological Congress Professor E. A. Schaefer, of Edinburgh, demonstrated his new method of performing artificial respiration in man, which appears to be better than the older methods that are ordinarily practised. In this procedure, which is especially valuable in the resuscitation of the apparently drowned, the person, on removal from the water, is instantly laid prone on the ground, the head being allowed to fall downward and somewhat sideways, with the tongue naturally protruding partly from the mouth. No manipulation of the tongue is necessary. The operator kneels by the side of or across the hips of the patient,

places his hands flat upon the back over the lowest ribs, and with the weight of his body presses firmly and gradually so as to expel the contents of the lungs. On his relaxing the pressure, which he does by swinging his body slowly up without removing the hands, the chest of the patient resumes its former dimensions and fresh air is thereby drawn into the lungs. These movements of pressure and release are repeated about every five seconds, not oftener. The amount of air which in this way can be expelled by pressure from the chest and reintroduced by the elasticity of its parietes is never less than 500 c.c. and may attain 1,000 c.c. or more with each respiration. By repeating the movements twelve times a minute an air exchange of from 6,000 to 12,000 c.c. can readily be effected, which is more than enough to constitute efficient respiration. This Professor Schaefer demonstrated on the passive living subject, by the use of a face mask and a spirometer.

The supine posture, practised by Howard, is not so good as the prone one, for it has the following disadvantages: With the patient on his back the tongue tends to fall toward the pharynx and to block the passage of air; water and mucus tend to accumulate at the back of the mouth and in the pharynx and nostrils; in exerting pressure upon the front of the chest there is a risk, especially in elderly subjects, of fracturing the lower fixed ribs; the liver in cases of drowning is greatly congested and enlarged and extends considerably below the lower margin of the ribs, and if much pressure is exerted upon this region there is danger of producing rupture of the organ; the amount of air expelled by pressure in the prone posture is much greater than in the supine, for in the prone posture the pressure is exerted equally over the abdomen and the thorax, and the viscera are pushed upward and thus force the diaphragm to decrease the capacity of the thorax decidedly.

Comparative measurements on normal passive subjects have demonstrated that for periods of time beyond one or two minutes the method of Professor Schaefer gives more air exchange than any other, although when single measurements are taken some of the older procedures seem to be the more efficacious. It should be kept in mind, however, that in practising artificial respiration it is necessary to keep up the procedure for more than a minute or two, and that the most efficient method is the one that gives the best results for long periods of time. The application of pressure by this method is less fatiguing than by any of the others; such as the Silvester, the Pacini, and the Marshall Hall. With the methods just mentioned it has been found impossible to keep up artificial respiration in a normal but passive subject for any length of time, on account of the

discomfort and the relative inefficiency of the air exchange. By the new method artificial respiration has been maintained in a passive normal subject for as long as an hour without any fatigue to the operator and without any *besoin de respirer* on the part of the subject.

The method has already been tested with success in cases of drowning, and those who saw the demonstrations made by Professor Schaefer on the passive living subject were impressed with its simplicity and its efficiency. It should be preferred to all other methods in attempting the resuscitation of drowned persons, and should be given a prominent place in courses of ambulance and first aid instruction.

ACUTE POLIOMYELITIS IN NEW YORK.

There is abundant evidence from the reports of the various hospitals and dispensaries in the city to warrant the assertion that New York has been having an epidemic of this disease. Beginning in July, the cases mounted rapidly in August and September, and even at the present time fresh outbreaks are not infrequent. It is not now possible to obtain any adequate estimate of the number of patients afflicted, but it is not an exaggeration to say that the cases probably amount to thousands.

It is practically the only epidemic of this disease that New York city has known, at least within the memory of the present generation of practitioners, and the evidence is rapidly accumulating that the present epidemic is showing many of the features already fairly well emphasized for other epidemics, particularly those that have been well studied. Additional features, however, are being revealed which are by no means so well known, and an opportunity has been offered to many to observe them in a number of cases.

As is the case in epidemics of many other diseases, the gamut of symptomatology shows a much wider variation than that which is ordinarily observed. Thus, many very extensive and rapidly fatal cases, showing the implication of the medullary nuclei on the one hand, have their counterpart in a larger number of milder, transitory cases which end in complete recovery; cases in which paralysis is comparatively transient, persisting for a few weeks or even in some cases only a few days. In these latter cases evidence is afforded of the functional disturbance by hyperæmia, by toxæmia, or by other manifestations thus far little appreciated.

The ætiological factors are as yet obscure. It is possible that help will come from a systematic study of the present epidemic, since active measures for a thorough investigation have already been put in

motion by the New York Neurological Society and the Pædiatric Section of the New York Academy of Medicine. The evidence thus far is negative. Dr. Flexner has reported to both the bodies just referred to an absence of positive signs so far as examinations of the cerebrospinal fluid are concerned. This fluid has been free from bacteria, and has presented no morphological elements characteristic of any inflammatory process. Blood investigation thus far has contributed little, Dr. Heiman reporting from Mt. Sinai Hospital only moderate degrees of leucocytosis, and in many examinations made the blood changes have been *nil*. Work on the intestinal contents is being systematically carried out, but results have not yet been arrived at.

From the clinical point of view, the evidence is cumulative that in many children the initial symptoms present many features of meningeal irritation. The intense headache and pain in the back of the neck, with rigidity, photophobia, and stiff muscles, have made a diagnosis from cerebrospinal meningitis very difficult in the early stages, and in a large number of cases the development of the paralysis has been very slow, some cases being reported in which the paralytic symptoms have appeared as late as the fourth, fifth, sixth, or even the seventh day of the disease. In a large number of children pain has been a prominent feature, and neuritis and rheumatism have been suspected.

While large numbers of the cases have shown the course which has been classical since the days of Duchenne and of Charcot, yet reports are frequent of the comparative mildness of the disease, in spite of widespread and at first alarming developments. Thus, a number of cases have been reported in which involvement of all the extremities has been noted, even with medullary extension, yet many of these already show signs of a probable complete restitution.

The therapeutic procedures which have been suggested do not depart from the recognized lines of treatment. Rest is essential—hot packs, or hot baths even prolonged, ice caps, mustard plasters to the spine, and careful attention to the intestinal functions are the main reliances, and the experiences of the present epidemic emphasize the futility of a too early energetic treatment of the paralyzed limbs by massage, electricity, or forced movements.

We can only emphasize the wish that the physicians of New York and other large cities, for New York is not alone in its affliction, cooperate heartily with the efforts which are being made by the societies mentioned to make a thorough investigation of this disease, which maims and cripples so many, not when man is ready to lay his work aside, but when life has only just begun.

News Items.

Change of Address.—Dr. De Santos Saxe, to 72 West Forty-fifth Street, New York.

Philadelphia Change of Address.—Dr. Charles A. Fife, to 318 South Fifteenth Street.

The Wesley M. Carpenter Lecture was delivered at the New York Academy of Medicine on Thursday evening, October 17th, by Dr. Edward A. Ayers, of New York, on the subject, *The Mosquito as a Sanitary Problem*.

The New Rochelle, N. Y., Medical Society.—At a meeting of this society, held on October 14, 1907, officers were elected as follows: President, Dr. C. C. Guion; secretary and treasurer, Dr. C. T. Stevens.

The Society of Physicians of the Village of Canandaigua.—At a meeting of this society, held on Thursday, October 10th, Dr. W. B. Clapper read a paper on *Iritis: Its Diagnosis and Treatment*.

Faculty Changes in the Jefferson Medical College.—Dr. Edward R. Stitt, of the United States Navy, has been appointed lecturer on Tropical Medicine; Dr. John H. Gibson has been appointed professor of surgery and of clinical surgery.

A Pasteur Institute was opened at the University of Minnesota in August, and has been under the charge of Dr. Orinna McDaniel. Seventeen persons, says *Science*, have received treatment for threatened rabies.

The Herter Lectures, before the Medical Department of the Johns Hopkins University will, according to *Science*, be given this session by Edward A. Schäfer, LL. D., F. R. S., professor of physiology in the University of Edinburgh, at the end of April, 1908.

The New Haven County, Conn., Medical Association.—The semiannual meeting of this association will be held at Waterbury, Conn., on Thursday, October 24, 1907, under the presidency of Dr. R. A. McDonnell, of New Haven. Dr. W. S. Barnes, of New Haven, is secretary of the association.

The Medical Department of the Western University of Pennsylvania.—The twenty-fifth annual session of the medical department of the Western University of Pennsylvania began on Tuesday, October 1st. Chancellor S. B. McCormick delivered an address on *The Ideal Physician*.

The Fifth District Branch of the Medical Society of the State of New York.—At the annual meeting of this society, held at Syracuse, on October 3, 1907, officers for the ensuing year were elected as follows: President, Dr. W. M. Gibson, Utica; vice-president, Dr. Gilbert D. Gregor, Watertown; secretary, Dr. Frank E. Fox, Fulton; treasurer, Dr. William D. Garlock, Little Falls.

New City Hospitals.—Contracts for two new hospitals have been awarded by the commissioner of charities. One of the hospitals will be on Staten Island and the other on Ocean Parkway, Coney Island. The latter will be the first new city hospital to be erected in Brooklyn in thirty years; the former will be known as the Sea View Hospital and will be erected on an eminence overlooking the lower bay.

The Buffalo Academy of Medicine.—At a meeting of this academy, held under the auspices of the *Section in Pathology*, on Tuesday evening, October 15th, the following programme was offered: *The Viability of the Typhoid Bacillus Under Normal Conditions*, by Dr. H. D. Pease, Albany; *Multiple Epitheliomatosis: Report of a Case*, by Dr. A. E. Woenert.

The Hartford, Connecticut, Medical Society.—At the October meeting of this society, held on Monday evening, October 8th, the subject for discussion was the *Toxæmias of Pregnancy*. Papers relating to the subject were read by Dr. C. B. Brainard and Dr. T. W. Chester, and the subject was discussed by Dr. C. E. Taft, Dr. M. A. Bailey, Dr. T. F. Kane, Dr. P. H. Ingalls, and others.

The Shenandoah County, Va., Medical Society.—The physicians of Shenandoah county have organized the Shenandoah County Medical Society. The officers are: Dr. D. D. Carter, Woodstock, president; Dr. A. P. Belew, Edinburg, first vice-president; Dr. M. R. Bruin, of Strasburg, second vice-president; Dr. W. F. Driver, of Newmarket, secretary and treasurer.

The Tri State Medical Society of Arkansas, Louisiana, and Texas, will hold its annual meeting at Shreveport, La., on November 13, 1907. The present officers of the society are: President, Dr. Holman Taylor, Marshall, Texas; vice-presidents, Dr. J. L. Wilson, Alexandria, La.; Dr. A. V. Williams, Hot Springs, Ark.; and Dr. J. Becton, Greenville, Texas.

The Detroit Academy of Medicine.—At the annual meeting of this academy, held on Tuesday, October 8th, the following officers were elected: President, Dr. F. B. Tibbals; vice-president, Dr. W. F. Metcalf; secretary and treasurer, Dr. H. D. Jenks; director, Dr. Justin E. Emerson. After the business meeting the members were entertained at an informal dinner given by Dr. Delos L. Parker, the retiring president.

The Vermont State Medical Society.—At the annual meeting of this society, held at St. Johnsbury, on October 10 and 11, 1907, the election of officers resulted as follows: President, Dr. George H. Gorham, of Bellows Falls; vice-president, Dr. J. F. Blanchard, of Newport; secretary, Dr. C. H. Beecher; treasurer, Dr. B. H. Stone; and auditor, Dr. J. H. Blodgett, of Burlington. Rutland was selected as the next place of meeting.

Philadelphia Personals.—Dr. H. W. Martin, of Carnesville, Ga.; Dr. F. A. Hartley, of Byhalia, Ohio; and Dr. William F. Blake, of San Francisco, Cal., are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

Dr. Hubley R. Owen has been appointed chief surgeon of the police and fire departments of the city of Philadelphia.

Meetings of Sections of the New York Academy of Medicine.—The *Section in Medicine* held a meeting on Tuesday evening, October 15th. The *Section in Genitourinary Surgery* met on Wednesday evening, October 16th. A meeting of the *Section in Ophthalmology* will be held on Monday, October 21st. The *Section in Obstetrics and Gynecology* will hold a meeting on Thursday evening, October 24th.

The Medical and Surgical Society of the District of Columbia.—The first meeting of this society for the season was held on October 2nd, at the home of Dr. A. R. Shands. Officers were elected as follows: President, Dr. Wade H. Atkinson; vice-president, Dr. W. C. Gwynn; secretary and treasurer, Dr. Truman Abbe. Dr. Shands read the address of the acting president, and Dr. E. L. Morgan presented a paper on *The Influence of Food on the Human Life*.

The Utica Medical Society Library Association.—At the annual meeting of this association, held on Monday evening, October 7th, officers for the ensuing year were elected as follows: President, Dr. F. W. Smith; vice-president, Dr. R. L. Baker; secretary, Dr. William H. Beattie; treasurer, Dr. J. Hume Baldwin; librarian, Dr. Smith Baker. The board of directors was reelected, with the exception of Dr. C. W. Crumb. Following the meeting refreshments were served.

The Wayne County, Michigan, Medical Society.—In accordance with the usual custom of this society of honoring all its members who have been in practice for forty years, the society will tender a dinner to Dr. H. O. Walker, of Detroit. At the last meeting of the society a committee was appointed to make the necessary arrangements. At this meeting Dr. Charles D. Aaron read a paper on the *Present State of Our Clinical Knowledge of Pancreatic Affections*.

The Windham County, Conn., Medical Society.—The semiannual meeting of this society will be held at Danielson, on Thursday, October 31, 1907. The programme for the meeting includes the following titles: *What Shall be Done in Dysuria of the Male?* by Dr. S. B. Overlook, of Pomfret; *The Work of the Sanatorium as a Preventative and Cure of Tuberculosis and the Needs of Our State Along this Line*, by Dr. D. R. Lyman, superintendent Gaylord Farm Sanatorium, Wallingford, Conn.; *Atropine*, by Dr. George M. Burroughs, of Danielson.

Charitable Bequests.—Mrs. Amelia J. Harjes has donated \$5,000 to the German Hospital of Philadelphia, to establish a free bed in the memory of her mother, Bertha Everts Hessenbruch.

By the will of John McDermott, the Little Sisters of the Poor, St. John's Orphanage, the Home for Aged Veterans, and their Wives, and the Catholic Home for Destitute Children will receive \$2,000 each. St. Joseph's Hospital

and the German Hospital of Philadelphia will receive \$1,000 each upon the death of the testator's widow.

The Medical Department of the University of Texas.—The following changes have been made in the medical department of this university: Dr. Henry C. Haden, clinical professor of diseases of the ear, nose, and throat, has resigned, and will be succeeded by Dr. Seth M. Morris, professor of chemistry; Dr. James J. Terrill will succeed Dr. A. E. Thayer in the chair of pathology, the latter having resigned some months ago. Dr. Terrill's title will be acting professor of pathology and bacteriology. The college opened on October 1st, with 137 matriculates, 82 of whom are new men.

Scientific Society Meetings in Philadelphia for the Week Ending October 26, 1907.—*Monday, October 21st*, Medical Jurisprudence Society; Northeast Branch, Philadelphia County Medical Society. *Tuesday, October 22nd*, Medical-Legal Society; Philadelphia Neurological Society. *Wednesday, October 23rd*, Philadelphia County Medical Society. *Thursday, October 24th*, Pathological Society; Entomological Section, Academy of Natural Sciences; Section Meeting, Franklin Institute. *Friday, October 25th*, South Branch, Philadelphia County Medical Society; Northern Medical Association.

The Court Cuts Down a Physician's Fee.—The suit of a St. Louis physician against a medical man of New York for \$16,000 for professional services rendered the son of the defendant, has recently been terminated by the filing of a stipulation for dismissal in the St. Louis Circuit Court, by which the plaintiff must pay the costs and accept \$5,000, the amount originally offered by the defendant. The verdict of a jury, which in 1903 awarded the plaintiff \$12,666, was set aside as excessive, the Supreme Court holding that a wealthy man should not be required to pay more for medical services than a poor man.

An Institution in Honor of Dr. Robert Koch.—According to *Science*, a committee has been formed in Germany, with the Prussian Minister of State as chairman, to found an institution in honor of Dr. Robert Koch. It is intended that the institution shall be devoted to research into the means of checking the diffusion of tuberculosis and that it shall be a permanent memorial of the discovery of the tubercle bacillus by Professor Koch twenty-five years ago. Appeal is made for contributions sufficient to make the institution a tribute of gratitude to Koch, similar to those with which the name of Pasteur has been honored in France and that of Lister in England.

Tuberculous Cows on Randall's Island.—According to press reports it has been found that the entire herd of cows, thirty-two in number, kept on Randall's Island to supply fresh milk to the employees of the Children's Hospital and School, is infected with tuberculosis. The herd has been condemned by the State Department of Agriculture and will be destroyed. There are about nine hundred children of all ages on the island. For the infants and those in the hospital wards nearly twelve hundred quarts of pasteurized milk is used, which is sent over from Manhattan every morning. The milk from the condemned herd was used by employees and visitors.

Philadelphia Pathological Society.—At the annual meeting of this society, held on Thursday evening, October 10th, the following officers were elected for the ensuing year: President, Dr. Joseph McFarland; vice-presidents, Dr. Allen J. Smith, Dr. David Riesman, Dr. David L. Edsall, and Dr. A. O. J. Kelly; secretary, Dr. Albert P. Francine; treasurer, Dr. Fred H. Klaer; curator, Dr. Frank A. Craig; membership committee, Dr. J. Funke, Dr. W. T. Cummins, Dr. Edward M. L'Engle; committee on morbid growths, Dr. Randle C. Rosenberger, Dr. Edward A. Schumann, Dr. George P. Müller; publication committee, Dr. David Riesman, Dr. John D. Wilson, Dr. Howard K. Hill, Dr. Joseph Evans; business committee, Dr. David L. Edsall, Dr. A. O. J. Kelly, Dr. David Riesman, Dr. W. M. L. Coplin, Dr. Warfield T. Longcope.

A Tuberculosis Exhibit at Lawrence, Mass.—An exhibition illustrative of means and methods for the treatment and prevention of tuberculosis, opened in City Hall Law room, on October 10th, to continue until October 26th, under the auspices of the city government of Lawrence, the board of health, the trustees of the White Fund, and the Lawrence Medical Club. The exhibition is composed of photographs, charts, models, and specimens brought together from different parts of the country, and illustrative

of the methods now employed for the treatment of tuberculosis in hospitals, in sanatoria, and at home; and also of means for preventing the spread of tuberculosis from one person to another. A large part of the material of the exhibition is loaned by the National Association for the Study and Prevention of Tuberculosis, 105 East Twenty-second Street, New York city.

The Mortality of Chicago.—According to the report of the department of health, for the week ending October 5, 1907, there were during the week 565 deaths from all causes, as compared with 566 for the corresponding week in 1906. The annual death rate in one thousand of population was 13.98. The principal causes of death were: Apoplexy, 17; Bright's disease, 45; bronchitis, 10; cancer, 34; consumption, 65; convulsions, 7; diphtheria, 8; heart diseases, 40; influenza, 1; intestinal diseases (acute), 83; nervous diseases, 22; pneumonia, 49; scarlet fever, 3; suicide, 5; typhoid fever, 9; violence (other than suicide), 37; whooping cough, 2; all other causes, 128. There were 145 deaths of children under one year of age; 52 between one and five years of age; 34 of persons between five and twenty years of age; 228 between twenty and sixty years of age; and 106 over sixty years of age.

The Medical Association of the Greater City of New York.—A meeting of this association will be held at the New York Academy of Medicine, on Monday evening, October 21st. The programme arranged for this meeting is as follows: The Stomach and Some of Its Affections: (a) The Origin and Destination of Hydrochloric Acid, by Dr. William H. Porter; (b) Lack of Gastric Mucus and Its Relation to Hyperacidity and Gastric Ulcer, by Dr. J. Kaufmann; (c) The Surgical Treatment of Gastric Ulcer, by Dr. Otto G. T. Kiliani; (d) On Modern Methods in the Medical Treatment of Gastric Diseases, by Dr. Achilles Rose; (e) On Modern Methods in the Surgical Treatment of Gastric Diseases, by Dr. Franz Torek; discussion by Dr. Willy Meyer, Dr. Robert T. Morris, Dr. Richard Ward Westbrook, Dr. Robert Coleman Kemp, Dr. Jonathan G. Wells, and others.

The Medical Society of the County of Ontario, N. Y.—The annual meeting of this society was held at Canandaigua, on Thursday, October 8th. Officers for the ensuing year were elected as follows: President, Dr. C. P. Merritt, of Clifton Springs; vice-president, Dr. E. B. Sayre, of Allen's Hill; secretary and treasurer, Dr. D. A. Eiselne, of Shortsville; censors, Dr. S. B. Mead, Dr. F. E. McClellan, and Dr. J. H. Pratt; delegate to State Medical Society, Dr. A. L. Beahan; alternate, Dr. J. H. Jewett; delegate to district branch, Dr. George Means; alternate, Dr. W. B. Clapper. The chief interest of the meeting centered in the presence of Dr. L. F. Wilbur, of Honoyee, whose fifty years of membership in the society was appropriately celebrated at the banquet which followed the business meeting, and Dr. Wilbur was made the recipient of a handsomely bound copy of Richard Croley's story, *Tarry Thou Till I Come*.

The Medical Society of the County of Steuben, N. Y.—The semiannual meeting of this society was held at Corning, on Tuesday, October 8, 1907. The following programme was presented: Vice-president's address. Subject: The Responsibilities in Performing Post Mortem Examinations, Dr. H. B. Smith, of Corning. Remarks on the Early Diagnosis and Treatment of Pulmonary Tuberculosis, by Dr. Howard I. Davenport, of Canandaigua; Some Points of Interest to the Medical Fraternity, by Dr. E. W. Bryan, of Corning; Sleeping Out of Doors: Its Importance as a Prophylactic and as a Curative Measure in Tuberculosis, by Dr. W. H. Proctor, of Corning; The Ontario County Tuberculosis and Its Work, by Dr. Howard I. Davenport, of Canandaigua; Puerperal Infection, by Dr. Charles R. Phillips, of Hornell. The officers of the society are: President, Dr. Charles O. Green, of Hornell; vice-presidents, Dr. H. B. Smith, of Corning, secretary and treasurer, Dr. W. W. Smith, of Avoca.

The Associated Physicians of Long Island will hold their twenty-ninth stated meeting at the Garden City Hotel, Garden City, N. Y., on Thursday, September 26, 1907, at 8 o'clock. The programme includes the following subjects: The Prevention of Tuberculosis, by Dr. L. N. Lanehart, of M. Piller, Brooklyn; discussion by Dr. L. N. Lanehart and others; A Contribution to the Tetanus Investigation, by Dr. C. H. Jones, of Brooklyn; and a paper by Dr. W. L.

Pith of Current Literature

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 10, 1907.

1. The Need of Popular Lectures on Insanity,
By HENRY B. STEEDMAN.
2. Heredity in Diseases of the Nervous System, with Special Reference to Heredity in Epilepsy,
By PHILIP COOMBS KNAPP.
3. Henrik Kellgren and His Method of Manual Treatment,
By EDGAR F. CZYIAK.
4. The Question of "Justifiable Homicide,"
By CHARLES GREENE CUMSTON.

2. **Heredity in Diseases of the Nervous System.**—Knapp, in explaining the aetiology of epilepsy, cites the following case: Three older brothers in a family were strong and well. The youngest, always a delicate child, became epileptic. The grandparents on both sides showed no special indications of disease. The parents were healthy until the close of their lives, but they died two years after the birth of this patient, the one of cancer and the other of tuberculosis. No history of nervous disease or epilepsy existed in the family, but is there any question that the diseases which affected the parents led to a defect in the germ plasma and the production of a weaker child in whom epilepsy might develop? Such he believes to be the true interpretation of much of the so called neuropathic predisposition. Some morbid process, constitutional disease, chronic intoxication, infection, or local injury to the generative tract causes pathological changes in the germ plasma, and these changes give rise to a general constitutional weakness in the progeny. The child is not simply a neuropath or a psychopath—he is a weakling. The constitutional weakness shows itself, as we often see, in the various stigmata of defective development and in general physical weakness—a weak digestion, a small thorax, a hypoplastic aorta, deficient circulation, poor teeth, slender frame, delicate muscles, undeveloped sexual organs, a small spinal cord, and the like. Given this constitutional weakness as a consequence of pathological changes in the germ plasma, various forms of nervous weakness may develop from extrinsic causes which determine whether the weakness shall be manifested in the nervous system, and if so, in what particular way it shall appear. In this way, too, acute infections may temporarily injure the germ plasma, so that the offspring conceived or in utero during the acute infection may show marked neurotic phenomena, while offsprings conceived before and after the period of infection may be healthy, and the parents themselves may be for the rest of their lives in perfect health. This explains the alleged preponderance of nervous defects in the children of alcoholic subjects, or the French "children of the siege." Unless, however, there be some general or local cause of injury to the germ plasma, it is doubtful whether any acquired mental or nervous disease of the ancestors can be the starting point of a pathologically tainted family, or even of sporadic cases of disease in the descendants.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

October 19, 1907.

1. The Treatment of Exophthalmic Goitre,
By FREDERICK J. BARKER.
2. Medical Treatment of Exophthalmic Goitre,
By RUTH E. PEARCE.
3. The Surgical Treatment of Exophthalmic Goitre,
By ARTHUR ROBERTS.
4. Operations and the Practical Results of Stereotyped Inoculation with Bacterial Vaccines,
By G. W. RANS.
5. Variability and Unreliability in the Determination of the Opsonic Index,
By BENJAMIN A. HUBBARD.
6. The Venous Drainage,
By ARTHUR R. CROSBY and E. C. GIBSON.

7. Early Postoperative Intestinal Obstruction,
By C. C. FREDERICK.
8. The Prevention and Treatment of Postoperative Intestinal Obstruction,
By DANIEL H. CRAIG.
9. Successful Treatment of Acute Postoperative Ileus by Incision and Drainage of the Intestine, with Report of Four Cases,
By FRANCIS D. DONOGHUE.
10. The Present Status of the Transmissibility of Bovine Tuberculosis as Illustrated by Infants and Young Children,
By HARRY LARNED KEITH SHAW.
11. Further Experiments with the Woodtick in Relation to Rocky Mountain Spotted Fever,
By R. T. RICKETTS.

1, 2, and 3. **Exophthalmic Goitre.**—Barker speaks of the diagnostic signs. He says that besides the three cardinal symptoms—struma, tachycardia, and exophthalmus—there are a very large number of other symptoms and signs to be considered, some of them more important than the exophthalmus as diagnostic aids because more frequent and characteristic. The thyroid gland is enlarged in the majority of cases of the disease. Since we have been taught how to recognize slight enlargements, the reports of exophthalmic goitre without goitre have grown fewer, and some authors go so far as to deny the existence of an exophthalmic goitre without struma. It does exist, however. The whole gland is, as a rule, uniformly involved, giving rise to the well known horseshoe shaped projection, but one lobe may be larger than the other. The struma is not large as a rule; the patient may even not have noticed the thickening of the neck. A characteristic feature is the granulation of the surface, usually easily recognizable on palpation and due to the lobular hyperplasia. Most important, from the diagnostic standpoint, are the vascular peculiarities of the goitre, it is always a struma vasculosa. The telangiectasis is recognizable (1) by the visible pulsation of the goitre, (2) in many instances by the palpable systolic expansion, (3) by the palpable thrill, and (4) by bruits audible at the point of entrance of the thyroid arteries (especially the superior) into the gland. In the semiotic trinity the increased frequency of the heart beat is the most constant and most important sign. The pulse rate is practically always over 90 and may exceed 200 beats to the minute. A rate between 110 and 150 is very common, and the patients usually notice subjective palpitation; sometimes they complain of it bitterly. The exophthalmus is the most striking of all to the casual observer when it is present. It is entirely absent in about one third of the cases, and even in many of the other two thirds it may be so slight as not to attract attention. It is necessary to distinguish between apparent exophthalmus due merely to widening of the palpebral fissure and true protrusion objectively demonstrable as a shortening of the distance between the supraorbital margin of the frontal bone and the anterior pole of the eyeball (measurement with exophthalmometer). The former is, as a rule, a more important factor in the changed facial appearance than the latter. The prominence is usually bilateral and continuous; it may be unilateral and the intensity may vary from time to time. The muscular tremor noted by Grassmann and Schöberl is of great diagnostic importance along with the pycnocardia and the struma; it is so frequently present that one inclines with Marie to designate it as a fourth cardinal sign. The tremor is rapid and vibratory, there being as many as eight to ten oscillations per second in marked contrast with the slow tremor of paralysis agitans. Other symptoms of diagnostic importance are throbbing of the carotid arteries and abdominal aorta, the cardiac accentuated sounds and murmurs, the characteristic anxiety and restlessness, the strong or slight exertion in young persons, the Graefe sign and other ocular symptoms, the skin pigmentation and vasomotor instability, and the metabolic changes, loss of weight, etc. The diagnosis is typical unless it is absent, but of the inconstant and atypical cases there may be difficulty.

Once the clinician has learned to observe the physical symptoms, the goitre heart, the psychic symptoms, etc., there is rarely room for doubt.—Preble says that the greatest diversity of opinion rules as to medical treatment of exophthalmic goitre. There is much collateral evidence in support of the idea that fundamentally this disease is a neurosis, and independently of whether this is true or not a very considerable proportion of the patients must be or are, at least for a time, best treated along these lines. One of the most important and constant of the symptoms is the increase in tissue waste, a fact which immediately suggests the advisability of rest and of abundant proper nutrition. The degree of rest required varies in different patients and in the same patient from time to time, and ranges from absolute and prolonged rest in bed to a mere restriction of activities. The rest should be both physical and mental. Change of climate is often important. He also mentions baths of various sorts, electric treatment, x rays; of the drugs, iron preparations, arsenic, iodides, digitalis, the bromides of sodium and potassium; preparations made from the thyroid, thymus, suprarenal, ovaries, and testicles; and finally antitoxic and cytotoxic preparations. After this discouraging review of the methods of medical treatment, it would seem as if all cases should be treated surgically, and yet he thinks that many, possibly a majority of the cases, should continue to be handled by medical methods, for one must always remember that the natural evolution of the disease is toward recovery.—Kocher states that out of 3,460 operations for goitre performed in Professor Kocher's clinics in Berne, 315 have been done on 254 patients afflicted with exophthalmic goitre. They have had in the last ninety-one operations on sixty-three patients not a single death, and, in the whole, they have lost only nine patients out of 254; that is to say, 3.5 per cent. There is no doubt that this percentage will still be lowered. If it is asked why they have had a lower mortality than formerly, the answer is a very definite and short one. It is not only because of their improved technique, but because experience has shown that more prudence and care is necessary for operations in this disease than for the majority of other operations. It is not that in a greater number of cases surgical treatment has been refused, for, on the contrary, they have been able to operate in nearly all, but because they have learned to judge of the gravity of a case and to decide accordingly the extent to which the patient will stand operative measures. Three points are important for every surgeon to know before he attempts operation for exophthalmic goitre: The strength of the heart, proper proportion of increased blood pressure to the degree and contrary to the tachycardia; the degree of intoxication presented by the patient; the condition of the blood, especially the lymphocytosis. The question, can we cure the disease by operation he answers in the affirmative. He states that there is not a single case of theirs in which the patient has not been much benefited by the thyroid operation. They have cured by their operation patients in 83 per cent. of all their cases. There were 73 per cent. of the patients with the so called primary disease healed; 92 per cent. of the patients having the disease combined with ordinary goitre, and 100 per cent. of the patients with vascular goitres. Some of the observations date back fifteen and seventeen years since the time of observation, without recurrence of the disease, provided that the operation was carried so far that vascular symptoms of the thyroid disappeared completely. In cases of this type the patients were all completely cured, so that no symptom of exophthalmic goitre remained. But the time required for recovery had varied greatly, it being especially long before the heart and eyes became normal again. Dr. Kocher concludes in saying that operation on the thyroid gland gives the possibility of an entire cure

of the disease. "Whether we admit a primary irritation of the sympathetic nerve, and, therefore, an increased metabolism of the gland, or a primary increase of thyroid material and from it an irritation of the sympathetic system, or both, it amounts to the same thing so far as the thyroid operation is concerned. By reducing the hypertrophic thyroid tissue or reducing its blood supply, we reduce the possibility of too extensive reaction to the primary cause and also enable the gland to adapt itself to counteract new outbreaks of primary causes which a nervous subject can easily show."

5. **Variability and Unreliability in the Determination of the Opsonic Index.**—Thomas observes that the phagocytic index is, as a rule, directly proportional to the strength of the bacterial suspension, which in all cases where consecutive comparative studies are to be made should be standardized by definite enumeration of the bacteria pro c.mm. Opsonic indices dependent on the supernatant suspension of bacteria, following mere centrifugation and the bacterial suspensions obtained by standardization with McFarland's "nephelometer," are fallacious. For a certain time phagocytosis is directly proportional to the period of incubation. After this time degeneration of the leucocytes renders a trustworthy determination of phagocytosis impossible. Phagocytosis does occur at room temperature, but incubation at 37° C. (98.6° F.) for most bacteria is more conducive. Spontaneous phagocytosis or mere adhesion of bacteria to leucocytes may be a factor in the production of erroneous opsonic indices. In any event, opsonins do not appear to be the sole agents concerned in the ingestion of bacteria by leucocytes. Not fewer than 100 leucocytes should be counted in estimations of phagocytosis, and these enumerations should include large lymphocytes and transitionals as well as polymorphonuclears. In short, the higher the leucocytic count the truer the index. Maintenance of body temperature during the process of technique seems to influence beneficially the phagocytic index. Sudden fall of temperature acts conversely. The inconsistency of the phagocytic index for normal individuals is apparently confirmed by the unreliability of the opsonic index for pathological cases. Aging of bacterial cultures (six to twenty-four hours) seems not to affect materially the phagocytic index. Aside from the technical difficulties, the question of personal equation involved in opsonic determinations is so serious as practically to nullify the value of the method in most instances. Simon's percentage index is apparently of more value from the practical standpoint than Wright's phagocytic index because of its relative constancy and comparative ease of determination. The experiences of the majority of observers indicate that the diagnostic value of the opsonic index is minimal. The consensus of opinion favors the belief that, prognostically, some utility attaches to the opsonic index, especially in the field of tuberculosis and in the laboratory where it can be applied to test the virulence of organisms and the strength of sera whose value depends on opsonins. In the heralded unlimited field of therapy, where the opsonic index is ordained to play a star rôle, its utility seems destined to pass into oblivion, not only because of its inconstancy in agreement with the clinical symptomatology, but especially because of its impracticability.

11. **Further Experiments with the Woodtick in Relation to Rocky Mountain Spotted Fever.**—Ricketts has established the following points concerning the relationship of the Rocky Mountain woodtick to the spotted fever of western Montana: Infected ticks exist in the so called infected districts in nature. Both the adult male and the adult female may acquire the disease by feeding on an infected animal, and may transmit it to a normal susceptible animal for a period of several weeks thereafter. During either of its inter-

mediate active stages, larval or nymphal, the tick may acquire the disease in the same manner, retain it during moulting, and prove infective when it reaches the subsequent active stage. The infected female may transfer the disease to her young through the egg. It is possible that this does not happen in all instances, and it is quite certain that the brood of an infected female may include many uninfected larvae. This seems to have been proved in three of his experiments in which the infectivity of the females had been proved before oviposition; the larvae in these experiments failed to infect normal guinea pigs. The virus exists in both the salivary glands and the gut of infected ticks at a certain time, and since it also invades the generative organs of the female the condition is probably one of a generalized infection, at least for a period. The disease is not highly destructive for the tick. At least two important steps may now be taken in an aggressive fight against the disease: First, a thorough dissemination of the knowledge that the tick is the agent of infection; second, a massive reduction of the number of ticks in infected districts by means now used in the destruction of the cattle tick of the southern States. Extermination of the tick in the mountains will not be possible so long as native wild animals inhabit the soil and roam the hills. On the other hand, it is known locally that the number of ticks in the Bitter Root Valley has increased enormously as greater numbers of domesticated animals have been introduced, and the latter now seem to be the chief hosts for the tick.

MEDICAL RECORD

October 12, 1907.

1. The Specific Action of Radium as a Unique Force in Therapeutics. By ROBERT ABBE.
2. Practical Venereal Prophylaxis. By DENSWLOW LEWIS.
3. Septal Perforations; Their Closure by Plastic Operation. By CHEVALIER JACKSON.
4. Syphilis and Massage. By ROBERT W. TAYLOR.
5. The Presence in Vaccine Virus of Bacilli and Spores Resembling those of Tetanus. By ROBERT N. WINSTON.
6. Management of the Third Stage of Labor. By JOHN W. WINSTON.

1. **The Specific Action of Radium.**—Abbe observes that radium ranks, not with caustics, cautery, antiseptics, or medication, but with specifics. This does not mean a "specific" for cancer, in the popular sense, but for erratic cell growths constituting some types of tumor tissue in the earlier stage of invasion, or of moderate development. Details of the methods of using it have not yet been fully worked out. The dosage, so to speak, or time of exposure necessary for curative action, is as yet empirical. Some apparent cures of small epitheliomas or sarcomas have endured already more than three years. A photographic plate provides a good test, to show the working force of an unknown specimen, in comparison with one of standard strength. It is not entirely a mysterious force, but, in part at least, is an electric discharge, essentially of negative elements. Hence, as far as it is possible to say, it suggests a theory of its action, in that it may supply an element of electric force vital to normal and orderly growth, the loss of which may have caused a disorderly cell growth which, in the aggregate, constitutes tumor masses. It is supplementary to Röntgen rays, and, in some cases, is efficient where they fail. The overaction of strong radium is destructive and vitiates the benefit of moderate doses. The best results have followed the use of a low dose of the working unit, 100,000. The rays will grow slowly, and three to four hours on larger ones, with an interval of one month for making the effect. The minimum of the parts during treatment is the surface of action. Fragmented cells, epithelial growths, and large cell sarcoma. Also epithelioma of the eyelid, face, and body are particularly susceptible to its curative action, as a specific agent. But the value in second and third

matous tumors is due to its irritant action, producing obliterating endarteritis and fibroid changes.

2. **Practical Venereal Prophylaxis.**—Lewis, of Chicago, offered the following resolutions at the fifty-seventh annual meeting of the Illinois State Medical Society, which may appeal to other States as well: We favor in the Illinois State Medical Society the appointment of a standing committee on venereal prophylaxis which shall direct an active and vigorous campaign against the spread of venereal diseases, and shall report annually to this society regarding legislative, educational, restrictive, preventive, and therapeutical means best calculated to limit these diseases. We recommend the appointment of a similar committee by every county medical society which, in harmony with the committee of the State society, shall act for the best interests of the community, in reference to prophylaxis, as mature deliberation shall determine to be most desirable. While deprecating the sensational and alarming statements promulgated by the mercenary charlatan, we favor an educational propaganda which shall teach the truth, and we advise in every community increased facilities for gratuitous treatment of all venereal patients. In lieu of all present laws against "obscene" literature, we favor that the young be safeguarded against corrupting information by laws which shall put the postal matter of the immature wholly within the control of parents or guardians. We favor such other proper legislation, having application only to the immature, which shall be so definite in meaning that there will be no doubt as to what is prohibited, and which will not preclude any adult from acquiring full and complete information regarding all scientific subjects. We recommend the amendment of all national and State laws so as to declare that no prohibition in them contained shall be deemed to apply to any serious discussion of sexual facts or conditions or of any branch of science dealing with sexuality, or of any sociologic, moral, or religious questions connected therewith, as against those who write or publish the same for circulation or exhibition in good faith among persons of legal age, and who, in good faith, deliver them by mail, express, or otherwise, only to individuals of legal age.

3. **Syphilis and Massage.**—Taylor, of New York, reports a case of a patient who had been infected with syphilis by the manipulation of a massage operator. The salient features were as follows: The patient's masseur was affected with recent active syphilis, and had had a severe sore mouth and a swollen neck. The information was forthcoming that the buccal and pharyngeal lesions, thought to be diphtheritic, caused the patient much discomfort and to copiously secrete saliva; he constantly slobbered and dried his mouth with his fingers and the backs of his hands. This action he performed very frequently. The healthy patient having simple efflorescences over the legs and arms was infected by a luetic masseur in his vigorous ministrations, his hands becoming soiled with the secretion of mucous patches. The patient showed development of multiple syphilitic chancres, seventeen in all. There was evolution of successive chancres in the intrapiratory stage, a not uncommon instance of superinfection. The first lesions appeared presumably about thirty eight days before the secondary climax and their successors eleven days before that event. The development of preponderant papules, however, took place about the time the eruption was erythematous.

BRITISH MEDICAL JOURNAL

For the latest information on the treatment of Syphilis, see the new book, "The Treatment of Syphilis," by Dr. P. H. HARRISON, M.D., F.R.C.S., and Dr. W. H. W. WATSON, M.D., F.R.C.S., published by the Medical Press, Ltd., 11, Abchurch Lane, London, E.C. 4.

3. A Consideration of Some of the Factors which Contribute to Success in Abdominal Operations,
By J. H. DANBER.
 4. A Case of Primary Epithelioma of the Vagina, Showing Autoinoculation or Contact Infection,
By A. J. WILSON.
- (Seventy-fifth Annual Meeting of the British Medical Association.)

Section of Psychological Medicine.

5. Progress in the Treatment of Mental Diseases,
By T. C. SHAW.
6. Discussion on Alcohol and Insanity,
Introduced by F. W. MOTT.
7. Three Cases of Periodic Dementia, By C. A. MERCIER.
8. The Galvanometer as a Measurer of Emotions,
By F. PETERSON.
9. On the Presence of a Bacillus in the Blood of Persons Suffering from General Paralysis of the Insane,
By G. M. ROBERTSON.
10. On Investigation Into the Incidence of Diphtheroid Organisms in General Paralysis of the Insane,
By J. P. CANDLER.
11. A Discussion on Hypnotism,
Introduced by J. F. WOODS.

12. The Teaching of Psychology in Medical Schools,
By A. T. SCHOFIELD.

Section of Diseases of Children.

13. Prolapse of the Rectum in Children, with Fifty Cases,
By P. L. MUMMERY.
14. Retropharyngeal Abscess,
By H. I. PINCHES.
15. Observations on the Purpura of Children,
By H. R. DEAN.
16. The Acetonæmic Conditions of Children,
By F. LANGMEAD.
17. Interscapulothoracic Amputation,
By E. M. CORNER.
18. Some Cases in Which Meckel's Diverticulum Was Present,
By H. T. GRAY.

6. **Alcohol and Insanity.**—Mott divides the cases of alcoholic insanity met with in asylums into two great groups: 1. Those with a *locus minoris resistentie* in the nervous system by which there is intolerance to alcohol. These cases are the most numerous. II. Those in which chronic alcoholism, usually in conjunction with some other factor, such as syphilis, tuberculosis, microbial toxæmia, arteriosclerosis, head injury, or organic brain disease, induces sooner or later either delirium tremens, polyneuritic psychosis, or alcoholic hallucinosis. Cases belonging to Class I can seldom drink sufficient alcohol extended over a sufficient time to produce cirrhosis of the liver with ascites. Class II, however, includes cases of alcoholism affecting persons of an inborn stable mental organization as a rule, consequently it is in such cases that the few cases of fatty or cirrhotic liver are seen. The changes in the brain in alcoholic dementia are not marked as a rule, and do not account for the symptoms as they do in general paralysis, where the dementia is proportional to the amount of cortical destruction.

9 and 10. **Bacteriology of General Paralysis of the Insane.**—Robertson has studied the blood and cerebrospinal fluid in fourteen cases of general paralysis of the insane. The period was that during, or within one hour of, a congestive seizure. He found in seven cases a diphtheroid organism not identical with the *Bacillus paralyticans* of Robertson. The writer holds that although the bacillus might not be the cause of general paralysis, it was of importance in the symptomatology of the disease. He found the same bacillus in other forms of insanity in acute cases.—Candler reviews the work of Robertson and McCrae who assert that a Klebs-Loeffler bacillus of modified virulence has the power of giving to general paralysis its special paralytic character. They recognize two distinct species of diphtheroid bacilli—*Bacillus paralyticans longus*, and *Bacillus paralyticans brevis*, assigning to each of these two types definite and specific pathogenic properties. The main grounds on which they base their statement to have discovered a specific organism, are as follows:

1. The discovery of a diphtheroid organism in great fre-

quency in the various tissues of general paralytics, especially in the alimentary, respiratory, and genitourinary system. 2. When rats are fed for a long time with cultures of this organism, symptoms and lesions comparable to general paralysis are produced in these animals. 3. Improvement occurred in eight cases of general paralysis and one of tabes, followed by relapse in several weeks, which had been treated with specially prepared vaccine.

16. **Acetonæmia in Children.**—Langmead groups the patients whose urine shows diacetic acid and acetone, as follows: 1. Those usually showing no symptoms of acidosis. Among these are cases of excessive fat ingestion, starvation, high fevers, gastric ulcer, malignant disease, all due to deprivation of carbohydrates. 2. Those who, while having other diseases, have also symptoms of acid poisoning, but masked by the primary condition. Such are patients with diabetes, intracranial disease, and certain poisons, such as morphine, phloridzin, and sodium salicylate. 3. Those who suffer from uncomplicated acidosis which *per se* may end fatally. These are the subjects of delayed anæsthetic poisoning, and recurrent, cyclical, or periodic vomiting conditions which may be designated by the term "cryptogenic acidosis." The symptoms of acidosis are dulness and apathy, increasing to drowsiness and coma; the face is flushed, the eyes are bright, and there is great thirst. An odor of acetone may be detected on the breath. The urine contains acetone, diacetic acid, and sometimes beta oxybutyric acid. There is extremely rapid wasting, and hyperpyrexia may occur at the end. The writer sums up his conclusions as follows: 1. Acetone and diacetic acid are found in the urine in a number of conditions, and may be, but are not necessarily associated with symptoms of acidosis. 2. Delayed anæsthetic poisoning and cyclical vomiting are instances of acidosis of unknown origin. 3. Anæsthetic poisoning is due to the state of anæsthesia more than to the particular anæsthetic. 4. The acetone series is a product of the imperfect oxidation of fats, so that in these conditions the oxidizing powers of the tissues must be inadequate. 5. This is further shown by the condition of the liver. 6. The failure of oxidation is probably due to too great a supply of fat rather than to a deficiency in oxidizing power. 7. This is probably brought about by toxins acting like phosphorus. 8. The determining cause of acidosis is the accumulation of the precursors of acetone. 9. Anæsthetics are dangerous to patients who are the subjects of acidosis.

LANCET.

September 28, 1907.

1. Some Problems in Connection with the Suprarenals,
By H. D. ROLLESTON.
2. The Prevention of Malaria in British Possessions, Egypt, and Parts of America,
By R. ROSS.
3. A New Operation for Penile Hypospadias,
By R. T. H. BUCKNALL.
4. On the Displacements Produced by Pleural Effusion,
By G. E. SMITH.
5. Excision of the Parotid Gland, with Preservation of the Facial Nerve: Its Possibility,
By T. CARWARDINE.
6. The Increase of Diseases of the Nervous System and Insanity,
By W. W. IRELAND.
7. The Treatment of Rheumatoid Arthritis,
By W. J. MIDELTON.
8. Notes on Certain Fatal Forms of Pharyngeal Diphtheria,
By A. HARRIS.
9. The Treatment of Mammary Carcinoma by the Local Ingestion of Pancreatic Ferment,
By R. MORTON and H. E. JONES.
10. A Clinical Study of Paralysis of Sudden Onset and Wide Distribution: Five Cases of Landry's Paralysis; One Case of Acute Infectious Multiple Nematosis; and One Case of Myeloma Gravis,
By J. W. PUTNAM.

1. **The Suprarenal Glands.**—Rolleston discusses certain problems connected with the secretion and func-

tions of the various portions of the suprarenal glands. Three views have been put forward as to the function of the cortex: (1) That it is connected with growth, especially of the sexual organs; (2) that it is antitoxic; and (3) that it plays some part in the elaboration of the internal secretion of the medulla. *A priori*, it would seem improbable that the cortex discharges all three functions, but it is suggested that each of the three zones of the cortex—zona glomerulosa, zona fasciculata, and zona reticularis—performs a different function. The correlation of the cortex with sexual growth, is the most definite thing known. As regards the medulla, complete absence of its internal secretion is met with in Addison's disease. This is proved by the inactive condition of such suprarenal glands when tested physiologically. The suprarenal medulla may also be devoid of adrenalin in patients dying from chronic exhausting diseases. It is possible that intestinal toxins may so act on the cells of the adrenal medulla as to produce an internal secretion of such an abnormal character that the normal process of transformation of any excess into an inactive body cannot be carried out by the tissues. The excess of such an abnormal adrenalin might conceivably cause high arterial pressure, arteriosclerosis, and the allied morbid changes.

7. **Rheumatoid Arthritis.**—Midelton, for the last six years, has been treating rheumatoid arthritis with counter-irritation of the spine by means of blisters applied in the neighborhood of the cervical and lumbar enlargements, and has found it most useful. This plan of treatment is based on the fact that clinical observation has taught that injuries to the spinal cord or even to the nerves of a limb will set up arthritic changes which cannot readily be distinguished from those seen in the earlier stages of rheumatoid arthritis. The changes in the joints and the muscular wasting are due to irritative and destructive lesions located in the spinal cord and especially in the cervical and lumbar enlargements. This is Latham's theory, and while the author thinks rheumatoid arthritis to be due to a cerebrospinal toxæmia, yet treatment based on these views has given good results.

8. **Fatal Diphtheria.**—Harris has observed that in certain forms of diphtheria a fatal ending can with certainty be predicted. The symptoms presented by these cases are as follows: 1. A grayish color of the face, which also presents an anxious expression. 2. Vomiting, which is independent of food and unaccompanied by nausea, being like cerebral vomiting. 3. Abdominal pain, referred to the umbilicus, nearly always present, and sometimes very severe. But there is no abdominal tenderness. 4. Albuminuria is generally present, and often to a high degree (from one sixth to one quarter). There are no tube cases. 5. Suppression of urine is the rule. 6. Alteration in the rhythm of the heart sounds appears after the vomiting has set in. One sound is reduplicated, thus giving the gallop rhythm. The patients are generally very restless and consciousness is maintained until the end. The membrane in the throat is very dark colored and the smell of the breath is most offensive. The writer has seen eight such cases in the last two years, all proving fatal. Antitoxine had not the slightest effect on these cases, 6,000 units being the usual dose. Scarcely from the throat does large numbers of streptococci and streptococci associated with diphtheria bacilli. To explain the failure of antitoxine it is suggested that there may be more than one kind of diphtheria bacilli, each producing a different toxin which requires a special antitoxine.

9. **Trypsin in Cancer.**—Morton and Jones report the results of the treatment of four cases of cancer of the breast by the local injection of pancreatic ferment. Three of the cases had been operated upon, and the fourth was one of inoperable fungating carcinoma. In three out of the three operative cases there was marked

local recurrence manifest in two. X rays were also used in addition to the trypsin. Increasing doses of trypsin were given, a fresh bottle being used on each occasion, and strict aseptic precautions observed. The injections were made into the skin and subcutaneous tissue near the site of the growth. Excepting for slight relief of pain for about a week in the atrophic case, no good whatever resulted either as regards the disease itself or the general condition of the patient. In one case, indeed, the dissemination of the disease was very rapid, and was probably caused by the injections. The pain was increased eventually in every case, and when larger injections were used, inflammation and occasionally suppuration occurred.

LA PRESSE MEDICALE.

September 27, 1907.

1. The Use of Electric Colloid Metals in the Infectious Fevers, By Professor CARRIEU.
2. The Phagocytic Function of the Giant Cell, By F. DAELS.
3. The Employment of Apomorphine in the Diagnosis of Bulbar Diseases, By J. FERREIRA.
4. Amputations, By VICTOR VEAU.
5. Insufficiency of the Vertebral Column, By R. ROMME.

1. **The Use of Electric Colloid Metals in the Infectious Fevers.**—Carrieu reports three cases, one of erysipelas, one of smallpox in a nonvaccinated child, and one of typhoid fever with meningitis, in which he used colloid metals with very beneficial results, as he thinks, on the fever.

2. **The Phagocytic Function of the Giant Cell.**—Daels agrees with the theory of Metschnikoff that the giant cell is not a product of destruction, but on the contrary, a destructive power, and that it exerts its phagocytic ability in the clearing away from the system of dead bacilli.

3. **Apomorphine in the Diagnosis of Bulbar Diseases.**—Ferreira suggests that in doubtful cases a moderate dose of apomorphine hydrochlorate is injected and if vomiting does not follow the presence of a grave bulbar lesion is indicated. By this means a distinctive diagnosis can be made between true and false bulbar paralysis.

4. **Amputations.**—Veuu is furnishing a series of papers on amputations which, although not containing much if anything that is new, deserve mention on account of the terseness of the descriptions and the excellence with which the operations are illustrated. In the articles in the two preceding numbers Veuu dealt with the amputations of the fingers and hand, in the present article he deals with amputations of the forearm and of the arm. The description is terse, choppy in fact, but clear, the illustrations number fourteen, and yet the article occupies less than two pages.

September 27, 1907.

1. The Part Played by the Mucous Membrane in the Pathogeny of Lupus Vulgaris, By HENRI CABOCHÉ.
2. The Cause of the Infection of the Mucous Membrane of the Larynx in the Case of Tuberculosis, By J. FERREIRA.
3. The Cause of the Infection of the Mucous Membrane of the Larynx in the Case of Tuberculosis, By J. FERREIRA.
4. A New Method of Treating Lupus Vulgaris, By J. FERREIRA.
5. The Cause of the Infection of the Mucous Membrane of the Larynx in the Case of Tuberculosis, By J. FERREIRA.

1. **The Part Played by the Mucous Membrane in the Pathogeny of Lupus Vulgaris.**—Caboché considers that in the last stages of some types of lupus the infection is produced through the mucous membrane of the larynx. The mucous membrane of the larynx, when treatment of the nasal mucous membrane is able in certain cases to follow a full treatment of the lupus of the face, and therefore the mucous membrane of the larynx is a source of dissemination of the disease. These are treat-

ment of the nasal mucous membrane is of primary importance in the treatment of lupus vulgaris of the face.

4. **New Model for a Syringe.**—Lhomme presents a syringe with the following characteristic points: Conical form of the lower end of the barrel and end of piston, the use of special substances in the construction of the piston and the joint at the upper end of the barrel, the possibility of using at will a syringe with the barrel of metal, or of glass, and a special method of fixation of the needle.

LA SEMAINE MEDICALE.

September 25, 1907.

1. Consideration of Cancer of the Breast at the Congress of American Surgeons, By Professor R. DE BOVIS.
2. Experimental Studies in Regard to Hepatic Syphilis, By J. MILBET.

2. **Experimental Studies in Regard to Hepatic Syphilis.**—Milbet says, in his last sentence, that his researches go to show the existence of an experimental hepatic syphilis.

BERLINER KLINISCHE WOCHENSCHRIFT.

September 16, 1907.

1. The Place of Paratyphus in the Typhus Group, By JÜRGENS.
2. Are Injuries Produced by Salt Infusions? By R. RÖSSLE.
3. Experiences with von Pirquet's Tuberculin Reaction, By ENGEL and BAUER.
4. Concerning Multiple Tumors in the Central Nervous System, By O. MASS.
5. The Epidemiological Importance of the Influenza Bacillus, By J. RUBEMANN.

1. **Paratyphus.**—Jürgens asserts that paratyphus is a disease distinct from typhoid fever, as it is caused solely by the paratyphus bacillus, but does not present a single clinical or pathological condition. Sometimes the bacillus produces a general typhoid disease, at other times a local disturbance with perhaps typhoid symptoms, as for instance, gastroenteritis with typhoid symptoms. Its actual relationship to typhoid has not yet been definitely determined.

2. **Are Injuries Produced by Salt Infusions?**—Rössle reports two cases in which infusion of salt solution was resorted to in vain to save life after severe hemorrhage, together with the anatomical findings at autopsy, and questions from the latter whether the salt solutions did not do actual harm.

3. **Von Pirquet's Tuberculin Reaction.**—Engel and Bauer find from their experiences that while there is evidently a close relation between the cutaneous reaction of the skin to tuberculin and tuberculosis at least in young children, yet a positive reaction does not reveal with certainty the presence of tuberculosis.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

October, 1907.

1. The Ætiology of Tuberculosis, By M. B. RAVENEL.
2. The Ætiology of Certain Cases of Left Sided Intra-abdominal Suppuration. Acute Diverticulitis, By G. E. BREWER.
3. The Estimation of the Functional Power of the Cardiovascular Apparatus, By R. C. CABOT and R. B. BRUCE.
4. The Treatment of Illuminating Gas Poisoning by the Direct Transfusion of Blood, By G. W. CRILE and C. LENHART.
5. The Examination of the Fæces for Occult Blood, with Special Reference to the Value of the Benzidin Test, By E. H. GOODMAN.
6. Factors Influencing the Early Diagnosis of Gastric Carcinoma, By W. J. STONE.
7. Diffuse Dilatation of the Oesophagus Without Anatomical Changes, with the Report of a Case Due to Chronic Cardiospasm, By W. LECHE.
8. Pancreatic Lithiasis with Chronic Interstitial Pancreatitis Followed by Diabetes Mellitus, By A. D. ATKINSON and J. L. HIRSH.
9. The Effect of the Age, By A. S. HAMILTON.

10. Atrophy of the Parathyreoid Glandules and Other Glandular Structures in Primary Infantile Atrophy, By R. L. THOMPSON.
11. A Tumor of the Mitral Valve, By L. BLUMGART.
12. The Posterior Median Pleural Boundary with Reference to Grocco's Sign, By W. J. CALVERT.
13. The Diagnosis of Cerebrospinal Meningitis by Cultures from the Blood, By J. M. BIRNIE and M. T. SMITH.

1. **The Ætiology of Tuberculosis.**—Ravenel reaches the following conclusions: 1. The alimentary tract is frequently an avenue for the entry of the tubercle bacillus. 2. The bacillus has the ability to pass through the intact mucous membrane of the alimentary tract without any resulting lesion at the point of entrance. Such a procedure occurs most readily during the digestion of fats. 3. The bacilli pass with the chyle through the lacteals and thoracic duct into the blood. By the blood current they are carried to the lungs, where they are retained by the filtering action of the tissues. 4. Infection by way of the alimentary canal is of very frequent occurrence in children. 5. Milk from tuberculous cows is the source of infection in many cases. Our present knowledge does not enable us to state the exact percentage of cases of tuberculosis which are due to this cause. 6. Tuberculosis can be communicated by personal contact, by kissing, by soiled hands, by accidental injuries in the dead house, by cleansing vessels which have been used by the tuberculous, etc. But such modes of infection play but a small part in the dissemination of the disease.

3. **The Estimation of the Functional Power of the Cardiovascular Apparatus.**—Cabot and Bruce refer to a large group of cases in which nothing is learned by auscultation and percussion, nor by the study of the palpable vessels and the examination of the peripheral parts and internal organs for evidence of passive congestion even with the addition of radioscopic examination and blood pressure measurement. For diagnosis, prognosis, and treatment in such cases, it is necessary to supplement all these different measures of cardiac examination by others which are designed to measure the functional capacity of the cardiovascular apparatus. Several methods of this character have recently been suggested by German writers. The authors' experience with these methods, especially with that of Gräupner, induces the hope that ground has been gained in the direction of functional cardiac diagnosis.

4. **The Treatment of Illuminating Gas Poisoning by the Direct Transfusion of Blood.**—Crile and Lenhart note that in asphyxia from poisoning by carbon monoxide there is stimulation of the central nervous system, followed by paralysis, the order being brain, spinal cord, and medulla. If patients are breathing well when rescued the blood is freed from carbon monoxide in about three hours. If the respiration is shallow a much longer period of time is necessary. Any measure which tends to shorten the period during which the blood is impaired will tend to prevent the late symptoms due to tissue injury. The treatment heretofore has consisted in artificial respiration, fresh air, oxygen, heat, refraining from all effort, stimulants, including caffeine, strychnine, camphor, digitalis, etc., venesection, and transfusion. Experiments made by the authors upon fifteen dogs showed the following results: Of cases in which the heart had stopped: (1) Blood transfusion saved three out of six; (2) intravenous saline injection, none saved; (3) simple manipulation, none saved. Of cases in which the heart had almost stopped: (1) Blood transfusion saved four, one died; (2) intravenous saline injection, none saved. The authors' conclusions are: 1. Blood transfusion seems to be of greater therapeutical value than other measures. 2. Transfusion should be commenced as soon as the heart stops beating to ensure the best results. It will not be efficacious after the heart stops finally.

5. The Examination of the Fæces for Occult Blood, with Special Reference to the Value of the Benzdin Test.—

Goodman arrived at the following conclusions: 1. The benzdin test is to be recommended unreservedly for fæces, gastric contents, and urine. The objection to its extreme sensitiveness is invalid, as a control may be made by other tests. If the benzdin test is negative the specimen may be considered free from blood. A positive reaction may be checked with the guaiac or the aloin test, or both. 2. Schlesinger and Holst's reasons for advocating this test are regarded as adequate. 3. Only the chemically pure benzdin should be used. 4. The quantities of the reagents must be carefully observed and the test tubes must be clean. 5. All disturbing organic and inorganic factors must first be removed. The diet and medication must be carefully regulated. If the fæces show a positive reaction for blood, another stool should not be examined until such regulation has been accomplished, otherwise the clinical importance of the test is uncertain.

6. Factors Influencing the Early Diagnosis of Gastric Carcinoma.—Stone affirms that early diagnosis of this condition must remain the important factor leading to permanent amelioration. Of the important early subjective symptoms he mentions simple dyspeptic disorders, anorexia, flatulency, and general diffuse abdominal discomfort four or five hours after eating. Vomiting, hæmorrhage, pain, and tumor are usually late symptoms. The suspicion of malignancy usually rests upon the ordinary physical examination. The test meal and the stomach are essential adjuncts to a diagnosis, but a complicated apparatus is not essential, and the same is true concerning complicated analyses. Free hydrochloric acid is absent in most of the cases in which symptoms of malignancy are present. Occult blood in the stools and stomach contents is believed to be of real diagnostic value. Tissue fragments, pyloric stenosis, and gastric rigidity are of less diagnostic value than has been asserted by various writers. Blood examination reveals nothing distinctive for early diagnosis. Exploratory operation is the measure which is of greatest importance, and Mayo's statement is approved that "a suspicion of cancer of the stomach which cannot be disproved of known methods within a short time should lead to exploration."

7. Diffuse Dilatation of the Œsophagus Without Anatomical Stenosis.—Lerche states that the ætiology and pathology are still somewhat obscure. Post mortem specimens which have been studied have usually revealed spindle shaped dilatation of the lower two thirds of the organ, the mucous membrane being inflamed or ulcerated, and the wall of the tube thin and bulging. The author thinks distinction should be made between those cases in which atony is primary to dilatation and spasm, and those in which cardiospasm is primary. An important point to remember is that the normal cardia opens easily for fluid and gases going from the œsophagus to the stomach, but with difficulty in the reverse direction. If the resistance of the cardia is increased a portion of the fluid swallowed will remain in the œsophagus, and secondary changes in the œsophageal wall then brought on may increase the changes by which dilatation is produced.

9. Typhoid Fever in the Aged.—Hamilton states that until very recently it has been generally admitted that typhoid was an extremely rare occurrence in those who had reached the age of fifty. The author's observations have convinced him, however, that the immunity conferred by age is but a year or so less than is generally supposed. The symptoms of this disease in the aged differ in a number of points from that which is observed in the young. A certain type of fever, rose spots, enlargement of the spleen, and raw blood are frequently absent, while the various complications are present in a marked degree. The syn-

dromal period is lengthened, the temperature seldom exceeds 103° F., and relapses are infrequent. Chills and sweats are common, also functional disturbances of the circulation, the Vidal reaction is invariably present. Disturbances of the respiratory system are common, also those of the alimentary tract. Constipation is more common than diarrhœa in the prodromal period, and tympanites may be very pronounced. Genitourinary disorders are also very common. Convalescence is protracted, and the mortality is much greater than in the young.

ANNALS OF SURGERY.

October, 1907.

1. The Parathyroid Glandules. Their Blood Supply and Their Preservation in Operations Upon the Thyroid Gland. By W. S. HALSTED and H. M. EVANS.
2. Tetany Parathyreopriva. By E. H. POOL.
3. Observations Upon a Form of Exophthalmic Goitre Occurring in a Dog. By C. EGGARS and J. W. D. MAURY.
4. Experimental Studies Upon the Thoracic Œsophagus. A Preliminary Report. By N. W. GREEN and J. W. D. MAURY.
5. Studies Upon the Function of the Pylorus and Stoma After Gastroenterostomy Has Been Performed. By N. B. LEGGETT and J. W. D. MAURY.
6. Is Death in High Intestinal Obstruction Due to the Absorption of Bile? By J. W. D. MAURY.
7. Studies in Intestinal Exclusion. By J. A. BLAKE and R. M. BROWN.
8. Are the Intestines Able to Propel their Contents in an Antiperistaltic Direction? By E. BEER and C. EGGERS.
9. Rectal Anæsthesia. Experimental Studies, Together with a Report of Its Practical Employment in the Roosevelt Hospital. By N. B. LEGGETT.
10. Tuberculins and the Tuberculo-sonic Index. By T. DUNHAM.
11. Tumor of the Cauda Equina Removed by Operation. Recovery. By S. C. ELSWORTH.
12. Multiple Exostoses, Including an Exostosis Within the Spinal Canal, with Surgical and Neurological Observations. By E. H. OCHSNER and T. ROTHSTEIN.
13. Tuberculosis of the Elbow. Arthroplasty. By G. DE AMEZAGA.
14. Old Unreduced Posterior Dislocations of the Shoulder. By J. G. SHERRON.
15. Partial Loss of the Tibia Replaced by Transfer of the Fibula, with Maintenance of Both Malleoli of the Ankle. By J. S. STONE.
16. Fracture of the Tarsal Scaphoid Bone. By P. H. COOK.

1. The Parathyroid Glandules. Their Blood Supply, and Their Preservation in Operations Upon the Thyroid Gland.—Halsted and Evans have determined, as to the blood supply of these organs, that: (1) The parathyroid glands are always supplied by definite arteries which always enter at the hilus; (2) the parathyroid arteries, superior and inferior, usually arise from the inferior thyroid, but frequently from the anastomosis channel between the inferior and superior thyroid vessels. Additional types of origin of the parathyroid artery have been described and figured; (3) few if any direct vascular connections normally exist between the parathyroid glands and the connective tissue enveloping of the thyroid. With our present knowledge of the function of the parathyroid bodies comes not only the recognition of the necessity for their preservation, but also the realization of the dangers which imperil the vitality of these little life sustaining organs. When removed, as is believed to be the case, would separate the superior gland in operation on both lateral lobes of the thyroid gland, the death rate from total excision being very great, while tetany, the chief cause of the mortality, is believed to be due to the removal of one lobe of the gland or to that of two or even one of the thyroid arteries. The removal of all forms of goiter may now be regarded as conforming with our recently acquired knowledge of the importance of the parathyroid glands, and may frequently be more exten-

sive than was formerly considered compatible with subsequent good results. In all cases the surgeon should endeavor to preserve the glands entire.

6. Is Death in High Intestinal Obstruction Due to the Absorption of Bile?—Maury alludes to the fact that acute intestinal obstruction occurring in the duodenum or oral portion of the jejunum is much more rapidly fatal than similar obstruction aboral to this portion of the intestine. Numerous experiments upon dogs were made to test the validity of this proposition, and the author states that as far as the experiments go there is reasonable ground for believing that they demonstrate that death in duodenojejunal obstruction may be due to the absorption of toxic elements in the bile, which are normally rendered harmless by dilution and colloid suspension in the secretions of the small intestine. As the length of the small intestine from the bile duct to the site of obstruction decreases the diluting secretions decrease and the toxicity increases. Should further experimentation definitely prove that bile is directly the cause of death in certain forms of intestinal obstruction it may be possible to lower the operative mortality.

7. Studies in Intestinal Exclusion.—Blake and Brown report a case in which so much of the descending and upper portion of the pelvic colon were removed in connection with malignant disease that it became necessary to anastomose the remainder of the pelvic colon with the side of the middle of the transverse colon. Temporary relief followed, and ten months later it became necessary to divide the transverse colon distal to the site of anastomosis, the proximal end being closed and the distal end brought into the incision. This operation and additional experimental operations showed that aboral partial exclusion of the intestine is a faulty and dangerous procedure. If the excluded segment cannot be excised it should be totally excluded as in the second operation. Unless one or both ends of a completely excluded loop of intestines communicate with the skin, or a fistula forms, troublesome accumulation will usually occur.

8. Are the Intestines Able to Propel Their Contents in an Antiperistaltic Direction?—Beer and Eggers state that the evidence in favor of antiperistaltic movement is both clinical and experimental. This, notwithstanding the recent statement of Wilms that antiperistalsis never occurs. The authors believe that the best method of arriving at conclusions in these reversal experiments is by direct study of the behavior of the reversed loops. This is the sure way of deciding in which direction the peristaltic waves progress. An inferential method of arriving at valid conclusions is that in which reversals of extensive segments of the bowels are made. Both methods were tried in the authors' series of twenty experiments, and their conclusion is as stated.

Proceedings of Societies.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNÆCOLOGISTS.

Twentieth Annual Meeting, held in Detroit, September 17, 18, and 19, 1907.

The President, Dr. ROBERT T. MORRIS, of New York, in the Chair.

The Menstrual Function; Its Influence Upon Chronic Inflammatory Conditions of the Appendix.—Dr. FRANCIS REBER, of St. Louis, said that after a painstaking consideration of the cases coming under his observation, only in the severest forms of annexal disease could the inflammatory condition be said to communicate itself to the appendix and cause a primary acute disease. It was in the chronic form of appendicitis that pelvic

ing appendix and provoke the clinical manifestations of an acute attack. In the cases seen by the author where a diagnosis of appendicitis was made, there were important disclosures from a vaginal examination. He did not believe that a menstrual hyperæmia could provoke an acute attack in a healthy appendix. He did believe, however, that a menstrual hyperæmia could incite an acute attack in an appendix that was subacutely or chronically diseased. He reported several cases to support his contentions.

Lithopædion or Lithokelyphopædion.—Dr. HERMAN E. HAYD, of Buffalo, reported a case of lithopædion of thirty-two years' standing, which, was successfully removed from a woman, sixty-eight years old, and exhibited the specimen. He spoke of the rarity of the condition and referred to the age of the specimen and its excellent preservation. The arms, legs, fingers, nails, hair, ears, and external genitals were all clearly shown. The specimen caused no symptoms for nearly thirty-two years. He referred to the possible changes that might take place in extrauterine pregnancy, such as suppurative, maceration, mummification, and calcification.

Dr. O. H. ELBRECHT reported a case of tubal abortion, in which there were complete detachment of the fœtus from the placenta at six months, resulting in omental attachment and beginning lithopædion.

Ophthalmia Neonatorum; a Pathological Anachronism.—Dr. F. PARK LEWIS, of Buffalo, by invitation, delivered an address on this subject in which he pointed out the importance of securing the enactment of laws in each State or Federal Territory giving the supervisory control and licensure of midwives to the boards of health, requiring that midwives be examined and registered in each county and that they be required to report immediately each case of ophthalmia occurring in their practice, under penalty, if found guilty, of forfeiture of their license and fine. Health boards should distribute circulars of advice to midwives and mothers, giving instruction as to the dangers, method of infection, and prophylaxis of ophthalmia neonatorum. To accomplish these measures he urged the appointment of committees by the various State and county societies, whose cooperation would make concerted action possible.

Back to an Old Idea.—The PRESIDENT, in his address on this subject, said the surgical patient was a factory, the business of which was to manufacture phagocytes and opsonins for destroying bacteria. The new idea was to avoid disturbing this factory in such a way that it could not manufacture phagocytes and opsonins. The dominant idea in surgery to-day began with the studies of Pasteur and Semmelweis, formulated by Lister and continued by scientists of all countries, for the purpose of removing by the artifices of the surgeon the bacteria which caused disease. Exactly opposed to this was the new idea of letting a patient manage his own bacteria, while the surgeon should let patients alone. There were many ways of preventing this factory from manufacturing its full complement of phagocytes and opsonins, and among them he mentioned long continued operations, extensive operations, the free handling of viscera and tissues, and long continued anesthesia. He referred to the importance of rapid operating, and said that surgeons should cultivate rapidity of action to the point that the average abdominal operation should require not more than fifteen minutes for its completion from beginning to end.

Premature Interruption of Pregnancy.—Dr. JOHN A. LYONS, of Chicago, said that criminal abortion was constantly increasing, and physicians should assume the unpleasant duty of seeing that abortionists were prosecuted more vigorously, even if changes in the statutes were necessary. In the active treatment of incomplete abortion there was strong and intelligent opposition to the use of the sharp curette. Personally, he did not support

either its pernicious or its promiscuous use in obstetrics, but followed more closely the practice of von Winckel, who interfered when the temperature began to indicate sepsis.

The Surgical Treatment of Typhoid Perforations.—Dr. JOSEPH PRICE, of Philadelphia, said that nearly all the perforations of the bowel were within about the first twelve inches of the ileum. Typhoid and other perforations were always followed by peritonitis, local or general. The possibility of its remaining local or circumscribed by adhesions should not be considered if the diagnosis of perforation had been made. In more than seventy-five per cent. of the cases recorded general septic peritonitis had been found, with escaping bowel contents, gas and feces, foul pus, and free exudate in considerable quantity. Generally the perforations were easily and quickly found near the ileocecal valve; they were rarely multiple or ragged, and whether they were of large or small calibre, fine pure silk was the safest material with which to close them. A resection of the bowel was an unjustifiable and dangerous procedure. Successful operations on typhoid patients had been done in the midst of low, alarming abdominal conditions, muttering delirium, and subsultus.

When Shall We Perform Myomectomy and When Hysterectomy in Uterine Fibromyomata?—Dr. JAMES N. WEST, of New York, said that in thirty-one abdominal myomectomies which he had performed there had been two deaths, and four of the patients had become pregnant. Taking an equal number of consecutive cases of fibroids treated by hysterectomy, he found that there had been no deaths. For the purpose of comparison he had looked up his records at the Post-Graduate Hospital for three years past, and had found that during that time he had done thirty-four hysterectomies, with no deaths, and, adding to this number the six done in other places, it made forty consecutive hysterectomies in three years, with no deaths. After a consideration of the subject from all points of view, he felt that there was no disease to which women were subject in which each individual case required to be considered alone and treated according to the conditions and symptoms present more than uterine fibromyoma.

Enucleation of Large Extramural Intraligamentary Uterine Myomata.—Dr. H. HOWITT, of Guelph, Ontario, reported two cases, and said that the proportion of intraligamentary myomata that became extramural was greater than that of any of the other varieties. After mentioning the chief points in the diagnosis, he said that in the surgical treatment of these tumors enucleation was preferable to hysteromyomectomy. Enucleation was never contraindicated on account of the size of the tumor or the age of the patient.

Fibroid Tumors Complicating Pregnancy.—Dr. E. GRISWOLD ZINKE, of Cincinnati, reported a case of suprapubic pelvic fibroid which complicated a four months' pregnancy. Hysterectomy was done and the fibroid enucleated. This was followed by secondary hamorrhaging a week after the operation, also a pelvic abscess, with rectovaginal fistula, but the case ended in recovery.

Operations for Fibroid Tumors During Pregnancy.—Dr. F. THURGOOD, of Detroit, cited seven cases in which he had operated on fibroid tumors during pregnancy. This number, although small, showed that these operations could be performed with safety, but sometimes shortening occurred. In the series of fibroid operations during pregnancy there had been one death, but it could not be charged to the operation itself. The operation was indicated in all instances of fibroid in the lower uterine segment or in the broad ligament. A rule should be that the tumor did not need to be interrupted with the pregnancy.

Temporary Uterovaginal Fistula After Panhysterectomy for Fibroid of the Uterus.—Dr. ERNST JONAS, of

St. Louis, said that panhysterectomy was preferable to supravaginal amputation as the radical operation for fibroid of the uterus. Operative interference in uterovaginal fistula, where there was only a lateral opening in the uterine wall, was not advisable until there had been a chance for spontaneous healing.

Intraabdominal Torsion of the Great Omentum Without Hernia.—Dr. ROLAND E. SKEEL, of Cleveland, said that torsion of the omentum was best classified clinically under three simple heads: (1) Torsion dependent directly upon hernia; (2) torsion in which hernia existed, but the dependence was not clear; (3) pure intraabdominal torsion. There had been eleven cases of the latter type reported up to the present time. He gave a résumé of these reports. The twelfth case was that which had occurred in his own practice. The greatest interest centred about the ætiology and diagnosis. Four different causes had been advanced to explain the mechanism: (a) External force or pressure; (b) external or internal force acting in conjunction with adhesions on one side; (c) adhesions of the tip with peristalsis of the intestine starting the rotation; (d) circulatory disturbance in the omentum. In the cases given in the literature and the one he reported, the accumulated evidence proved that rotation was begun by one of the first three factors, and was carried on to strangulation by the fourth by reason of the overfull veins constantly tending to twist themselves about the shorter, less elastic arteries. In the absence of hernia there was no conclusive diagnostic sign, but suspicion should be aroused if a sudden large mass appeared, not especially sensitive to pressure, doughy in consistence, dull or flat on percussion, and associated with less violent symptoms than those expected in suppurative appendicitis with the same physical signs.

Fibroid Tumor of the Uterus.—Dr. EDWARD J. ILL, of Newark, N. J., reported a case of very large uterine fibromyoma, measuring 24 by 35 centimetres, complicated by a two months' pregnancy, in which Nature's attempt at an abortion filled the uterine cavity with blood, and thus produced severe pressure symptoms. There was great pain in the left thigh and leg, and both were very much swollen. There was a marked decrease in the pulsation of the left popliteal artery. A supravaginal amputation showed the uterine cavity filled with gummy bloody fluid, with a two months' ovum attached near the right horn. The cavity measured 10 by 12 centimetres. The ovum was dead, as was shown by the turbidity of the amniotic fluid and the macerated decidua.

Consistency in Aseptic Surgical Technique.—Dr. JAMES F. SALTER, of Longhempscie, N. Y., said that operators of equal ability and surgical technique had widely different mortality rates, and asked the question, May not, at least, a portion of this difference be due to consistent asepsis on the one hand and inconsistent asepsis on the other?

Decidua Malignum.—Dr. MILES F. PORTER, of Fort Wayne, Ind., reported the following case: A multipara, aged forty, twice pregnant at about the third month. Menses regular; last menstruation ten days prior to an operation. Last period normal, except that it began with a gush of blood stained water. Patient complained of pelvic distress and great weakness and was very anæmic. The tumor was about 100 mm. situated in the hypogastrium, soft and tender. A week later the patient was examined again, as the symptoms had become aggravated and the tumor increased in size. Two days later a fragment was removed and pronounced malignant by a pathologist. Panhysterectomy was performed, and the tumor was removed. After the operation the uterus was found abnormally large, its walls thick, friable, and soft. There were two gestation sacs, one of which contained a fetus. The uterus was from the size of a child's head and weighed 100 gm. The

scopists. One reported abnormal glandular and decidual proliferation, and the other chorioepithelioma. He exhibited the specimen and photomicrographs. The uterus was abnormally soft, friable, and large, and the woman was seriously ill. The two microscopists agreed in saying that there was abnormal glandular and decidual growth, but one said it was malignant and the other that it was nonmalignant. The essential nature of the trouble remained in question. The author thought that chorioepithelioma was the correct diagnosis, and, if that was correct, the case was unusual because of the twin pregnancy and early diagnosis. Increasing experience confirmed the opinion that in suspected malignancy the clinical findings were equally important as the microscopical and sometimes more so. In his judgment, it was better to have a living patient without a diagnosis than a dead one with an established diagnosis.

Dermoid Tumor of the Ovary.—Dr. WILLIAM H. HUMISTON, of Cleveland, reported a case of unusually large dermoid tumor of the ovary, exhibited a photograph, and presented a detailed pathological report.

Echinococcus Cyst of the Liver.—Dr. HERMAN E. HAYD, of Buffalo, reported the case of a man, aged thirty-seven, a stone mason, upon whom he had operated for the removal of a large echinococcus cyst of the liver. The patient made a good recovery.

The Conservative Medical Treatment of Salpingitis.—Dr. EDWARD J. ILL, of Newark, N. J., made a plea for a nonoperative treatment of salpingitis. The cases that came for medical treatment were, first, the acute febrile conditions resulting from a gonorrhoeal infection; second, those following labor, abortion, and unclean intrauterine instrumentation; and, third, the results of inflammatory conditions following tubal abortion and coming to the practitioner late after the accident. The first and second classes needed about the same treatment, while the treatment of the third class was that for the chronic pelvic adhesions. He advised against medical treatment in cases of abscesses of the ovary, tuberculosis of the tubes, and other rare forms of inflammatory diseases. He detailed two cases of gonorrhoeal infection with extensive pelvic exudates, in both of which the patients recovered and gave birth to children. The treatment of gonorrhoeal pelvic inflammation should be divided into three stages: (a) The treatment of the primary infection; (b) the treatment of the acute tubal and peritoneal inflammation; (c) the treatment of the sequela.

He advised thorough swabbing of the vagina with a five per cent. solution of chloride of zinc. This was usually necessary but once, rarely a second or third time. The vagina should then be filled with a five yard strip of iodoform gauze, three inches wide, which should be allowed to remain three days. Large hot douches of potassium permanganate, 1 to 2,000, were then ordered. Repeated applications should be avoided, as a rule, since they often proved harmful. For gonorrhoeal endometritis he advised Grammaticati's suggestion of injections of a five per cent. solution of alumnol in tincture of iodine, in drop doses, into the uterus. Proper hygienic methods were urged. When the case had gone on to an acute salpingitis, the recumbent posture should be insisted on. Pain and rise of temperature demanded an ice bag above the pubes. This would insure much relief, and opiates could thus be avoided. Nothing would reduce pain and an acute exudate more quickly than the application of cantharidal collodion to the roof of the vagina, made with proper precautions. The application should not be repeated in less than six days, and should be followed in two days by Lugol's solution of iodine and a glycerin tampon. Large hot douches of potassium permanganate were given between the applications. Saline cathartics, proper diet, and freedom from all sexual excitement were ordered. When the

acute stage was over, elastic pressure by an oakum or jute tampon replaced the glycerin tampon. As much pressure should be made as the patient could comfortably bear. Massage of the roof of the pelvis with rubber bags filled with mercury, and introduced into the vagina, was recommended. The patient was placed in a moderate Trendelenburg position, and a second bag laid over Poupart's ligament, on one or the other side. The séance might last from half an hour to two hours, and the treatment could be given in the office by any well trained nurse. Recent adhesions and exudates were rapidly dispersed by such treatment, and old adhesions were often stretched and made to yield, rendering the uterus, tubes, and ovaries more freely movable. The treatment was not applicable to relapsing attacks of pelvic peritonitis.

Nymphomania as a Cause of Excessive Venery.—Dr. C. C. FREDERICK, of Buffalo, said that masturbation appeared in three classes of women: First, those mentally and nervously normal, with purely local causes; second, those of neuropathic taint, hysterics and neurasthenics, in whom there was perversion of the sexual instinct; third, those who were addicted to it as one of the symptoms and accompaniments in about ten per cent. of the insane. Judging from the histories of many cases which he had collected, nymphomania among mentally responsible and nervous women was relatively rare; the mentally irresponsible were rather masturbators than given to excessive coitus; and only the mentally responsible nymphomaniacs as a rule were addicted to excessive venery, but only when their sexual fall had been early in life.

Nephrocolopexy.—Dr. HOWARD W. LONGYEAR, of Detroit, reported cases in which he had operated during the year, and described at length an operation which he had presented before the association last year in a paper entitled *Kidney and Colon Suspension by the Use of the Nephrocolic Ligament and Gerota's Capsule*.

The association appointed a committee to consider the question of ophthalmia neonatorum, and subsequently the committee submitted the following resolution, which was adopted:

Resolved, That it is the sentiment of this association that definite steps should be taken to secure the enactment of such laws in the various States as shall compel the use of proper measures of prophylaxis by the attendant at every confinement, the execution of such laws to be under the jurisdiction of the State boards of health, and we hereby pledge our assistance and co-operation to the committee of the American Medical Association in its undertaking.

Officers.—The following officers were elected for the ensuing year: President, Dr. E. Gustav Zinke, of Cincinnati; vice-presidents, Dr. John W. Keefe, of Providence, R. I., and Dr. W. A. B. Sellman, of Baltimore; secretary, Dr. William Warren Potter, of Buffalo, re-elected; treasurer, Dr. X. O. Werder, of Pittsburgh, re-elected. Baltimore was selected as the place for holding the next annual meeting, to begin on the third Tuesday in September, 1908.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Meeting of February 18, 1907.

The President, Dr. T. E. SATTERTHWAITHE, in the Chair.

Mental and Nervous Diseases in General Practice.—The first paper of the evening was by Dr. WILLIAM B. NOYES on this subject. While a discussion of mental and nervous disease from the more technical point of view would at the very start eliminate the cases of purely nervous and hysterical individuals, which did not deserve a separate diagnosis, because the trouble was merely temperamental and symptomatic, he said the general practitioner must take some responsibility for

these cases, even though he recognized that self control and common sense would cure them without a physician. It was a fact that pure neurasthenia and pure hysteria were now much more sharply defined, and were found to be much more rare than formerly. This was due to the cutting away of the relatively unimportant cases on the one hand, and on the other to the classifying as psychoses of other cases formerly regarded as hysteria and neurasthenia. The very name neurasthenia was by many being changed to psychasthenia. If one desired to get a clear and reasonable basis for the study of mental and nervous disease, he must turn to the facts, the methods, and the theories of normal psychology, and he thought it would be of great value to make a brief study of neurasthenia and hysteria from the standpoint of the psychologist.

The human mind could be best understood if it were compared to a boat or to a man swimming. What we termed the part above the water line was the conscious, or objective, mind. The part below the water line, which the individual himself and the superficial observer ignored, was what the psychologist called the unconscious, subconscious, or subjective, mind. A healthy average mind in a healthy body, especially in the years of maturity, managed to keep its water line in about the same place. In contrast to such normal personalities, whose water line of consciousness did not vary to any great extent, was a class of individuals who possessed what were known in popular language as "unstable nervous systems." In these, if some definite physical condition like a toxemia, a severe strain, or a mental shock occurred, the very personality seemed to change. The balance or poise of the personality was altered, and normal mental and physical life was hampered by the appearance of various new and usually unpleasant phases of personality and physical sensations. The strain might easily become too great to bear, and a complete physical breakdown be the result. All these persons acquired the habit of introspection and devoted themselves to a study of their new symptoms, most of which, however, were merely a part of the subconscious mental and physical life. This condition we called neurasthenia or nervous prostration. The subconscious mind was responsible for the mass of strange ideas and symptoms met with. Their reality to the patient distinguished them from the condition of malingering; the retention of reasoning power distinguished them from insanity.

Hysteria, as he understood it, was a condition in which the water line of consciousness was raised; the swimmer or vessel lying deeper in the water. While not ignoring the important etiological elements, he would explain it psychologically as a segregation or temporary loss of certain nervous or mental functions. Sensation was usually deficient, as shown by the areas of anaesthesia. Motor activities might be exaggerated by the suppression of inhibition or be reduced or abolished, as in the hysterical paralyses. A typical case of hysteria did not present the enormous variety of depressing symptoms exhibited by a typical case of neurasthenia, though the patient's limitation of the objective, or common sense, every day, mind might readily allow of considerable automatism and a free play of the unconscious part of the mind. The fatigue symptoms of neurasthenia and the frequent condition of really good general health in hysteria were the keynotes to the diagnosis. There were, however, many intermediate conditions. The most typical cases of hysteria minor which he had observed had been traumatic, the cause appearing to be a direct physical violent or a mental shock. In cases of this kind the initial traumatism became a permanent impression on the unconscious mind.

The author next directed attention to a class of cases in which the subconscious mind became affected with

fixed ideas. This type differed from neurasthenia by its unvarying course, but it was not so serious a matter as the fixed ideas of paranoia and other forms of insanity. It included all the imperative concepts, the so called phobias, and various fixed, but usually harmless and foolish ideas. The importance of recognizing this class lay in the fact that the general practitioner would be apt to consider such patients insane, for an identical fixed idea in another case might be the starting point of an insane delusion. Such fixed ideas were not a symptom of insanity when the objective mind was rational in its appreciation of their nature; but the treatment of these cases was quite unsatisfactory, and alienists not infrequently found that insanity was the final stage. The psychological explanation was that the consciousness lost to some extent its power of selecting and eliminating ideas. The secret of treating all these conditions was in not wasting time in any direct suggestions or hypnotic attacks. A new environment, with plenty of indirect suggestion, such as normal persons, were always consciously or unconsciously giving forth, was the main essential. Violent methods would simply intensify the trouble.

In relating a typical case of melancholia which had occurred under his observation Dr. Noyes said he did not believe that in such cases the physical breakdown antedated the mental trouble. He also directed attention to the fact that in melancholia suicidal attempts were almost certain to be made. In paranoia the disturbance was mainly intellectual, and the personality underwent a slow transformation in its relation to the outside world. This pathological change of personality was induced by false products of thought which, although the logical process and structure of thought remained unimpaired, were assumed to be real. The original damage occurred below the water line of consciousness, and it was not probable that any but a person with a degenerate and abnormal mind would have paranoia. The definite stages of the disease were: (1) Prodromal—the period of inquietude and subjective analysis; (2) ideas of persecution; (3) ideas of grandeur—the period of transformation of personality; (4) mental enfeeblement.

Many cases of paresis in their early stages had symptoms which an average practitioner would regard as due to neurasthenia. Here came in the need for some adequate knowledge of normal psychology. One must sharply distinguish between the foolishness and foolish acts of a man who was sane and the characteristic silly acts of the paretic. In making the distinction, especially in the puzzling cases not showing obvious organic symptoms, such as changes in the knee jerk, pupils and speech, it was necessary to watch carefully for the pathological, self contentment, euphoria, and grandiose ideas. These cases of general paralysis of the insane had to be recognized early if any hope of a cure was to be entertained. In closing, he referred to dementia praecox, the subjects of which, after suffering from what might readily be called neurasthenia or hysteria, seemed to pass on to a silly, half demented, or confused condition. A few years ago this had seemed to be a fairly clean cut diagnosis, and been supposed to indicate a condition of permanent insanity; but at present the diagnosis was confusing because the time limit had been removed, many cases improved, and little was left but the negativism and primary demented condition. The victim was born with certain deficiencies, and these by vicious training were made worse. As a result, he reacted to his environment in a certain way, so characteristic of those inferior, and well known, was his psychic condition of mixed disease. In this case, however, the patient was a condition, rather than a disease. It was a personality reaction to a defective set of his surroundings.

(To be continued.)

Book Notices.

The Chemistry of Commerce. A Simple Interpretation of Some New Chemistry in Its Relation to Modern Industry. By ROBERT KENNEDY DUNCAN, Professor of Industrial Chemistry at the University of Kansas, etc. Illustrated. New York and London: Harper & Brothers, 1907. Pp. xiii+263.

This book, handicapped though it is with deckel edges, will undoubtedly be welcomed by a wide range of readers, for it makes plain to the ordinary comprehension many things that almost all the rest of contemporary literature leaves more or less shrouded in a mystery which only the technically learned can penetrate. In a previous publication, *The New Knowledge*, Professor Duncan showed that he possessed the rare faculty of clear exposition in simple terms. That faculty is further exemplified in this work. The fundamental lesson to be learned from it concerns chiefly those "practical men" who have shown little appreciation of the "theoretical fellow." It should teach the small manufacturers that it would be for their interest, often to the extent of saving them from ruin, to employ real chemists instead of "laboratory boys trained only to do one testing operation over and over again." If it teaches them this, it ought also to instill into them a decent regard for professional services in general, and thus prove of direct benefit to the medical profession.

Professor Duncan's literary style is fascinating even in the few instances in which his rhetoric is faulty. He constantly uses metaphorical expressions. Most of his figures of speech are impressive, and they are all picturesque. We fancy that he writes rapidly and does not always revise carefully, but the same may be said of most authors whose writings charm us. The reader will never fail to catch Professor Duncan's meaning.

Here and there we find remarks on medical topics, but it is at only a few points that the book touches specifically on medicine. One of those points has to do with the subject of the opsonins, and Professor Duncan's exposition of the theory is more lucid than any other that we remember to have met with. Medicine is not "commerce" to be sure, but medical practice embodies some of the most important of the useful applications of "the new knowledge," which constitute his real subject, and we are glad that he has brought his phenomenally acute intelligence to bear upon it even in only a few of its aspects. Every physician ought to read the book.

The Physiology of Alimentation. By MARTIN H. FISCHER, Professor of Pathology in the Oakland College of Medicine. First Edition. New York: John Wiley & Sons, 1907. Pp. viii+348. (Price, \$2.)

As a knowledge of anatomy is a necessity to the surgeon, so physiology is equally important to the pathologist and to the clinician; and the last few years have brought forward not a few earnest workers whose labors have contributed a vast fund of information to our hitherto very imperfect conceptions of the vital processes that are essential to our continued well being. The present writer takes up but one department of physiology, namely, that indicated by the title of his work.

The first fifty pages are devoted to the mechanical phenomena associated with the reception of the food by the mouth, and the varied movements of the cesophagus, the stomach, and the intestines, as each in succession carries out its special localized function and delivers its burden to the next in turn. It must be admitted that this portion of the book is rather hard reading, and one is tempted to skip it, or at least to glance over it superficially. The rest of the work, however, is intensely interesting; and to one who has not followed closely

the physiological developments of the last twenty years it will prove almost as fascinating as a novel.

Perhaps the most important part of the work from a practical standpoint is the description of the nature and functions of the digestive enzymes, or zymases, as the author prefers to call them. Beginning with the salivary ferments, amylase and maltase, he insists on the necessity of thorough mastication, both of the carbohydrates and of the proteins preceding the delivery of the food to the stomach, where the acid proteinase (pepsin) has its turn, to be followed later by alkali proteinase (trypsin) and the other intestinal aids to digestion. Quoting the "sham feeding" experiments of Pawlow, he insists on the necessity of appetite as preliminary to prompt digestion, and says that of hunger does not provide this, it is commonly excited by a well flavored soup, and he might have added the not infrequent caviar or anchovy. *A fortiori* the casual preprandial cocktail finds its reason and its excuse. This doubtless will jar the sensibilities of the members of the W. C. T. U., but a greater shock awaits them when they learn that all fats, by the action of lipase (steapsin) are, prior to absorption, split up into fatty acids and alcohol. Our grandmothers considered roast pork and roast goose as too "rich" foods for a delicate stomach, but modern science declares that these fats are more promptly and readily digested than the fats of mutton and beef. So, also, they thought that a raw egg was easily digested. This is not true unless the egg is tempered with a little wine or some other excitant of the gastric secretions.

While thoroughly recommending Dr. Fischer's work as an admirable exposition of present day physiological science, we must express regret that some important features connected with the subject appear to have been overlooked. In the chapter on the bacteria of the alimentary canal we find no allusion to the experimental studies of Hertzer as to the antagonism existing between the lactic bacteria and the bacteria of putrefaction, or of the more recent and complete clinical investigations of Metchnikoff and his associates. We think also that Chittenden's economic studies and the bradyphagia of Fletcher should have received at least a small share of the author's attention. If there is real wisdom in the contentions of Fletcher and Chittenden, Malthus might have spared his pen for a few thousand years or so.

Praktikum der Bakteriologie und Protozoologie. Von Dr. KARL KISSALT, Privatdozent, Oberassistent am hygien. Institut der Universität Berlin, und Dr. MAX HARTMANN, Privatdozent der Zoologie an der Universität Berlin. Mit 89 teils mehrfarbigen Abbildungen im Text. Jena: Gustav Fischer, 1907.

We have here an admirable laboratory guide for practical instruction in bacteriology and the study of the pathogenic protozoa. In a series of graduated exercises, which are concisely and clearly described, the student is by actual experience made familiar with all the most important facts in the life history of microorganisms in their relation to medicine. As treated in the detailed demonstrations of this book, bacteriology becomes for the beginner as exact a science as chemistry, zoology, or botany, and many of the technical difficulties are much simplified by the gift for lucid exposition possessed by the authors. The numerous and excellent illustrations contribute in no small degree to the value of the text. In our judgment the work is equally well adapted for teaching purposes and for the use of the progressive practitioner who in his own clinical laboratory endeavors to keep abreast with the more important advances made by the research workers in medical bacteriology.

BOOKS, PAMPHLETS, ETC., RECEIVED.

German-English Medical Dictionary. By Joseph R. Waller, M. D. Fourth Edition, Improved and Enlarged, by M. WHITE, M. D. Leipzig and Vienna: Franz Deuticke, 1907. Pp. 448.

DESHON, G. D., Major and Surgeon. Ordered to proceed to the Army and Navy General Hospital, Hot Springs, Ark., and assume temporary command.

HARRIS, H. S. T., Major and Surgeon. Relieved from duty in the Philippines Division, in time to sail from Manila on December 15, 1907, for San Francisco, Cal.

KENDALL, W. P., Major and Surgeon. Granted sick leave of absence for one month.

KULP, J. S., Major and Surgeon. Granted leave of absence for two months.

MORSE, A. W., Captain and Assistant Surgeon. Granted leave of absence for ten days.

SNODDY, C. A., First Lieutenant and Assistant Surgeon. Left Fort Barrancas, Fla., for Jackson Barracks, La., for temporary duty.

WADHAMS, S. H., Captain and Assistant Surgeon. Relieved from duty at Fort Slocum, N. Y., in time to sail on December 5th for duty at Fort Shafter, H. T.

The following assistant surgeons have been relieved from duty at the posts designated and ordered to sail on December 5, 1907, for duty in the Philippines Division:

CLAYTON, JERE B., Captain and Assistant Surgeon, Fort Leavenworth, Kas.

COLLINS, C. C., Captain and Assistant Surgeon, Fort Riley, Kas.

CONNOR, C. H., Captain and Assistant Surgeon, Army General Hospital, Presidio of San Francisco, Cal.

EASTMAN, W. R., Captain and Assistant Surgeon, Fort Lawton, Wash.

GAPEN, NELSON, Captain and Assistant Surgeon, Columbus Barracks, Ohio.

HATHAWAY, L. M., First Lieutenant and Assistant Surgeon, Fort Thomas, Ky.

HEARD, G. P., Captain and Assistant Surgeon, Fort Wingate, N. M.

JONES, P. L., Captain and Assistant Surgeon, Fort Preble, Me.

RICH, E. W., Captain and Assistant Surgeon, Fort Ontario, N. Y.

RUTHERFORD, H. H., Captain and Assistant Surgeon, Army General Hospital, Presidio of San Francisco, Cal.

SMART, W. M., Captain and Assistant Surgeon, Fort Caswell, N. C.

The following assistant surgeons will be relieved from duty in the Philippines Division in time to sail from Manila on January 15, 1908, for San Francisco, Cal.: Captains F. C. BAKER, E. H. BRUNS, F. A. DALE, S. M. DELOFFRE, R. B. GRUBBS, G. F. JUEDEMANN, P. H. McANDREW, C. R. REYNOLDS, E. R. SCHREINER, and E. D. SHORTLIDGE.

The following named medical officers sailed from San Francisco, Cal., on October 5, 1907, for duty in the Philippines Division: Majors W. C. BORDEN and J. D. GLENNAN, surgeons; Captains C. C. BILLINGSLEA, P. S. HALLORAN, L. L. KREBS, and E. L. RUFFNER, assistant surgeons.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending October 12, 1907:

BACON, S., Acting Assistant Surgeon. Ordered to additional duty at the Naval Hospital, Washington, D. C.

BUNKER, C. W. O., Assistant Surgeon. Ordered to take a course of instruction at the Naval Medical School, Washington, D. C.

ELLIOTT, M. S., Surgeon. Detached from the Naval Academy and ordered to the *Maine*.

HATHAWAY, GEORGE S., Assistant Surgeon. Now sick in base hospital, Camp Columbia, Cuba, will proceed on transport to sail from Havana, Cuba, October 7, 1907, to Newport News, Va., and thence to the Naval Hospital, Norfolk, Va., for observation and treatment.

HOLEMAN, C. J., Assistant Surgeon. Ordered to take a course of instruction at the Naval Medical School, Washington, D. C.

HUNTINGTON, E. O., Surgeon. Detached from the naval recruiting station, New York, N. Y., and ordered to the naval station, San Juan, P. R., sailing from New York, N. Y., about October 12, 1907.

LAWRENCE, H. F., Assistant Surgeon. Ordered to take a course of instruction at the Naval Medical School, Washington, D. C.

MCGUIRE, L. W., Acting Assistant Surgeon. Ordered to additional duty at the Naval Hospital, Washington, D. C.

NORTON, O. D., Surgeon. Ordered to additional duty at the naval recruiting station, New York, N. Y.

ROBNETTE, A. H., Assistant Surgeon. Detached from the naval station, San Juan, P. R., and ordered to duty with the marine attachment, Havana, Cuba.

Births, Marriages, and Deaths.

Married.

* COMEGYS—SMITH.—In Philadelphia, on Saturday, October 5th, Dr. Robert Alexander Comegys, of Smyrna, Delaware, and Miss Madeline Elizabeth Smith.

FISHER—JACQUES.—In Bronxville, N. Y., on Wednesday, October 9th, Dr. William Cummings Fisher and Miss Adelaide Louise Jacques.

KANE—GULICK.—In Youngstown, Ohio, on Friday, October 4th, Dr. Clinton A. Kane, of Pittsburgh, and Mrs. Katherine Carr McCoy Gulick.

LAVENSON—SCHAMBERG.—In Philadelphia, on Wednesday, October 2nd, Dr. Ralph Lavenson and Miss Zella Schamberg.

MCDONALD—HEEBNER.—In Philadelphia, on Tuesday, October 15th, Dr. Ellice McDonald, of New York, and Miss Anne Heebner.

McGILL—PAGE.—In Washington, D. C., on Wednesday, October 2nd, Dr. Elisha Leavenworth McGill and Miss Helen McGill Page.

MEHLER—DIXON.—In Philadelphia, on Saturday, October 5th, Dr. Charles E. Mehler and Miss Edith Dixon.

MORSE—WHITE.—In Abbeville, South Carolina, on Thursday, October 3rd, Dr. Charles Frederick Morse, United States Army, and Miss Sarah White.

OSTERLUND—THOMPSON.—In Philadelphia, on Thursday, October 10th, Dr. Otto W. Osterlund and Miss May M. Thompson.

SNOW—PALMER.—In Weedsport, N. Y., on Tuesday, October 15th, Dr. L. Dunlap Snow and Miss Lena Follett Palmer.

VAUX—DIXON.—In Philadelphia, on Wednesday, October 9th, Dr. Norris Wistar Vaux and Miss Honora Dixon.

Died.

BERTH.—In Providence, Rhode Island, on Wednesday, October 2nd, Dr. William Henry Berth, aged thirty-one years.

BURTON.—In Pittsfield, Massachusetts, on Saturday, October 5th, Dr. Charles William Burton, of Adams, aged sixty-nine years.

COULSON.—In Philadelphia, on Saturday, October 5th, Dr. Allison H. Coulson, aged thirty years.

GOULD.—In Boston, Massachusetts, on Wednesday, October 2nd, Dr. Francis Alfred Henry Gould, aged thirty-four years.

HOFFMAN.—In New York, on Friday, October 4th, Dr. Emanuel Hoffman, aged forty-seven years.

McCANN.—In New York, on Thursday, October 10th, Dr. John F. McCann, aged forty-six years.

MORGAN.—In Ithaca, N. Y., on Friday, October 4th, Dr. Edward J. Morgan, aged fifty-two years.

NOYES.—In Milwaukee, Wisconsin, on Tuesday, October 1st, Dr. George K. Noyes, aged thirty-six years.

SLEVIN.—In St. Louis, Missouri, on Friday, October 4th, Dr. Richard Slevin, aged thirty years.

VALLERCHAMP.—In Bloomsburg, Pennsylvania, on Wednesday, October 9th, Dr. John Vallercham, of Harrisburg, aged seventy-four years.

WARREN.—In Shirley, Massachusetts, on Sunday, October 6th, Dr. Lewis L. Warren, aged thirty-nine years.

WILLIS.—In Jersey City, N. J., on Monday, October 7th, Dr. Lillian A. Willis, aged forty-three years.

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Original Communications.

THE DIAGNOSIS AND TREATMENT OF PROSTATIC HYPERTROPHY.*

By JOSEPH WIENER, M. D.,
New York,

Adjunct Attending Surgeon, Mount Sinai Hospital.

Diagnosis. In the majority of cases a careful history alone will enable us to make the positive diagnosis of prostatic hypertrophy. If, in addition to a typical history, we find on rectal examination that the prostate is large, the diagnosis is clinched. The presence of residual urine is an important additional datum. The relation of the prostate to the urethra can be ascertained by introducing a catheter into the bladder. If a soft rubber catheter cannot be introduced, a Mercier or a silver catheter may be used. By noting when the catheter first meets with an obstruction, and then noting how much further we must introduce it before the urine begins to flow, we can get a good idea of the length of the prostatic urethra and of the amount of prostatic enlargement. It is rarely necessary to use a sound, and it is never necessary to use the cystoscope. Indeed, in the presence of marked hypertrophy, the use of the cystoscope is a procedure fraught with distinct danger. I have often been criticized for opposing its use under these conditions. Increasing experience, however, but strengthens me in the belief that it is never necessary to use the cystoscope in the presence of marked prostatic hypertrophy. We can always make the diagnosis without it. Furthermore, I have seen an acute cystitis follow the use of the cystoscope for diagnostic purposes at the hands of an enthusiastic cystoscopist. The patient referred to had to stay in bed for a week as the result of the cystoscopy. He then went to another surgeon who made the diagnosis from the history and from the rectal examination, and promptly cured the patient by removing his prostate.

The worst thing we can do for our patients before operation is to give them a cystitis; and one of the surest ways of causing a cystitis is to introduce instruments into the bladder. Even the introduction of a sound to search for stones is unnecessary. An x-ray picture will show the presence of stones; but as we must open the bladder to remove the prostate we can at the same time remove any stones. Some surgeons have declared that from the cystoscopic picture we should decide whether a suprapubic or a perineal operation should be performed.

* Read before the German Medical Society of New York.

If the prostate is very large and projects very much into the bladder we are told that the suprapubic operation is the one of choice. If the prostate is small and hard, or if the lateral lobes are enlarged downward toward the perinæum then we are told to operate from below. When I first took up this work I was told that it was not possible to remove a small hard prostate through a suprapubic incision under nitrous oxide gas. Such a prostate would have to be removed from below, first on account of the great difficulty of removing it through the bladder, and secondly on account of the danger of wounding the rectum. Notwithstanding these prognostications I have persistently avoided the use of the cystoscope in prostatic hypertrophy and I have repeatedly removed small, hard prostates under nitrous oxide gas in a few minutes through a suprapubic incision. And I have thus far been fortunate in not injuring the rectum in a single case. One of my guiding principles from the very start has been "the less instrumentation to the urethra and bladder before the operation, the better for the patient and for the surgeon."

The diagnosis in many cases can be made from the history. A man past middle life first notices that he must get up once or twice at night to urinate. Soon he notices increased frequency of urination during the day. The stream is smaller, it takes longer in starting it, and it takes longer to pass. The man finds he must avoid late suppers, and alcoholic drinks aggravate the condition. Sometimes it takes several minutes until the stream can be started, and it may take five minutes to pass a few ounces. There may be nocturnal dribbling. Soon the man finds that if he does not hurry to void his urine wets his clothes. The act of urination gradually becomes more frequent and more painful. There is usually at this stage some residual urine. The patient loses sleep on account of the frequent calls to pass water. He worries about his condition, his appetite fails, and he loses flesh and strength. To this picture is often added a low grade of sepsis. The patient often feels that he is unable to empty his bladder completely. The call to urinate may come every fifteen or twenty minutes during the day, and every hour at night. There may be symptoms of sexual irritability if the patient is still potent such as premature orgasms or unsatisfactory coitus followed by marked depression. These sexual symptoms are usually found in the earlier stages of the disease before there is much obstruction, and before there is much residual urine.

The disease is really not prostatic hypertrophy but prostatic obstruction. We are never called

upon to diagnosticate or to treat the hypertrophy *per se*. On the other hand, we may be called upon to treat prostatic obstruction before there is any hypertrophy. We have several times seen complete retention with a prostate smaller than normal. And conversely we have often seen men with enormous prostates who give no symptoms until suddenly retention sets in. And yet we know that such a large tumor takes years to grow. The relation of the prostate, whether large or small, to the neck of the bladder and to the prostatic urethra determines the degree of obstruction. And it is the obstruction which in turn calls for treatment. As long as there is no obstruction there is no indication for treatment.

Residual urine. The question of residual urine is one of the greatest importance. As soon as the patient fails to empty his bladder completely there is continually more or less urine left behind in the bladder. This urine collects in a pocket behind the prostate. The bladder becomes weaker, it loses more and more of its tonicity, and the amount of residual urine gradually increases. This residual urine is a distinct danger to the patients comfort and welfare. It forms an important contributing cause to an infection of the bladder and of the kidneys. The larger the amount of residual urine the greater the danger. Such a distended trabeculated bladder often acts as a nidus for the development of stones. The stones in turn contribute to the development of a cystitis, or help to aggravate an existing cystitis.

I would like to sound a note of warning in the diagnosis of prostatic obstruction. A man may have difficulty in emptying his bladder, he may have residual urine, and he may have dribbling of urine, and yet he may not be suffering from prostatic obstruction. Twice I have had patients referred to me by competent practitioners by whom the diagnosis of prostatic obstruction had been made. Both patients had the early sings of locomotor ataxia. The bladder symptoms were due to atony of the bladder of spinal origin. And an operation would have left the patients as badly off as they had been. I make it a rule to examine every case for evidence of spinal disease. I am convinced that some of the poor results obtained by operation have been in cases of this kind.

Treatment. The methods of treatment are by, 1, the catheter; 2, the Bottini operation, and 3, prostatectomy.

The catheter. Much has been written for and against the use of the catheter. On the one hand we are told that as soon as the catheter becomes necessary the prostate should be removed, that the prostatectomy is less dangerous than the catheter. On the other hand we are told that the catheter can be used until the first attack of cystitis. Some even go so far as to say that if the cases are carefully selected the daily use of the catheter may be carried on for years. In general we may say that as our technique and our operative results have improved, the field of usefulness of the catheter has steadily narrowed. The dividing of the operation into stages thus lessening shock and lowering the mortality, the use of nitrous oxide gas and rapid work, all these factors have widened the field of prostatectomy. But we believe that there is still a field of usefulness for the catheter, even though a limited one.

Some patients present themselves early with mild obstructive symptoms, a little increased frequency of urination, some difficulty in starting the stream. On examination we find a moderate enlargement of the prostate and a few ounces of residual urine. The occasional use of the catheter together with bladder irrigation will enable such men to get along very comfortably. Some patients complain but little until they suddenly get complete retention. A few days rest in bed on a low diet, with hexamethylenamine and bladder irrigations, may again enable the man to void most of his urine. But even with the greatest care the attacks of retention will recur, and between the attacks there is always considerable residual urine. These cases are very prone to bladder and kidney infections.

All patients on whom the catheter must be used should lead as quiet and regular a life as possible. The diet should be carefully regulated. Alcoholic stimulants and excessive smoking should be avoided, also exposure to cold and wet. Excessive fatigue or mental excitement may bring on an attack of retention.

The length of time the catheter can be used without infecting the bladder will depend largely on the social position of the patient, and on his powers of resistance. If he can afford to throw away a catheter after using it a few times, if he can take time to sterilize the catheter each time, if he can afford to lay up and have careful nursing and medical treatment at the slightest sign of bladder infection then he may be able to get along a very few years without an operation. In the end, however, the bladder becomes infected, or the bladder becomes so intolerant that an operation must be done. When we consider that these patients are old men, many of them with one foot in the grave, the wonder is not that they usually get infected, but that they do not all become infected soon after regular catheterization has been instituted.

And that brings us to the important question of the daily use of the catheter. Should we ever recommend the daily use of the catheter to these old men? Statistics have shown that the expectation of life while using the catheter is only four or five years. But most of these patients get bladder infections after a few weeks or a few months. Sometimes after a few weeks the bladder becomes so irritable that the patients beg for relief. Some men have assured me that they would sooner die than continue the use of the catheter. The daily use of the catheter is to my mind more dangerous than the removal of the prostate. This is the more self-evident when we consider that in the end an operation must be performed under very unfavorable conditions. In other words, a man who has begun to use the catheter daily will live longer, and much happier too, if he has his prostate removed at once, instead of having it removed after months or years of misery. It goes without saying that an operation which is postponed until bladder and kidneys are infected, will not give as good results as one done earlier. No matter how carefully the catheter is used, and no matter who introduces it, the bladder will surely sooner or later be infected. I believe we ought to tell a man who is confronted with catheter life that the catheter will give temporary relief, that there are distinct dangers to life from

its use, and that even if he survives its use a few years, he will still need an operation. We should put the case squarely before the patient and let him decide whether he wants to take the chances. While it is true that some men stand the use of the catheter for years, yet most of these old men stand it poorly. And, as Pardoe says, they continually live "on a volcano." I have operated on patients who have lived on such a volcano four years, but those years were not years of joy. After such men have been cured by operation they will tell you the misery they suffered during these years, and how much they regret that they did not have an earlier operation done. Even with the best care infections will take place.

Hexamethylenamine is our main standby in keeping the urine acid and lessening infection. Salol, benzoic acid, and camphoric acid are also of value. It is quite generally recognized that no man should be allowed to use the catheter daily unless he can do so under the most rigid asepsis. As soon as the workman requires the daily use of the catheter, his prostate should be removed.

Where the catheterization is accompanied by pain or by bleeding an operation had better be done. In some cases, for a few weeks or months, a soft catheter can be readily introduced. Gradually a smaller and smaller one must be used. Then for a short time a Mercier enters readily, but finally only a metal instrument will enter the bladder. As a result the prostate and mucous membrane of the bladder are often injured, and painful ulcers result. Operations should not be too long deferred in these cases.

No man who sees much of these cases would hesitate to have his own prostate removed before these wretched years of catheter life.

The Bottini Operation. This was a valuable operative procedure before the technique of prostatectomy was brought to its present stage of perfection. When a prostatectomy took from forty-five minutes to an hour and a half to perform, and was done under ether or chloroform when the operation had a mortality of from fifteen to twenty-five per cent., then the Bottini operation had a wide field of usefulness. Fortunately conditions have changed in the past few years. To-day prostatectomy, whether perineal or suprapubic, has a mortality of about five per cent. Almost all of the 95 per cent. of the patients who survive the operation are cured. The Bottini operation has a mortality of about 12 per cent. Of those who survive the operation some are not improved, many are not cured. So we have on the one hand a radical and certain operation with a mortality of 5 per cent., and on the other hand a palliative and uncertain operation with more than double the mortality. Naturally the operation has fallen into disuse. Some still assert its usefulness where a general anæsthesia is contraindicated. I think I have shown that prostatectomy can always be done under nitrous oxide gas; that it can be done in the presence of diabetes. Finally, we are told that the Bottini operation should be done on those patients who refuse prostatectomy. In view of the relative mortality of the two operations surely but few patients will desire the Bottini.

Prostatectomy. From what has been said before a general idea can be obtained of the indications for prostatectomy. Both the perineal and the supra-

pubic operation give excellent results. The choice of operation is largely an individual one with the surgeon. The rules that have been formulated by various men as to when the one operation is preferable and when the other, are, in my experience and in the experience of many others who perform the suprapubic operation, entirely theoretical. I have not met with any cases in practice where I would have preferred the perineal operation to the suprapubic. No doubt most of the cases could also be cured by the perineal operation. To quote from a former paper of mine: "Suprapubic prostatectomy under nitrous oxide gas can be safely undertaken in the most desperate cases. Neither nephritis, nor cystitis, nor diabetes, nor advanced old age, are contraindications. Any man who is able to take nitrous oxide gas for ten minutes can safely have the operation performed. There is not the slightest doubt in my mind that any prostate, large or small, soft or hard, can be readily removed in a few minutes by the suprapubic operation." Three of my patients were diabetics and in two of them there was considerable glucose present at the time of operation, and yet they all recovered. According to Albarran the advantages of the suprapubic operation are "no permanent fistulæ, no cicatricial contractions about the neck, no injuries to the rectum, no loss of sexual power." To these advantages I would like to add the shorter time of operation, the performance of the operation under nitrous oxide gas, the ability to inspect the interior of the bladder and to remove stones, and last but not least the performance of the operation in two stages. The great advantage of performing the operation in two stages is not yet generally recognized. In acute retention, in hæmorrhage into the bladder, in badly infected bladders, the immediate removal of the prostate gives an unnecessarily high mortality. In such cases the bladder should be opened under local anæsthesia, and drained for a week or longer. Then, under nitrous oxide gas, through the same incision the prostate can be removed in a few minutes. I have removed such a prostate at the secondary operation in two minutes. Even the most desperate cases can be saved if the patients are treated in this manner.

We do not recommend prostatectomy as a prophylactic measure, nor do we believe that it should be done as soon as the catheter has been used for the first time. But we do most strongly advise against waiting for repeated infections of the bladder, which are only too prone to cause a secondary infection of the kidneys.

As these old patients are all poor surgical risks, everything possible should be done before the operation to improve the general as well as the local condition. Hypnotics should be given to make up for the loss of sleep from which most of these patients suffer. Hexamethylenamine should be given daily for a week or ten days. If necessary, the bladder should be irrigated at regular intervals. The diet and bowels should be regulated; a short vacation might be beneficial. Everything possible should be done to overcome the extreme depression from which so many of these men suffer.

If the general condition is poor, if the bladder is badly infected, or if there is bleeding, the bladder is opened under local anæsthesia through a suprapubic incision. This can be readily done without causing

much pain. A tube is introduced into the bladder, and the urine allowed to drain into a bottle. If the bladder is badly infected continuous irrigation is carried out. The patient need not be in bed more than one day. The secondary operation should not be done until the patient has recovered from the effects of the opening of the bladder, until pulse and temperature are normal, and until the general condition has improved considerably. As a rule six to ten days should be allowed to elapse between the two procedures. The prostate is then removed through the previously made incision. As this rarely requires more than five minutes of nitrous oxide anaesthesia, it will readily be seen that the shock is reduced to a minimum. As neither ether nor chloroform is used, the patient need not be starved before operation. Furthermore, as there is neither nausea nor vomiting, the patient can take nourishment immediately after the operation. When we consider the class of patients with whom we are dealing, and the condition in which they often come to operation, the value of this method will be appreciated. If some of these cases are subjected to a primary prostatectomy under ether or chloroform, especially if it be done through the perineum where an extensive dissection is often required the shock must be very much greater.

If we decide that the patient can stand an immediate prostatectomy, the operation is done under nitrous oxide gas in the usual way. We have described the operation at length in a former paper.

After Treatment. Much of the success of the operation depends on the proper after treatment. Increasing experience has taught us valuable lessons. Continuous bladder drainage is instituted immediately after the operation. This drainage removes necrotic shreds from the interior of the bladder and prevents infection of the cellular planes around the bladder; at the same time it hastens the healing process. The patients are allowed to sit up out of bed on the second or third day, the sooner the better in order to prevent hypostatic congestion of the lungs. The bladder is irrigated daily and urinary antiseptics are given by mouth. The healing of the wound is hastened by keeping it firmly strapped with zinc oxide plaster. As the wound contracts a smaller tube is inserted. The bladder should be drained in this manner for about two weeks; then the tube is removed, and the wound is stimulated with balsam and tincture of iodine. To prevent the formation of a stricture, which, however, very rarely occurs, a sound or a Mercier catheter should be introduced in the third week and thereafter at any time that the stream shows signs of getting smaller. The patients usually begin to void urine during the third week, shortly after the tube has been removed. These patients should be kept under observation for a few months after the wound has healed. Occasionally a sound should be passed. The patient should be examined for residual urine from time to time. The atony of the bladder, which usually exists as the result of the long standing overdistention of the bladder before operation, is either entirely cured or at least very much improved. If the patient has postponed the operation too long, some atony, as is seen by the residual urine, will remain. This can often be overcome by bladder irrigations.

I have attempted to honestly give you the principles which guide me in my work in this difficult class of cases. I believe the diagnosis can always be made without exposing the patient to the danger of cystoscopy. I believe the catheter has a small place in the treatment, if the cases are carefully selected. The daily use of the catheter should be advised against in the majority of cases. The days of usefulness of the Bottini operation are almost over. The perineal operation is an excellent one and gives good results. We believe the perineal operation is inferior to the suprapubic for the reason stated above. Dividing the operation into two stages is a valuable procedure, and will save some apparently hopeless cases. Nitrous oxide gas is a useful anaesthetic, especially in decrepit cases and in diabetes. We firmly believe that rapid work will save some lives that would otherwise be lost.

46 EAST SEVENTY-EIGHTH STREET.

FISSURE OF THE ANUS.

By JEROME M. LYNCH, M. D.,

New York,

Lecturer on Rectal Surgery, New York Polyclinic, and St. Bartholomew's Clinic.

A study of fissure may seem, at first thought, one of trifling importance, one mastered some years back with our a, b, c's; but after several years' experience with this particular class of cases, I am persuaded that the subject of fissure is not a simple one; and when recently a member of these cases came under my care, where the reflex conditions had been treated as entities, to the neglect of the cause, I came to the conclusion that fissures might be studied with profit.

Dr. Nicholas Senn always urged upon his students the necessity of making a rectal examination in every case where neighboring organs were involved; and if this course were followed by the general practitioner many obscure cases would be easier of diagnosis.

A fissure is a solution of continuity of the mucous membrane between the two sphincters, caused by traumatism of a hard faecal movement, or by straining. It occurs most frequently at or near the posterior commissure; occasionally in the anterior commissure in women; and when multiple, is due to some specific condition.

If correctly diagnosed in its early stages it readily yields to treatment; but if allowed to run its course it becomes infected. The infection following the course of the lymphatics burrows up beneath the mucous membrane into the rectum; down towards the skin into the ischio-rectal fossæ; or is carried by the lymphatics into one of the spaces anterior or posterior to the rectum; eventually terminating in abscess and fistula.

Ætiology.—Wallis believes the histological structure of the lining membrane is responsible for this condition. He says:

The lining membrane is not skin and is not mucous membrane; consequently it has not the tough resisting power of the one, nor the vascular supply (which is a great power) of the other. Any lesion, then, in this locality has small chance of recovery. (1) Because of the scanty blood supply; (2) because of the constantly altering dimensions; (3) because of the contents of the interior, which are constantly passing over it.

Ball, on the other hand, believes that most cases of fissure are due to the fact that on either side of the posterior commissures, and the anterior commissure in women, are well developed valves of Morgagni; and that into these recesses some fecal matter finds its way. Eventually these deposits are forced down by a hard fecal movement, carrying the valve before it. At each successive movement the rent is enlarged until finally it reaches the skin, forming the so called sentinel pile of Brodie.

Undoubtedly the primary cause of fissure is the neglect of the individual to comply at the proper time with the demands of Nature, constipation ensuing. Constipation causes congestion; and congestion, as we know, renders the mucous surface more friable and prone to ulceration.

Pathology.—At first the ulcer is superficial; the edges appear undermined on account of the spasm of the muscle causing inversion of the mucous edges; the base is generally raw and covered with blood. Later the edges become pale and indurated, and the base is covered with unhealthy granulations and mucous. At this stage there is true undermining of the edges, and little tracts leading from the ulcer because of the infection and imperfect drainage. The muscle is spasmodically contracted and the mucous membrane in the vicinity is intensely congested.

The pain in the early stages of fissure is due to the traumatism of the hard fecal matter when the patient has a movement. Later on this is increased by the indurated edges of the ulcer being pressed in on the raw surface every time the muscle contracts.

Symptoms.—The symptoms of fissure are usually characteristic; but at times misleading. There is always some distress after a movement of the bowels; the sensation varying from a slight burning and discomfort to a sharp or dull gnawing pain, which lasts anywhere from fifteen minutes to several hours. Some complain of pain on leaving the toilet, after severe straining; pain after urination; pain in the iliosacral joint, thence shooting down the leg or into the back. These pains in women often attack the ovaries, the prostate in men.

In a case recently referred to me, a man of some fifty-five years, had intense pain in the prostate, and having to urinate five or six times during the night was convinced that the trouble was prostatic. The aching in the rectum he attributed to a hemorrhoid which he had had for some time, and about which he came to consult me. After his fissure was cured all prostatic symptoms vanished, and he now sleeps all night without once waking to urinate.

Fissure constitutes about 20 per cent. of all rectal conditions, and occurs about twice as often in women as in men. I find this true both in the cases that come before me at the hospital and those in private practise, arguing that "the Colonel's lady and Judy O'Grady are the same under their skins!"

Surgery.—Staps in the lower bowel may extend externally to the upper portion of the large intestine, with all its autotoxic consequences. It is now quite generally recognized that appendicitis is caused, in the majority of cases, by constipation; therefore, any lesion causing constipation has appendicitis to be reckoned among its results. Again it is a curious

but well known fact that all lesions involving either the rectum or genital tract result in neurasthenia.

Diagnosis.—The diagnosis is usually simple. The patient is placed on his left side; the buttocks are gently separated and the patient asked to bear down, when the fissure is usually brought into view. If this does not succeed, and the sense of touch is not well developed, then the doctor should introduce a Sims speculum, when the diagnosis is easily made with a reflected light.

There may be a hyperæsthesia due to a line of congestion of the mucous membrane, associated with spasm of the sphincter, and simulating very closely a true fissure. Such conditions are always aggravated by exercise, standing for a long time, or anxiety of any sort; but can be readily relieved by applications of pure ichthol.

Sometimes the speculum will fail to reveal the ulcer owing to the fact that it is covered by a hemorrhoid, or an oedematous projection of mucous membrane. In such cases, when convinced that a fissure exists, it will be necessary to have an assistant in making the examination, having him hold the speculum, thus enabling you to use both hands in separating the parts more effectually.

Treatment.—The principles involved in curing fissure are rest and drainage. Failure to obtain these account for the chronic state.

The advocacy of any single procedure for the cure of all cases of fissure would be illogical. Each case should be treated according to individual indications, and the surgeon be guided by these characteristics. In all cases, however, the bowels should be kept open by injections of olive oil or glycerin suppositories. Some make the mistake of giving their patients salts or some cathartic that causes a fluid evacuation, believing that by so doing they are making it easier for the patient. On the contrary, there is nothing more irritating than a liquid stool, because of the excessive salts and eliminative matter which it holds in solution; on the other hand, the suppository or olive oil, by softening the outside of the mass and lubricating the passage, permits of an easy movement through the anus.

When the fissure is recent, the application of a little cotton, saturated with pure ichthol, and allowed to remain in place for several hours, will sometimes afford the most gratifying results. Then, again, the application of a solution of silver nitrate, 20 grains to the ounce, will in other cases procure a rapid healing; also, acetanilid powder dusted on the parts will accomplish the same purpose.

When the fissure has existed for some time, and local applications fail to relieve it, surgery is obviously, the only alternative.

The following cases will illustrate:

CASE I.—Mrs. A. B., thirty-five years old, was married, and the mother of two children.

Family History.—Father and mother were living; brother died of diphtheria at the liver, when at age twenty.

Personal History.—Patient was married at the age of twelve; married at thirteen, and her first child was born when she was fifteen years of age. She, furthermore, gave a history of gonorrheal infection, ten years ago. Ever since she had had severe pain a few days before menstruation, lasting from twelve to thirty-eight hours after the onset of flow. She had been constipated since a short time after her wedding, having a movement only once in a day, a cathartic being necessary

was negative. Digestive organs showed a coated tongue; appetite was poor; there was distention and fullness after eating. The uterus was freely movable, antversion and flexion were present. A small mass in the *cul de sac* could be located which caused a good deal of pain on palpation. She suffered from frequent and painful urination; burning sensation when bowels moved; discharged mucus and blood at stool, in variable amounts; sphincter contracted spasmodically.

Diagnosis.—Fissure in anus.

Before coming to me she was treated for cystitis, and had her bladder washed out several times, getting no relief. After her fissure had yielded to treatment, all other disturbances disappeared.

CASE II.—Mrs. C., age twenty-seven years, a native of New York, married, and the mother of one child.

Family history was negative.

Personal history showed that she had always felt well till her first child was born; after that she suffered from slight constipation, and noticed that she had some pain after a movement; but, as it only lasted a short while, she did not pay much attention to it. A little later she developed severe pain down the back of her leg. She went to her family physician who agreed with her that her trouble was sciatica, and treated her accordingly. It is true, however, that she did not mention her rectal condition, in the first instance, considering it of no importance. As it became worse, though soon after this, she spoke of it to him, and he then sent her to see me. On examination I found a fissure in the posterior commissure. Operation was advised, and accepted; patient making a good recovery. Her convalescence occupied some four weeks, the pain in the leg lasting until the fissure was entirely healed. Since which time she had had no trouble with "sciatica."

Surgical Treatment.—Divulsion requires an anæsthetic; increases the traumatism; causes extravasation; seldom gives permanent relief, and should have no place in the treatment of fissure.

Incision is the only logical treatment of fissure after the primary stage. The patient, having been thoroughly prepared, is placed in the lithotomy position if a general anæsthetic has been given; otherwise, in the Sims posture. A Sims speculum is now inserted, when the fissure will be brought well into view. Careful examination with a probe will reveal any burrowing tracts, which must be followed up and opened; then the edges of the ulcer are carefully trimmed away and an incision made through the middle of the fissure, which is carried well out into the skin; the idea being to establish free drainage. This can only be accomplished by making the skin incision a fairly deep one, so that we have an inclined plane from the inner limit of the fissure to the end of the skin incision.

To proceed, the edges of the skin are now trimmed away to prevent early healing of this part of the wound; and I wish to emphasize the importance of this procedure, for it is by the observance of this rule that the success of the operation depends. If the skin incision is not kept open until the mucous membrane is healed all our work is in vain, and a return to the original condition assured.

When Dr. Tuttle's incision is used, all the skin must be removed between the two incisions. The wound is then packed with iodoform gauze, and this must remain in place at least forty-eight hours, when it is removed to be replaced by a smaller dressing. After this the patient is dressed as required.

6 WEST THIRTIETH STREET

SOME FACTS ANENT THE PERSONNEL OF THE ARMY MEDICAL DEPARTMENT.

By H. SHERIDAN BAKETEL, M. D.,

New York.

The official army register is always entertaining because it contains many pertinent facts concerning the fighting men of this country. The latest register is of unusual interest in that it gives, not only the army history of every officer, but in the majority of instances shows what each man's educational advantages have been.

Heretofore, only graduates of the Military Academy at West Point have been specifically mentioned, but now most of the officers' names are accompanied by their academic honors. These range all the way from a record like that of Major James Evelyn Pilcher, retired, the erudite editor of the *Military Surgeon*, who is A. B., University of Michigan, '79; M.D., Long Island College Hospital, '80; A.M. and Ph.D., Illinois Wesleyan University, '87; L.H.D., Allegheny College, '02; to the modest lieutenants of infantry who glory in the possession of diplomas from the high schools of Comanche, Tex., Roodhouse, Ill., and Nappanee, Ind.

In looking over the personnel of the medical department, it is noticed that three hundred physicians compose this branch of the service. Of these, ninety-five, or practically 32 per cent. hold degrees of A.B., B.S., Ph.B., B.L., or C.E., from American colleges, while one is a Ph.G., one an LL.B., and a third a graduate of the London School of Tropical Medicine. Of the two hundred and nineteen assistant surgeons, ranking as captains or first lieutenants, one hundred and twenty-one have been graduated from the Army Medical School in Washington, which gives instruction to young surgeons in military hygiene, duties of medical officers, medical department administration and customs of the service, military surgery and x ray work, military and tropical medicine, ophthalmology, optometry, sanitary chemistry, operative surgery, clinical microscopy, and bacteriology.

The members of the medical department received their education in every part of the country, although the larger number were graduated from medical schools in the section east of the Mississippi. The University of Pennsylvania leads with forty-seven of its medical alumni in the medical corps. The University of Virginia follows with twenty-eight, and is hard pressed by George Washington University (including graduates accredited to Columbian) which has twenty-seven. Then come Columbia University (College of Physicians and Surgeons) with twenty, Jefferson seventeen, University of Maryland sixteen, New York University (including graduates of Bellevue) fourteen, Harvard nine, and Georgetown eight. Yale and the University of Michigan each have seven, and the University of Buffalo and Vanderbilt six. Five officers are credited to each Johns Hopkins, Northwestern, and the Detroit College of Medicine, and four to Rush, the Medical College of Ohio, the Medical College of Virginia, and Medico-Chirurgical of Philadelphia. Syracuse University, The University of Illinois, Atlanta College of Physicians and Surgeons, and Baltimore Medical are each represented by three graduates; and these colleges have two: The Universities of California, Iowa, Vermont,

Minnesota, Texas, and Alabama, College of Physicians and Surgeons of Baltimore, the Medical College of the State of South Carolina, Barnes, Kansas City Medical, Miami, the Kansas Medical College, and Washington University (Missouri Medical and St. Louis Medical). These colleges have a single representative: Dartmouth, McGill, Cooper, Bowdoin, Long Island, Western Reserve, Tulane, Starling, Creighton, Memphis Hospital, Baltimore University, Michigan College of Medicine and Surgery, Louisville Medical, Central University of Kentucky, and the Universities of Georgia, Missouri, Tennessee, Kentucky, Louisville, and the South.

Several officers have taken two degrees of M. D. in different medical schools. The second degree, which has not been included in the original list of medical schools represented, has been granted by New York University and Columbia University to two men each, while these institutions have added an additional M.D. degree to a single representative: Universities of Pennsylvania, Buffalo, Nashville, Toronto, and Berlin, Jefferson, Northwestern, and the College of Physicians and Surgeons of Baltimore.

There are many surgeons on the retired list, but, unfortunately, a large number do not specify their alma maters. Columbia leads the retired list with five alumni, Jefferson and New York University (Bellevue), are tied with four, Harvard has three, Yale and the University of Pennsylvania, two; University of Michigan, Rush, University of Virginia, Long Island Hospital, University of Kansas, Detroit College of Medicine, University of Buffalo, Royal College of Surgeons of London, Albany Medical, University of Wurzburg, University of Louisville and Georgetown, one each.

The retired list contains the names of ten brigadier generals who are credited to the medical department. The dean of this body is General John F. Head, M.D., Harvard '43. He entered the army as a first lieutenant and assistant surgeon in 1846 and retired in 1885. One of the best known of the retired brigadier generals is General George M. Sternberg, the eminent bacteriologist, who was surgeon-general from May 30, 1893, to June 8, 1902.

Several of the medical officers first essayed to become line officers, but after some time spent at the Military Academy, laid down the sabre for the scalpel, and now as medical officers outrank many of their classmates at the Point. This list includes Major Charles B. Ewing, Major Paul Shillock, Major Joseph T. Clarke, Major Robert S. Woodson, and Captain Irving W. Rand.

Another surgeon who saw service for several years as a lieutenant of infantry is Major George D. Deshon. He was graduated A.B. from Dartmouth in '83 and from the Military Academy in '86, and was assigned as a second lieutenant to the 2d Infantry. After four years in the field he resigned and took his M.D., at Bellevue, later getting the same degree from the University of Pennsylvania. Dr. Deshon was appointed a first lieutenant and assistant surgeon in 1892, a captain in 1897, and a major in 1904. Many of his West Point classmates have not yet attained a majority.

One of the most interesting characters in the army is Major James Carroll, whose recent achievements in the field of scientific medicine are a well known

to warrant rehearsal here. He was born in England June 5, 1854, and from January 9, 1874, to September 14, 1883, served as private, corporal, or sergeant in the First and Seventh Infantry. On September 15, 1883, Carroll was made a hospital steward and served in that capacity until May 21, 1898, although he had been graduated as a physician from the University of Maryland in 1891. In 1902 Dr. Carroll was appointed a first lieutenant and assistant surgeon and the last Congress passed a bill promoting him to major for his valued contributions to medicine.

It must not be imagined that medical men in the army are confined to the medical department. Disciples of Æsculapius will be found among the general officers, adjutant general, quartermasters, paymasters, chaplains, and cavalry, artillery and infantry officers.

Doubtless, the best known officer in the army today entered the service as an assistant surgeon and in seventeen years, had climbed over hundreds of heads to become a major general. Leonard Wood, now the ranking officer in the Philippines, was graduated from Harvard Medical School in 1884, and two years later entered the medical department of the army as a first lieutenant. In 1891, he became a captain. When the Spanish War broke out, he was made colonel of the 1st U. S. Cavalry, better known as Rough Riders and later become major general of volunteers. He cleaned up Cuba, and for this herculean task was created a brigadier general in the regular establishment in 1901 by President McKinley. Two years afterward he was promoted to the next grade, now the highest in the United States Army. General Wood will, if he lives, be in command of the army for many years, as he still has fifteen years service ahead of him before retiring at the age of sixty-two.

Another major general who entered the army as an assistant surgeon is Major General F. C. Ainsworth, the adjutant general. New York University granted him the degree of M.D., in 1874, and within four months after graduation, he received the coveted appointment to the army. In 1879, Dr. Ainsworth became a captain and in 1891 a major. In 1892, the major was made chief of the record and pension office with the rank of colonel; being given a brigadiership in 1897. The importance of the work General Ainsworth had accomplished was so pronounced that in 1904 Congress created a new department, the military secretary's, by the consolidation of the adjutant general's department and the record and pension office, with General Ainsworth as its head. General Corbin, at that time adjutant general, was not included in the consolidation, he having been assigned under his military rank, to the command of the Philippines Division, although he continued to hold the office of adjutant general to which he was originally commissioned. After the office of adjutant general became vacant through the appointment of General Corbin to be lieutenant general, legislation was enacted by Congress through the designation of the military secretary's department to that of the adjutant general's department and changing the title of the military secretary to that of adjutant general. In 1900, following this course, as major general and adjutant general.

Thus it will be seen that the two most prominent generals in the army men who will eventually attain

its policy for years to come, Wood and Ainsworth, are former medical officers, who still retain their love and veneration for the profession of which they are such capable members.

The medical profession is represented in the quartermaster's department by Captain George H. Penrose. He became a major brigade surgeon of volunteers in 1898 and held rank until 1901, when he gave himself up to the allurements of regular army life and accepted a captaincy of quartermasters. He is an alumnus of the medical department of the University of Buffalo in the class of '86.

The representative of medicine in the paymaster's department is Colonel William H. Comegys, assistant paymaster general. The colonel is a graduate of Miami Medical College and a former interne in the Cincinnati Hospital. He became a major and paymaster in 1881 and attained his present rank and position in 1906.

One chaplain there is who can administer therapeutical as well as spiritual consolation—Captain William T. Anderson, chaplain to the 10th Cavalry and a graduate of the Cleveland Homœopathic Medical College. He is the only holder of a homœopathic degree in the army, so far as can be learned.

Two physicians are serving in the cavalry as line officers, Second Lieutenant Rodman Butler of the 6th Cavalry, a medical graduate of the University of Pennsylvania and First Lieutenant Delphy T. E. Casteel of the 7th Cavalry. Dr. Casteel, who received his M.D. from the University of Maryland in 1885, entered the volunteer service as colonel of the 2d West Virginia Infantry in 1898 and was mustered out April 10, 1899. Three months later he became a captain in the 27th U. S. Infantry, one of the volunteer regiments sent to the Philippines, and February 2, 1901, saw him a first lieutenant in the regular establishment, assigned to the 7th Cavalry.

The artillery corps has two medical men in its ranks, Captain Russell P. Reeder, a graduate of Miami and First Lieutenant George L. Hicks, Jr., an M.D. of the University of Maryland. Captain Reeder was a captain in an Ohio regiment in the Spanish war and became a second lieutenant in the 1st Infantry in 1899. He was transferred to the artillery and became a captain in 1905. Thus in six years, he attained a rank that in the days before the trouble in Cuba, many men waited from twelve to twenty years to reach.

Lieutenant Hicks entered the volunteer service in 1898 as assistant surgeon of the 1st Maryland Infantry. In August, 1899, he became first lieutenant and assistant surgeon of the 38th U. S. Infantry, a volunteer regiment, and when mustered out in June, 1901, he was major and surgeon. A few months later, Dr. Hicks forswore his allegiance to medicine to become a first lieutenant of artillery.

The sole representative of the profession in the infantry is Captain Ralph H. Van Deman of the 21st. He received his A.B. from Harvard in 1888 and entered the army as a second lieutenant of infantry in 1891. While serving as an officer, he studied medicine at Miami and took his M.D. in 1893. Later on, he was graduated from the Infantry and Cavalry School and the Army War College. Apparently, Captain Van Deman studied medicine for the satisfaction of possessing a knowledge of the art and science of medicine.

On the retired list of the army is an officer who was actuated by the same motives, Brigadier General Charles A. Coolidge. He entered the army as a private during the civil war, became a second lieutenant of infantry in 1864 and a captain in 1877. While serving as a first lieutenant, General Coolidge studied medicine at the University of Wooster, now the medical department of Ohio Wesleyan University, and received his M.D. in 1873. General Coolidge was retired as a brigadier general in 1903.

Another officer who was attracted by medicine is First Lieutenant William N. Williams, who is a retired infantry officer, now practising medicine in Indianapolis. He was born in Ireland in 1837, and enlisted in the 6th Indiana in 1861. He became a first lieutenant of volunteers before the expiration of the war and in 1867 was made a second lieutenant in the regular establishment. In 1878 he was compelled to retire on account of disability received in line of duty and studied medicine at the College of Physicians and Surgeons, Keokuk, Iowa, receiving the degree of M.D. in 1882. Dr. Williams has been in medicine since that time.

A physician appears on the retired list who found army life more interesting than the practice of medicine, Lieutenant Colonel Valentine McNally, ordnance store keeper. He took his medical degree at Georgetown in 1867, was given an A. M. two years later and was honored with an LL.D. by his alma mater in 1889. In 1882, Dr. McNally was made ordnance store keeper with the rank of captain and retired with the rank of lieutenant colonel in 1903. He is now practicing in Washington.

A separate article could be written on the gallantry of medical officers in battle and in the battle against disease, for which they have been given brevet commissions.

Captain William C. Minor was brevetted captain for "Meritorious and distinguished services, at Fort Columbus, New York Harbor, where cholera prevailed;" Colonel Charles K. Winne brevetted lieutenant colonel for "Meritorious and distinguished services at Tybee Island where cholera prevailed;" Colonel John H. Janeway brevetted lieutenant colonel for "Gallant services at the battle of Olustee, Florida;" Brigadier General Charles I. Wilson, brevetted captain for "Meritorious and distinguished services in the battles of Todd's Tavern and Yellow Tavern, Virginia," and major for "Highly meritorious and distinguished services in his department in twelve engagements in the Shenandoah Valley;" Brigadier General Albert Hartsuff brevetted lieutenant colonel for "Meritorious and highly distinguished services during the outbreak and continuance of cholera in New Orleans;" Brigadier General Charles T. Alexander brevetted colonel for "Gallant services in action against Indians at the Clearwater, Idaho, July 11 and 12, 1877;" Brigadier General Joseph R. Smith brevetted colonel for "Devotion to the sick during the prevalence of cholera at Little Rock, Ark.," and Brigadier General John Moore brevetted lieutenant colonel for "Gallant services during the Atlanta Campaign," while very many medical officers were given advanced rank for "Gallant and meritorious services during the war."

The importance of the medical department of the army is being discovered by those in authority in Washington. Their eyes were opened after the med-

ical history of the Russo-Japanese war became known, and slowly but surely the American army surgeon is coming into his own.

57 LAIGHT STREET.

DISEASES OF THE EYE, EAR, NOSE, AND THROAT AMONG PERSONS AFFLICTED WITH LEPROSY.

By H. T. HOLLMANN, M. D.,
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Philadelphia; Physician of the Board of
Health of the City of Philadelphia, etc.

In my report to the Hawaiian Territorial Board of Health, I gave a resumé of my work during the year in the diseases of the eye, ear, nose, and throat in which I said: I would first call your attention to the leprosy conditions affecting the eye.

Ptosis.—I have found four cases with ptosis of the eyelids due to the bacillus of leprosy affecting the entire oculomotor nerve. In one of the cases a complete cure resulted through the performing of pannus operation (removing an elliptical piece of the lid and suturing the edges together).

Ectropion or Eversion of the Eyelids.—There are fifty-five lepers suffering from more or less ectropion. In some of the cases there is complete ectropion exposing the whole inner aspect of the lower eyelid, in others it is as yet only a partial ectropion. Ectropion in these cases is due either to the cicatrices of healed leprosy ulcerations drawing down the eyelid or to paralysis of the fifth or seventh cranial nerves. In ten of these cases in which I have been allowed to operate there has resulted a complete cure of the trouble. In some cases von Graefe's operation was performed, in others the strip removed was from the horizontal plane.

Edema of the Lids.—As the result of severe leprosy conjunctivitis we have an associated edema of the eyelids. We also have found some cases where the edema was unquestionably due to renal disease, probably leprosy in character.

Tubercles.—In many cases of the tuberculous form of leprosy we find the formation of tubercles in the eyelids. If small and not too numerous they cause little or no interference with the functions of the eyelids. When the tubercles become too large, their complete removal is indicated.

Symblepharon.—As the result of violent leprosy conjunctivitis we have in a few cases an adhesion between the eyelid and the ball of the eye.

Simple Ophthalmia.—This occurs among the lepers much more frequently than among normal individuals from the fact that there is more or less anesthesia of the parts, the eyelids fail to recognize the presence of any irritating substance, and the irritating substances are not washed away by the tears, causing finally a severe ophthalmia.

Leprosy Ophthalmia.—By the name of leprosy ophthalmia I mean those cases of ophthalmia that are due to true leprosy involvement of the conjunctiva, causing a resultant ophthalmia. The formation of leprosy tubercles in the choroid coat of the eye. I am convinced is one of the principal causes of this leprosy ophthalmia.

Ophthalmia Neovascularis.—I am sorry to say that we find a few cases of ophthalmia neovascularis. All

of which, however, have recovered under proper treatment.

A Leprosy Pterygium Like Pannus.—There is among a few of our patients a peculiar condition which I can only describe and not name as I can find nothing analogous in any textbook on diseases of the eye. For convenience sake I have called it a leprosy pterygium associated with pannus. It starts undoubtedly as a leprosy tubercle of the choroid coat which finally disintegrates and ulcerates externally, subsequently from this point a hypertrophic overgrowth extends to and gradually involves the cornea. It is plentifully supplied with bloodvessels, hence a condition of pannus. When once it has completely involved the cornea, there is no hope for vision, except possibly through an iridectomy. If the condition is seen in time we can arrest its progress, but for how long we do not know, as it has been only for the last year that we have attempted to arrest it.

Cornea Ulceration.—On account of the anæsthetic condition of the cornea due to involvement of the nerve supply of the cornea by the leprosy growth, we find many cases of ulceration of the cornea. This ulceration in certain debilitated cases is much like the creeping ulcer of Sämisch and the ulcus rodens of Mooren.

Vascular keratitis occurs as before mentioned, yet there are other cases that have a beginning opacity and vascularization at the corneal margin, and gradually extending over the whole cornea.

Iritis.—In a certain percentage of the eye cases we have occurring an iritis, which seems to be caused by the general leprosy involvement of the parts. In others the cause is undoubtedly syphilitic or cachectic.

Choroid.—We find in the choroid coat in certain cases leprosy tubercles, these appear as small yellowish spots and surrounded occasionally by a slightly inflammatory area. It is very difficult to discover these small tubercles of leprosy, requiring repeated ophthalmoscopic examinations. Tubercles of the choroid when of a large size often disintegrate and ulcerate externally.

Retinitis.—Leprosy retinitis unfortunately occurs in certain cases, with a termination in a complete loss of sight after suffering excruciating pain. In a few cases the retinitis was concomitant with a formation of an opacity and pannus like condition of the cornea.

Refraction Among the Lepers.—At the beginning of the year we depended entirely on glasses of either convex or concave cylinders, such as are always in stock, to correct the vision field of the lepers. This was a slight help to them, but is discontinued, as we now intend to thoroughly examine each case with the ophthalmoscope and thus accurately refract the eye, which examination, in cases of pannus, retinitis, ulceration, posterior synechia, and various other disorders of the eye, will require undoubtedly very complex lenses and much patience on the part of the refractor. Yet how great will be the relief afforded to the unfortunate leper.

Leprosy of the Ear.—Diseases of the ear affecting the lepers differ not at all from such diseases affecting otherwise healthy individuals, excepting the tuberculous form which involving the middle, and in the later stages the inner ear.

can be traced to causes originated by the leper bacillus.

Acute middle ear catarrh are caused by leprosy inflammation of the nasopharyngeal mucous membrane extending up into the ear. In chronic middle ear catarrh exists the same cause except that it is chronic. All the cases of diseases of the ear treated have been greatly benefited. In the last year the cases treated were: Acute middle ear catarrh, 25; chronic middle ear catarrh, 45; mastoid disease, 2; acute suppurative disease of the middle ear, 20; myringitis, 60; impacted cerumen, 20.

Leprous Affections of the Nose.—In 75 per cent. of all cases treated there existed a complete perforation of the nasal septum, in many a complete absorption of the entire cartilaginous and bony structures, presenting an appearance like that often seen in those suffering from the tertiary lesions of syphilis.

Leprous Hypertrophic Rhinitis.—The mucous membrane is greatly hypertrophied and the turbinated bones enlarged, resulting in complete closure of the nostril. These cases of leprosy hypertrophic rhinitis bleed more freely than those of ordinary hypertrophic rhinitis. In only two of the cases examined bacteriologically have we been able to demonstrate the bacillus of leprosy. By the use of a spray composed of eucalyptol, 2 drachms; petrolatum, 1 ounce, followed by insufflation with aristol, we have had marked success in curing this condition.

Two cases of peculiar interest, identical in pathology, have occurred in the nasal work. There existed a condition of hypertrophy of the turbinates with a subsequent prolapse, so that they were found lying on the floor of the inferior meatus; these subsequently degenerated in the centre, forming small sized abscesses. The patients were cured by injections of caustic medicaments into the prolapsed structure.

Leprous Atrophic Rhinitis.—Among the lepers I find that there is no difference between atrophic rhinitis of the nonleper and the leprosy atrophic rhinitis, either in symptomatology or treatment. By the use of eucalyptus spray and ichthyol, 20 per cent. in glycerin, on cotton, the mucous membrane becomes much more healthy in appearance. Discharge and odor disappear.

Leprous Tubercles.—We have found the mucous membrane of the nasal cavity at times the seat of small yellowish tubercles. These sometimes degenerate, leaving a small sized ulcer, which under proper treatment heals nicely.

Nasal Neuroses.—Being interested to know the number of patients who were suffering from leprosy neuroses of the olfactory nerve, I examined one hundred severe cases of leprosy. I found twenty-one who could not smell anything. Of fifty mild cases of leprosy I found none who could not smell.

Inflammation of the Antrum.—We find in a few instances inflammatory conditions in the antrum of Highmore. These are caused, I think, from the periostitis of the alveolar processes, for I have particularly noticed that lepers as a rule suffer from greatly decayed teeth and its resultant pathological changes in the alveolar processes. The condition, though painful, is easily relieved by giving free drainage either into the nose or into the alveolar process.

Tonsils.—I have noticed a peculiar form of diseased tonsils affecting lepers. It usually begins with a formation of small yellowish white leper tubercles in the substance of the tonsils, which then become inflamed and slightly swollen. This enlargement subsequently increases, and a subsequent fibroid change takes place in the leprosy tuberculous tonsil. Hence in a well advanced case one will notice greatly enlarged tonsils studded with leprosy tubercles. Under the application of silver nitrate gr. xx to the ounce of water, these tonsils decrease in size.

Pharynx.—In nearly all the patients whom I have examined there has been found a state of hyperæsthesia to the touch. Regarding the sense of taste of one hundred bad cases of leprosy (both forms) 8 per cent. could not tell sweet from sour or bitter, and 10 per cent. could not tell hot or cold in the mouth.

Leprosy of the pharynx begins in the form of small tubercles, which cause inflammatory reaction in the surrounding tissues which subsequently disintegrate and form more or less ulcerations. These ulcerations often penetrate the soft palate. In some cases I have seen the soft palate actually resembling a sieve from so many perforations. These ulcerations may also occur on the uvula, on the pharyngeal wall, in the tonsils, or in the space between the pillars. The uvula in many cases is greatly thickened, sometimes bent, and adherent on itself or to one or other size.

I have seen two cases in which a small size ulceration of the soft palate has taken on a rapid gangrenous character, showing a nasty gangrenous sluff surrounded by a rapidly spreading area of inflammatory reaction. It is associated with marked systemic toxæmia. The treatment consists in injecting of a 5 per cent. solution of zinc chloride a few drops here and there around and through the gangrenous ulceration, causing it in a day or so to sluff off, leaving clean, healthy tissue.

Larynx.—Among the oldest diagnostic signs of leprosy, we have hoarseness and loss of voice. The laryngeal condition is usually an extension of the pharynx and nasal inflammation, or it may occur as a complication of advanced tuberculous leprosy without involving the pharynx. On laryngeal examination, we find a hyperæmic mucous membrane of the arytenoids and the aryepiglottic folds which early become studded with small yellowish white lepra tubercles which subsequently ulcerate. The epiglottis loses its movement, and the false cord become swollen, obscuring the true cords. In a few cases leprosy ulceration of the epiglottis itself was noted. In certain other cases we found small tubercles in the arytenoid space and on both the true and false cords, these acted here the same as all leprosy tubercles, they thickened and indurated the surroundings and then ulcerated.

In six cases the leprosy tuberculous growth in the larynx became so great as to completely fill the laryngeal cavity, necessitating an immediate tracheotomy, which gave relief from the suffocation and removed the irritation from the greatly diseased larynx. Our treatment has been eucalyptol spray, with insufflation of orthoform and in certain other cases of local application of protogol in a solution of 5 per cent.

In the examination of the larynx we found that in the great majority of cases there was a hyper-sensitiveness in contradistinction to what one would expect to find.

In closing I would briefly summarize the weekly amount of eye, ear, nose, and throat work. We have 60 eye cases, 25 ear cases, 100 nose cases, and 100 throat cases.

LATE SECONDARY HÆMORRHAGE FOLLOWING THE REMOVAL OF ADENOIDS.*

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One of the evidences of modern progress in pediatrics is the recognition of the importance of adenoid hypertrophies in the nasopharynx, not only in their physical, but also in their psychical consequences. The result of this recognition has been what we may well call operation *en masse*, the subjects numbering scores in a single school, tens of thousands in a city like New York. Unfortunately, here too, familiarity has bred contempt; every practitioner deems himself competent to remove these growths, and the operation is almost universally regarded as trivial. It is not my purpose, at present, to discuss those common errors of technique that so often render the results imperfect and unsatisfactory, nor to animadvert upon the thousands of cases that are operated on quite unnecessarily; it will suffice here to call attention to a serious danger involved in this supposedly trivial procedure, one not as well known as it should be, and treated with almost contemptuous unconcern even by those specialists of experience, who ought to regard it as an ever present eventuality—I refer to the serious and alarming sequel known as late secondary hæmorrhage.

I shall begin with a brief account of two cases out of my private practice, but not operated on by myself.

CASE I.—E. Y., a girl of nine years, was operated upon for adenoid vegetations with the forceps, without anæsthesia; a previous hæmorrhage had been followed by recurrence. Nothing eventful occurred until the evening of the fifth day, when I was hurriedly summoned to attend the child on account of a profuse hæmorrhage, which was checked with some difficulty with solid iodoform. In the middle of the night I was called upon again because of renewed bleeding; this was more readily controlled by the local application of strong vinegar. The patient has recently been operated upon the third time.

CASE II.—M. B., also a girl of nine years, was operated upon with the curette and without anæsthesia; in this case the adenoid enlargement was very moderate and no operation had been necessary. Here, too, profuse bleeding set in after operation, and, the day I was called the child had vomited about twelve ounces of coagulated blood, passed one or two tarry stools, and lost in addition a considerable amount through the anterior nares. Here, too, adrenalin was not very effective, but in this case I did use it sparingly. But checked the hæmorrhage promptly and permanently with vinegar.

I would not like to make it appear that both children were operated upon for very moderate adenoid growths; in our case with the forceps, in both with the curette. I would also call attention to the

fact that, in neither case, had the parents been warned as to the possible event of a secondary hæmorrhage, and had therefore taken no precautions in the way of keeping the children quiet and on fluid food; indeed, both specialists were themselves out of town when most needed.

I may at once dispose of a suggestion that was strongly urged in my second case; neither child is a bleeder. This is evidenced by the circumstance that the hæmorrhage did not set in until the fifth day and yielded readily to an astringent; also by the fact that careful observation of both patients from early childhood has not shown the faintest indication of a hæmorrhagic diathesis, and that I saw the blood clot normally, in a few minutes, in both cases. As a matter of general knowledge, hæmophilia is exceedingly rare in females. Granddier gives the ratio as eight per cent. of all cases.

I cannot see that there is any need of distinguishing these cases clinically from the ordinary secondary hæmorrhage formerly so familiar to the general surgeon, now becoming rarer under aseptic technique. In other words, late secondary bleeding after adenoid operations is due to the septic infection and sequestration of a clot or, more often, a tab of tissue left behind through incomplete removal or the laceration of adjacent structures. We may as well admit that the detection of such tabs or shreds is so difficult, that even a thoroughly experienced operator will frequently fail to notice them on inspection or palpation.

My experience of two such cases suggested that this unpleasant sequel could not be so very rare, and a casual dip into the literature was sufficiently convincing; thus, Hopkins¹ encountered secondary hæmorrhage twice in a series of 123, certainly not a small proportion. Nevertheless, the textbooks lay very little stress on the matter, those on pediatrics being notably deficient in this respect; my experience, just given, shows that even the laryngologists almost invariably fail to warn the parents as to this ever possible and startling eventuality. My second case shows that the bleeding may attain alarming proportions, and we can readily picture a most serious and terrifying situation, if the nonchalant pose of the operator be adopted by the child's family; the patient may be many miles and hours from medical aid when the emergency suddenly arises.

Late secondary hæmorrhage seems to be more frequent when the forceps is used than when we employ the curette. This is not difficult to understand, for the latter instrument is more likely to scrape away the diseased tissues cleanly, whereas the forceps acts more or less by avulsion, lacerating the tissues, dragging on and possibly injuring large vessels, and is apt to leave behind tags and shreds, which may become infected, break down, and so lead to profuse bleeding after a number of days. The more carefully all the vegetations are removed the less probable are both secondary hæmorrhage and recurrence; a general anæsthetic should therefore be given unless specially contraindicated. Chloroform is fully equalled in anæsthetic danger by (Haskell), but is less potent as a general anæsthetic and robust and could have taken ether, ethyl chlorid, or nitrous oxide gas without risk. Anæsthesia thoroughly

* Read before the Mount Sinai Medical Society, September 24, 1907.

¹ Ann. Surg., Boston, January, 1907, p. 125.
New York Medical Journal, January 30, 1906.

demoralized when my turn came to treat them, so great was their dread of further painful manipulations; my difficulties were not a little increased by their resistance to my procedures.

As to the treatment of secondary hæmorrhage, I may say the following: Adrenalin is ineffective in these cases; the bleeding is apt to recur when the tissues again begin to swell, in an hour or so; astrin-gents are much more satisfactory, of these acetic acid (vinegar) is the cleanest, iron the most objectionable. I found application through the anterior nares the easiest mode, for application per os causes gagging and far greater discomfort. Plugging is a last resort, as the plug cannot be allowed to remain long; neither is it surely effectual, as blood may readily continue to flow down the pharynx.

The lessons to be drawn from such cases as these are obvious, and may be briefly noted as follows:

1. Operate cleanly, with the curette. We work in the dark in any case, and the forceps is a most uncertain instrument when we cannot see; when we use it we are almost sure to leave residua, and may cause injuries, and those very mild cases where a nip of the forceps suffices can usually dispense with an operation. It is my belief that too many patients are now being operated upon, at least in practice among the well to do.

2. Use general anæsthesia, so as to be able to operate thoroughly without regarding the feelings of the patient. Even with the best (?) local anæsthesia the child's struggles are apt to lead to a harmful shortening of the procedure, which, at the very least, will achieve imperfect results.

3. Warn the parents of the danger of a late hæmorrhage. The child should be kept in its room for a week, in bed if it is of a restless disposition. The diet should be absolutely fluid, and preferably cold. Such articles as iced milk and ice cream alleviate the soreness that follow the operation and check a possible tendency to hæmorrhage; hot substances are quite painful during the first few days.

111 WEST EIGHTY-FIFTH STREET.

INJURIES TO THE HEAD (BRAIN).*

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This class of injuries presents symptoms probably more complex and confusing than those of any part of the body. They are also the most interesting to the observant physician in spite of the fact that there is practically no class of injuries which causes him greater worry and anxiety, and no class which calls for nicer judgment. One of the greatest, if not the very greatest, causes of anxiety is the *after effects*, for although, "the brain is apparently well protected against wounds in general, it is more than ordinarily susceptible to the jar of concussion or pressure from blood clot or depressed bone. Thus, what might be a comparatively insignificant blow to any other organ would be fraught with the gravest results if inflicted upon the head." To illustrate: A man is struck on the head; the same amount of force expended elsewhere would do no harm. The symp-

tomatic plan of treatment having been pursued, this man later becomes insane. Whether the general public connect these two facts, the blow and the insanity, or not, medical men are very apt to do so. Perchance, neither insanity nor any other symptom follows for a long interval, then Jacksonian epilepsy develops; maybe after many years an abscess of the brain is diagnosed. Looking into the history of the case, we find that years before the patient had received an injury to the head. Are our suspicions not aroused? Thus in injuries to the head many things must be taken into consideration, for the contents of the skull are of vastly more importance than the skull itself, and injuries to those contents vastly more serious. To illustrate these points, I recall the following cases:

CASE I.—P. H., a well developed negro laborer, employed by a railroad company, received in a fight with another negro laborer a violent blow upon the head, which "knocked him senseless." When first seen there was a very slight (hardly perceptible) paralysis of one side, some inequality of the pupils with semiconsciousness, etc. I saw him in this condition and advised immediate operation. This, the company's surgeon refused. Later he sank into absolute unconsciousness and remained in that state for some days. He then began to improve, and after some little time (possibly two weeks), he seemed to be all right, and remained so for, perhaps, two or three weeks. (During this time his assailant was tried, and being convicted of simple assault, some light punishment was inflicted.) In a short time this man became insane, and after a commission of lunacy had been held upon him, he was confined in the city jail awaiting a guard from the asylum. He died while in jail, and it became my duty (and I may add my pleasure), as coroner, to hold an autopsy. This revealed just what one would have expected, a fractured skull, with very slight depression, injury to the dura, an old hæmorrhage, and a pachymeningitis externa. No other cause of death was found. The attending physician was never convinced that the blow on the head had anything to do either with the insanity or the death. In this case, would not operative intervention have given the man a far better chance of life?

In other cases a slight blow may suddenly develop very grave symptoms, as in the following case:

CASE II.—C. S., a railway employee, was struck in a fight on the forehead with a cotton hook. He was able to walk to my office and tell me all about the fight in which he had been injured. At that time he presented no symptoms of a serious injury. I could, however, detect a depressed fracture and advised an immediate operation. While discussing this point with another physician (who chanced to be present and who advised me strongly to "await symptoms") the patient suddenly developed an intermittent aphasia and then proceeded to have very violent convulsions on my office floor. He was later carried home, and the depressed bone elevated. From the time he recovered from the chloroform to the present (he is now one of the best Pullman porters on the Seaboard Air Line Railway) he has never had a bad symptom. (See the *New York Medical Journal* for March 5, 1898.)

In other cases, while the blow, or cause of the injury, may be terrific as well as the injury, or the result, the symptoms may be slight, as in the following case:

CASE III.—W. C., while at work in the blacksmith's shop of the Seaboard Air Line Railway on April 24, 1902, was struck on the head by a piece of flying iron.

* Read at the annual meeting of the Association of the Surgeons of the Seaboard Air Line Railway, at the Jamestown Exposition, 1904.

This fragment weighed several pounds, went upwards about twenty feet, and then towards this man for about thirty feet, having just been cut off under the steam hammer. It struck him on the right side of the head just in front of the parietal eminence. When I saw him he was partially unconscious; his constant cry was: "If I could have an operation I would be better." (What kind of operation he wanted, whether surgical or intestinal, I have never known.) I had him at once conveyed to the hospital and preparations made to operate upon him. On the way, however, he sank, and became so weak that the operation had to be delayed. Later in the day, when I did operate upon him, I found a compound, depressed fracture of the vault of the skull with fragments of bone, pieces of the scalp, and a lock of hair driven through the dura and at least an inch into the brain substance. These were all removed with great care and the wound in the dura sutured, as was the scalp wound. That same night a very brisk hemorrhage from the brain made it necessary to take out the skin sutures, and pack the wound. In other respects his convalescence was easy and uneventful, except that his attitude toward women underwent a curious change. He imagined that every woman who came near him was in love with him, and tried to embrace him.

His subsequent history is strange to me, at least, for in the next eighteen months he had four epileptiform convulsions, and had had none since. In the summer of 1905 he cut an artery in his wrist and had no bad effects therefrom. The next summer he cut his hand and it was well infected before I saw it. While in the hospital for several nights he would, at about twelve o'clock, be "out of his head." One night during one of these attacks he went out of a second story window (through plate glass, wire screen, and all) to the ground below. Besides several serious cuts he received an anterior dislocation of the foot which was reduced with difficulty. His mental condition necessitated his removal to the jail, where a Commission of Lunacy was held, and the two physicians (*without seeing the patient*) adjudged him *insane from an injury to his head two years before*. On the strength of this verdict he was carried to the asylum, where he was kept a few weeks and sent home well. He has been well ever since, doing his usual work, and, as usual, now and then receiving an injury.

Question: Was this man insane from an old injury to his brain, or was he delirious from pus absorption?

Some of you may remember two cases of skull and brain injury which I reported at the Savannah meeting last July. A third, and in some respects a more interesting, case was undergoing treatment at that time. This was more puzzling and difficult, being as follows:

CASE IV.—A. S. A. L., engineer, while pulling his train out of a siding (the engine going backwards) was found by his fireman lying on the floor of his cab unconscious. He was brought to Portsmouth at once and I was notified. When I first saw him he was semi-conscious, and I had him put in a hack to carry him to the hospital. As we crossed the railway track, he evidently heard his engine letting off steam, for he suddenly called out "Red light, danger, look out." This was about 4 a. m. Monday. He grew steadily worse until 12 m. Tuesday, when I decided to operate. During this time he had not spoken, nor could he be aroused, his temperature, pulse, and respiration had grown steadily worse. There were no focal symptoms, nor was there any external wound to indicate where to trephine. There was merely a slight puffiness in the right temporal region, to indicate where he had been struck. I turned back a flap and found a very slight linear fracture, and as that was not enough to account

for the symptoms, I trephined. On removing a button of bone I found an absence of pulsation, and so opened the dura. It was then that I found the seat of the trouble; for there was a hole in the brain about the size of the diameter of a lead pencil and seeming to run to the lateral ventricle. From this there was a gush of blood and cerebrospinal fluid. I put in a drain of catgut, sutured the wounds, and had the man returned to bed. As soon as the effects of the chloroform had worn off, he asked the nurse if she thought he was going to die? From that time he improved, had no bad symptoms, and is to-day running his engine, perfectly well.

As a companion to these cases take the following, which I read in my local paper:

CASE V.—X. Y., during the noon hour, while at play with his fellow workmen, was struck on the side of the head with a large iron nut. He returned to work, but shortly afterwards a severe headache compelled him to stop. He started down town on a street car and, after getting part of the way home, got off. Owing to his behaving so much like a drunken man, he was taken in charge by a policeman. He was later sent home, as it was seen he was sick, not drunk, and a physician sent for. When seen there was some paralysis, unconsciousness, etc. The diagnosis of hemorrhage on the brain was made, but it was said that, "nothing could be done for that condition." The man very promptly died.

From the history of the case, the length of the free interval, etc., here was a case, a typical one, for operation, and a case where, I believe, had an operation been performed, the man's life would have been saved. Operative intervention in these cases is not a fad, but is the proper and recognized treatment if we wish to save life.

Symptoms.—Of the symptoms of skull (brain) injury I shall say but little. When there is merely a concussion, which is "a momentary disarrangement of the juxtaposition of the brain cells," the patient will be semiconscious (that is, he can be aroused), but as a rule he can tell you nothing about the accident, nor in fact anything that happened for some little time before. This condition of amnesia may pass off in a few days or it may continue forever.

In compression the patient will be unconscious, pulse slow and full, respiration deep and slow and stertorous, pupils contracted, and these symptoms followed by paralysis. Perhaps the most important single symptoms in this condition is *choked disc*. Compression in skull injuries is caused by depressed bone, though it is rare that marked compression is caused by this alone, or by hemorrhage. Of hemorrhage there are four varieties, viz.: Epidural, subdural, cortical, and cerebral. The first two nearly always come from an injury to the middle meningeal artery; the third is usually small in amount, and is derived from the capillary vessels and the arterioles; the fourth is usually contiguous with the external surface of the lenticular ganglion. This variety of hemorrhage, because of the least resistance in that direction, usually forces itself into the lateral ventricles, and is usually derived from the middle cerebral artery. The *clinical symptoms* produced by these various forms of hemorrhage will depend on where they take place.

After the rupture of a vessel large enough to produce symptoms of compression, there is also, as I know by the free side, that is, there is a period

during which the injured persons show no sign or symptom of having received a severe injury. They are not rendered unconscious, or only momentarily so, but go on as though nothing had happened. Later they sink into unconsciousness with the other symptoms. This free interval has been and will continue to be the source of many mistakes in diagnosis. To quote: "Many victims of ruptured meningeal artery will go to their eternal sleep, some in hospitals surrounded by surgeons. In its simpler forms this is an entirely preventable cause of death. Of course, not rarely, there are other lesions in themselves probably or necessarily fatal, so that we cannot hope to save all cases. When a victim of simple ruptured artery is allowed to die, it is surely a surgical disgrace. When the complicated cases are allowed to die without an attempt at relief, it is clearly bad surgery. The greatest difficulty is diagnostic. To be sure, exceptional cases are simply beautiful in their progressive phenomena—the free interval, the distinct focal paralysis, slowing of the pulse, gradually disturbed consciousness, and all. Strange to say such rare cases, by some peculiar conjunction of rare events, are rather liable to fall into the hands of the very rare practitioner who fails to recognize so simple a condition, plain as elementary physiology" (J. H. Dunn). Again: "A large number of cases die yearly from injury to the head under the diagnosis of concussion of the brain. These cases are not reported in the medical journals, but are recorded in the daily press. It is fair to assume that a definite proportion of these are due to hæmorrhage of the middle meningeal, because not infrequently cases present themselves, which recover from extradural hæmorrhage without operation, with marked paralytic symptoms referable to localized pressure on the brain" (C. H. Lemon). For after head injuries patients are too often deemed all right, because they then show no symptoms. Later, perhaps after they retire for the night, they are found by the family to be breathing peculiarly (stertorously), or it may be that nothing is noticed until the next morning when they are found dead. This free interval lasts from a few minutes to twenty-one days (Kiliani). Usually for a few hours.

Diagnosis.—To diagnosticate a fractured skull with its accompanying cerebral lesion is sometimes a most difficult problem, and one requiring the nicest diagnostic skill—at other times it is very easy. If there be an external wound, it is usually easier, because then we know exactly where the blow was struck or the injury was received (although even here we must not lose sight of that condition known as *contre coup*, and by enlarging the wound we can easily determine the condition of the bone below, that is, of the external table. As to fracture of the internal, I believe that that term has been too long used as the refuge of the timid or ignorant surgeon.

Concussion of the brain is nothing but shock, for as has been well said: "Shock is lowered blood pressure, concussion is lowered blood pressure, therefore concussion is shock." As regards the focal symptoms, when there is a hemiplegia by cerebral localization, we can locate the lesion. When there is a paraplegia there is also an injury to the spinal cord.

Treatment.—The question of treatment in injuries to the head depends very largely on the diagnosis. If the skull is injured and the brain merely "shaken up" (concussion) there will probably be no occasion for operative intervention. The question is how can we be sure of this. I believe in all compound fractures of the skull (vertex) it is a safe rule to explore, perhaps under general anæsthesia. While in some cases it may not be necessary, I believe, if done under strict antiseptic precautions; in no case will it do harm. In skull injuries, where the surgeon can see no good reason for not operating, the patient is entitled (as he is in all cases) to what will give him his best chance. That is, an operation. I recall a case that walked to my office with what seemed to be a simple scalp wound, and I got needle and silkworm gut ready to sew it up, when for some feeling of uncertainty I sent him to the hospital, and upon enlarging the wound, found a very slightly depressed fracture, and upon trephining, a very large epidural clot. Had I yielded to my first impulse, can any one doubt that it would have cost the patient his life?

In some cases an examination of the fundus of the eye and the withdrawal of some of the cerebrospinal fluid will aid in the diagnosis. In fact, some surgeons assert that this will give positive information.

When a fracture is found the method of procedure will depend very largely upon the case and the views of the individual operator. Some will use a trephine and rongeur forceps, some a chisel and mallet, and others will do an osteoplastic resection of the skull.

516 MIDDLE STREET.

HÆMATURIA OF RENAL ORIGIN.*

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In presenting for your consideration the subject of this paper, I have almost entirely followed the classification of renal hæmaturias given by Fenwick, which appeals to me as being sufficiently comprehensive and at the same time devoid of all unnecessary detail tending to mental confusion.

Hæmaturias of renal origin are found to occur in one of two classes: First, those associated with pain; second, those occurring without pain. In the first group are included: Calculus of the kidney (common); tubercle of the kidney (not uncommon); benign or malignant growths of the kidney (not uncommon). The second group includes: Chronic interstitial nephritis (not uncommon); angioma of a renal papilla (rare); benign or malignant growths of the kidney.

Fenwick, in addition to these two classes, places in the first category of hæmaturia, accompanied with pain, chronic interstitial nephritis; but as renal and lumbar pains are so infrequent in this condition, it should hardly be thought necessary to consider the subject under that heading; in fact, Fenwick himself states that it is a very rare condition.

For all practical considerations the conditions of the kidney which produce hæmaturia and are accompanied with pain are calculus, tuberculosis, and

* Read at a meeting of the New York branch of the American Urological Society.

tumor. Of these three calculus is by far the most frequently encountered. The hæmaturia in each of these conditions possesses some special characteristics, which apart from the clinical features would aid in distinguishing the one from the other. For example, the hæmorrhage of renal calculus is often associated with, or has been preceded, by an attack of renal colic. It is as a rule attended with more or less constant pain over the affected kidney, radiating down the ureter, together with some increased urinary frequency. The hæmaturia and the pain diminish in a marked degree when the patient assumes the recumbent position. On the other hand, any unusual exertion on the part of the patient will be found to increase the bleeding to a considerable extent. The amount of blood passed is never very profuse; the blood is intimately mixed with the urine, which is apt to be of the color of beef tea or porter. Caspar mentions blood in the urine as the one unailing sign of renal calculus.

In tuberculosis of the kidney the hæmaturia is rarely profuse, in many cases being so scanty in amount as to require a microscopical examination of the urine for its detection. Morris states that in the exceptional cases, where the hæmaturia has been severe, the tuberculous process in the kidney has been found to be of the miliary type. The bleeding, as a rule, is intermittent in character, and, what is especially characteristic, is not affected by rest or exercise, and is always accompanied by a moderate pyuria. The differential diagnosis between stone in the kidney and tuberculosis of that organ is, in many cases, a most difficult problem; as a rule, however, in tuberculosis of the kidney, the bladder, prostate, or testicle are sooner or later involved. The finding of tubercle bacilli in the urine is, of course, most convincing, although I must confess to having been sadly disappointed many times in laboratory reports in cases that were manifestly affected with genitourinary tuberculosis.

Regarding tumor of the kidney, Morris mentions hæmaturia as one of the earliest symptoms in 50 per cent. of cases. It is profuse in character, coming on without apparent cause, and not necessarily accompanied with any pain. The hæmorrhage has a distinct tendency to intermit; in many reported cases intervals of weeks and months have elapsed without the occurrence of any bleeding. The hæmaturia may be so severe in character as to constitute a most alarming feature of the case, at times threatening the life of the patient.

In benign or malignant growths of the kidney, in addition to the hæmaturia, there is, in most cases, a well defined tumor present by the time the physician's attention is called to the case.

The second group of hæmaturias, those occurring without pain, includes chronic interstitial nephritis (not uncommonly, angioma of a renal papilla (rare), benign or malignant growths of the kidney. As regards the latter condition it is fair to presume that while in some few instances hæmaturia may be the earliest and most persistent symptom, nevertheless the presence of a tumor in the region of the kidney, together with blood in the urine, would exclude such cases from the class of symptomless hæmaturias.

It is of considerable importance to note that under the head of painless hæmaturia Fenwick makes no mention of essential or idiopathic hæmaturia.

This condition I consider one of the chief genitourinary problems of the present day, the solution of which seems to be beset with many difficulties. In cases presenting this condition the hæmorrhage is at times profuse even to the extent of endangering the life of the patient, and, moreover, it is not in any way influenced by rest or exercise, and is not attended with any known pathological lesions. Morris reports three fatal cases in two of which he performed nephrotomy. The essential hæmaturia of tropical countries, due to the presence of filaria or plasmodium microorganisms, is not included in this category. In any number of cases where nephrectomy has been done for the relief of essential hæmaturia, the microscopical report has shown the kidney to be normal.

The ætiology of this fortunately rather uncommon form of hæmaturia is simply a matter of academic speculation. Morris and German writers upon the subject are inclined to consider the condition as angeioneurotic in character. As illustrating the obscurity which involves this matter of essential hæmaturia it is only necessary to mention some of the titles under which it has been from time to time described. Senator, for example, calls it renal hæmophilia; Leguin, hæmaturic neuralgia; Klemperer, hæmaturia from a healthy kidney; while Rovsing is delightfully frank and styles it mysterious hæmorrhage. Fenwick, however, is not disposed to accept any of these ideas concerning the origin of essential or mysterious hæmaturia, but is inclined to the opinion that most of them are in reality due to chronic granular changes in the substance of the kidney or to small angiomatic growths in the papilla of the kidney. With this view point in mind, it is easy to understand why essential hæmaturia should receive little or no recognition at his hands.

Harris (*Philadelphia Medical Journal*, March 19, 1898), gives an account of sixteen cases which he had collected, including two occurring in his own practice. He found that seven of the cases were male and nine female; the ages ranged from nineteen to fifty-four years of age. In all cases hæmaturia began without known cause during apparent perfect health. Nothing positively could be stated concerning the ætiology and pathology of these cases. In summing up his article upon this subject, he states that the underlying cause for these essential hæmaturias is in all probability a local lesion in the kidney which may be to a certain extent influenced by the nervous system. This might possibly be called a modified angeioneurotic theory to account for the hæmorrhage. Schede rejects entirely the theory of renal hæmophilia in these cases save in instances where the patients have given other evidences of hæmophilia. He further states that where a hæmaturia cannot be explained by general infection or toxic influence, it may properly be looked upon as angeioneurotic.

In view of the fact that the hæmorrhage in essential hæmaturia is almost always unilateral in character it is a difficult matter to reconcile it with the angeioneurotic theory, for the simple reason that the influence of the vasomotor nervous system would naturally appear to operate equally upon both kidneys.

From our present point of view it would appear to the writer as if the hæmorrhage of essential

hæmaturia and of a certain proportion of cases of chronic interstitial nephritis were so intimately associated that it was often a most difficult problem to distinguish one from the other. Personally, I feel at present that the majority of cases of so called essential hæmaturias reported are in reality cases of degenerative changes in the kidney structure.

Caspar reports three cases of severe hæmorrhage from both kidneys in apparently healthy persons. For a while the cases were very puzzling. Repeated examination, however, disclosed the presence of both albumin and casts. Caspar declares these cases to be "chronic nephritis with paroxysmal attacks of profuse hæmorrhage." Regarding this matter Caspar states that it has not yet been determined whether there is a real renal hæmophilia or bleeding from healthy kidneys. A most important proposition made by him is that future investigations should be directed toward the functioning power of each kidney, in these cases it being taken for granted that the kidney affected with structural changes would show marked diminution in functional powers. Chute in this connection says (*American Journal of Urology*, March, 1907), "One may see in cases of chronic nephritis renal hæmaturias. Some are slight, others produce great debility by their long duration, or even threaten life by their profuseness. To this class, probably belong many of the so called essential renal hæmaturias."

The diagnosis as to the source of blood in hæmaturia whether it is from the bladder or kidney where the blood is passed intimately mingled with the urine, is often a most difficult proposition. In most cases, however, a careful study of the clinical symptoms present, together with the information gained from an examination of the urine and from the use of the cystoscope or some form of urine separator, will enable one to arrive at a fairly accurate idea as to the source of the hæmaturia.

As regards the clinical features, those having the most bearing upon determining the source of the blood, are pain and frequent urination. All things being equal, hæmaturia associated with pain over the lumbar region with or without frequent urination, is of renal origin. On the other hand, where there is marked pain over the bladder, together with decided increased frequency of urination, one is justified in regarding the bladder as the probable source of the hæmorrhage. The character of the bleeding and the macroscopic appearance of the urine are important factors in determining whether the bladder or kidney is involved.

Hæmorrhage from the bladder is apt to be intermittent in character, suddenly appearing and as suddenly disappearing. The urine is blood red in color, and is apt to be alkaline in reaction; on the other hand, hæmorrhage from the kidney imparts to the urine the well known "smoke color" appearance, the urine is generally acid and contains from time to time small wormlike clots of blood which are known to be casts from the ureters.

To my mind, a point of very considerable clinical importance in arriving at a distinctive diagnosis in many of these cases is that made by Guyon and lately emphasized by Ayres in discussing the subject of pyuria, i. e., where upon irrigating the bladder the blood rapidly disappears and as quickly reappears, it is fair to presume that it comes from the

kidney; on the other hand, where upon vesical lavage it is noted that the blood is slow to disappear and equally slow to reappear it is equally fair to assume that the blood comes from the bladder.

A few words regarding the use of the cystoscope in these cases. I personally feel that the simple observation cystoscope of the indirect type furnished with a cold lamp is the most suitable to employ and offers the most important information. My own experience has been that where the hæmorrhage is of vesical origin, no amount of lavage will procure an absolutely clear medium, and that in such instances cystoscopy has proved of doubtful value. Where, however, the source of the hæmorrhage is in either kidney and a clear medium can be obtained in the bladder, ureter meatoscopy, i. e., direct view of the urine as it spurts from the mouth of the ureters, gives us the most exact evidence as to the source of the blood.

I have never been able to convince myself of the utility of the routine employment of the ureteral catheter in cases of this description for the simple reason that if the bladder medium can be kept clear enough for the operator to see the ureteric orifices sufficiently well for the introduction of the catheter, he can equally as well note from which ureter the blood spurts, without resorting to the use of the catheter.

As regards the ingeniously contrived urine separators I cannot say that in my experience much accurate information has ever been gathered from their use. They all require the introduction into the bladder of large and rather unwieldy instruments, sufficient of themselves to provoke hæmorrhage which may be very misleading to the operator.

As regards the treatment of renal hæmaturias no discussion would seem necessary concerning those cases that fall under the group where there is attendant pain. The greatest interest centres about the possibilities for treatment in those cases of symptomless hæmaturias.

It is a fact well known to genitourinary surgeons that nephrotomy does, in some mysterious way, relieve many cases of this character, in some few instances permanent relief has been reported; Keyes in his work reports one such case. In chronic interstitial nephritis this is probably accounted for as a result of the relieving of congestion and tension in the kidney. However, the hæmaturia of itself in this disease is but rarely severe enough to endanger the patient's life and to require prompt surgical intervention. I take it that there can hardly be any question as to the advisability of nephrotomy in those cases of idiopathic hæmaturia where the bleeding is continuous, profuse, and threatening life. The operation is done under these circumstances as Keyes states "not so much to check the bleeding as to prove the innocence of its cause."

Fenwick reports several cases of severe hæmaturia which were due to what he styles angioma of the papilla, which could not have been treated by any procedure other than operative.

Young (*Journal of the American Medical Association*, May 18, 1907), reports a case of supposed causeless unilateral hæmaturia which he treated by one injection into the kidney of an adrenal solution through the ureteral catheter. In two weeks the blood had entirely disappeared from the urine

and at the last report three months after the operation the urine was entirely free from blood. As there was in this case a distinct history of previous injury to the side over the right kidney it is possible that he was dealing with a contusion or subcapsular hæmorrhage in the kidney.

The question of essential hæmaturia is a most important one, concerning which a review of medical literature shows that very little is known. To find a solution as to its cause will be a most difficult problem, at the same time one that will require prolonged investigation and the utmost patience on the part of the genitourinary surgeon.

1344 SPRUCE STREET.

SOME EXPERIENCE WITH TUBERCULIN.*

By L. ROSENBERG, M. D.,
Bedford Station, N. Y.,

Superintendent of the Montefiore Home Country Sanatorium,

The use of the cultural products of the tubercle bacillus for diagnostic or therapeutical purposes is such a fertile subject of dispute among the learned, and the statements of the controversialists are often of such a bewildering character, that I confess it took me some time to become reconciled to a systematic recourse to either procedure. I was led to infer that the use of tuberculin was not alone an experiment, but a hazardous one, which we were not justified in employing in a class of patients already sufficiently handicapped in a struggle with a complex and uncertain disease. Tuberculin testing for obscure cases of tuberculosis had been in use for some years at the Bedford Sanatorium of the Montefiore Home when I assumed charge of that institution in 1903, and in the first epoch of my experience I observed the method very carefully indeed, and not without skepticism as to its alleged innocuousness. Without coming to any very positive conclusions as to the infallibility of this diagnostic refinement, I soon saw that when administered with care and with full recognition of its potency the agent was absolutely harmless, and that it could be resorted to where indicated without fear of any evil consequences.

The reports of the Germans who were using tuberculin therapeutically, although often tinged with a spirit too optimistic, could not fail to impress anyone having much to do with the institutional treatment of consumption; for anything offering the hope, however slight, of giving us better results or bringing them about in a shorter time, or of possibly lessening the tendency to relapses—and these constitute the principal claims for tuberculin—in a measure not permissible with the ordinary sanatorium regimen, merits the most painstaking scrutiny and respectful consideration. It is no confession of impotence by any means to state that present methods, although an infinite advance over the former *laissez faire* attitude respecting the treatment of tuberculosis, still fall short of the ideal which we have in view; and any carefully tried procedure that offers a hope of bringing us a step nearer our goal should receive a kindly though critical welcome at our hands. It was in this spirit that I took up the study of tuberculin therapy, and it was with this

hope that about two years ago I introduced its use at the institution which I have the honor to serve.

I have to admit that the first batch of cases was not very carefully sifted. Up to that time there had existed a very strong prejudice against the agent in the minds of the patients, so much so that many preferred leaving the institution rather than submit to diagnostic injections. Confronted with this state of affairs, I was compelled to depend upon volunteers, who presented themselves after a talk upon tuberculosis, in which I had told of the assertions of the tuberculin enthusiasts as to the great value of this powerful substance. Of course some of these early patients were anything but ideal for the purpose in view, but I was very glad to have passive propagandists, whose example might rob the measure of its imagined terrors and dangers. Since then, after having treated some ninety cases, we have had such good fortune that at the present time tuberculin treatment is regarded as an orthodox, routine affair by all the patients in the sanatorium, selection for it being held to confer a special distinction upon the individual as a particularly hopeful case.

In the winter of 1905 to 1906 we thus began treating patients with tuberculin, concerning the apparent results of which I was permitted to make a preliminary report at our last year's meeting. Some of the earlier cases, as I now know, were not fairly enrolled as regards suitability, and no more definite conclusions can be drawn from a study of them save the general one, applicable to all treated by us, that the procedure did no harm. Of course mere harmlessness is not a sufficient recommendation for any new therapeutical device, yet in the face of the frequently intemperate charges of danger in the use of tuberculin, it has a definite value—dependent, of course, upon the credibility which you may be pleased to accord the observer. The later cases were picked out with what I regard as sufficient care, and still, with increasing experience, I have had to draw the lines closer and closer as to the requirements of patients whom I was willing to treat. It is manifestly unfair, as I now see, to attempt to make any deductions regarding the things which influence the outcome in cases having no bacilli in their sputa and lacking other demonstrable signs of being tuberculous, although this is done by many; and it is equally wrong to seek to predicate anything positive from the results of tuberculin treatment in those cases which have not first been given a reasonably long time to improve under the usual sanatorium regimen. Failure to exclude these two factors of weakness from a subject sufficiently debatable in itself is in my opinion largely responsible for much of the opposition and skepticism concerning the tuberculin question.

Our methods have been as follows: In the first place we have confined ourselves to the use of the old or original tuberculin, as being the preparation about which the most was known and which had been subjected to the most searching trials at the hands of earnest and competent gentlemen. We first tried the *Etappensystem*, or relay system, of Petruschky, in which the patients are subjected to a series of treatments or cures until they have become so tuberculin proof that they fail to react to large test doses of the agent some months after the cessation of infections—such cases the founder of the

* Read at the annual meeting of the National Association for the Study and Prevention of Tuberculosis.

system regards as entirely rid of tuberculous infection. The course under this method was to begin with what Petruschky regards as a moderate dose, usually 0.1 mgm., and to increase every second or third day until the maximum dose of 100 mgm. was reached; the patient was then granted an interlude of several months, when the course was repeated; according to the champion of this system, three such courses usually suffice to render an individual free of tuberculosis. When carried out in this manner, the procedure requires a longer period of time than is possible with a shifting clientele, and for this and other reasons we soon abandoned this manner of giving tuberculin. We found it wise to lengthen the intervals between the injections, and to diminish the rate of progression in the dosage. For a while we injected until such time as the patient left the institution, or it was deemed time to interrupt the treatment; so that we had at this time greatly varying end doses—in one case reaching as high as 1,000 mgm., but generally between 150 mgm. and 300 mgm. As stated by me last year in the discussion of Dr. Trudeau's paper, we had the most difficulty in bringing the patients up to the first milligramme, after which they showed much greater tolerance, and the increases could be made with greater freedom. Following Dr. Trudeau's caution to proceed gently with the first injections, we next took a much longer time in getting up to the one milligramme mark, with fewer symptoms of intolerance, about which more hereafter. Finally we have learned to be still more deliberate; the last cases received as initial doses 1-60 mgm., the injections were made every four days, and the maximum dose was 10 mgm., the course to be resumed after a few weeks' interval, thus making possible a somewhat modified Petruschky system.

Type of Cases.—By far the greater number of cases treated have been those of the so called second stage; a few advanced, apyretic cases, where the patients, it was hoped, might be benefited, were also included. A prerequisite for admission now is that the patient must have been under observation for a period of two or more months without any betterment; all must be free of fever, or at most have a daily range of less than one degree; no patients with recurring hæmoptysis are included; the patients may either have very slight signs with positive sputum, or else have very distinct signs with negative sputum. The agent is given without regard to the occurrence of the menstrual function as to the women, and as to the men without interrupting whatever physical activity is permitted, such as working about the grounds, house, etc.; the temperature is taken every two hours during the day, and they are given no other medication, save an occasional cathartic. A few cases of obstinate fever of low grade were given 0.01 mgm. doses twice weekly, in the hope of reducing the temperature in accordance with the reports of Aufrecht and others, but with no success.

Reactions.—It is well known that in former times reactions of greater or minor violence were regarded with indifference, and even held to be salutary by some. But it is now quite generally considered highly undesirable to subject any patient to a reaction from a therapeutical dose of tuberculin. Accordingly the tendency has been to begin with smaller doses,

to increase them at a slower pace, and to lengthen the intervals between them. We had quite a number—but not an alarming number—of moderate reactions in our first series, some of which we attribute to faulty technique, but most to erroneous views as to dosage, etc., for which we had some very excellent authority. Of late we rarely see a reaction. And this brings up the question: What constitutes a reaction? The Germans generally hold a rise in the temperature of $\frac{1}{2}$ degree C. above the highest point ordinarily reached by a patient as sufficient to be regarded as a reaction. I am not able to accept this *in toto*; tuberculous patients so easily have slight rises of temperature from the most trivial, evanescent causes that I regard the reaction as unproved when it manifests itself by such small elevations unless accompanied by some of the recognized subjective symptoms of a reaction to tuberculin. In this connection I venture the opinion that pains in the bones, joints, drowsiness, and a generally good-for-nothing feeling, unaccompanied by any rise in the temperature, are surer evidence that the individual's limit of tolerance has been reached than is a simple rise of $\frac{1}{2}$ degree. Notwithstanding, where the patients do have such slight rises we take the precaution not to increase the dose, but to repeat the same amount at the next succeeding injection.

Influence upon Secretion, Bacilli, etc.—We are told that the action of tuberculin is a congestive one upon the tuberculous area, and its beneficial effects are generally attributed to this hyperæmia. We have not found this to be true in a sufficiently preponderating number of cases to make us accept it as a law. Many patients do have an increase of cough and expectoration, but a greater number show either no changes at all in this respect or there is a decided diminution of both of these symptoms. Regular examinations of the patients by the staff fail to show the increase in râles that one is led to expect; on the contrary, the physical signs in a favorable case show a marked regression in the diseased process which had hitherto been stationary. As to this apparent contradiction of supposedly well established effects of tuberculin medication, attention may be called to the disappointing results following the very much larger doses employed in tuberculin testing; surely in these, if there is a congestive sequence to the introduction of tuberculin, it ought to manifest itself with considerable positiveness and uniformity, as here it is eminently desirable that there should be an excitation of moisture in the diseased focus so that we shall be able to make a diagnosis. And yet we all know how seldom we obtain the carefully sought for râles; the individual may present all the other reactive signs of tuberculin, but the clincher to the test, moisture in the suspected area, is usually wanting. I know that in some of these cases it may justly be assumed that the focus is not in the lungs at all; but this explanation will hold true of only a limited number of cases; of the many who have had simply a febrile reaction without local signs, a goodly proportion subsequently develop distinct manifestations of pulmonary involvement.

The same baffling uncertainty holds good of the influence of tuberculin upon the discharge of bacilli; a certain number show an increase in the bacil-

lary output which may be transitory, while a somewhat larger number show a steady diminution and final absence of the Koch bacillus. The latter occurs with sufficient frequency without the aid of tuberculin, and therefore I cannot draw any positive conclusions from it as yet. I am only referring to the facts, as they appear to upset our notions of the rationale of tuberculin medication—on the one hand contradicting the supposedly healing attribute of this agent, on the other refuting the assertions of those who regard this alleged "stirring up" as one of its many dangers. Finally we have to remember as a possible explanation of doubt in these matters, that both our methods of physical exploration of the chest and of bacteriological examination of the sputum are as yet in an imperfectly developed state.

Nutrition.—Particular attention was paid to the weight figures of the patients, both as influencing their selection and in estimating the effects of the treatment. Most of the patients were at a standstill in weight, either because of a failure in nutrition or because they had attained their maximum. The weight at the beginning and at the end of a course was considered in studying this phase of the question. Of the ninety patients, observations were made in sixty-four, this being the total number who had completed a course of treatment, the others having either left the institution or been withdrawn from the class; of these sixty-four, in eleven, or $17\frac{1}{2}\%$ per cent., there was a drop in weight of more than one pound, the average loss being three pounds; in eight, or $12\frac{1}{2}\%$ per cent., the weight remained stationary, and in the remaining forty-five, or $70\frac{1}{3}\%$ per cent., there were gains of from two to twenty-two pounds, the average being $5\frac{3}{4}$ pounds.

Subjective Symptoms.—In all but a very few patients there was a very decided and uniform improvement in the subjective symptoms. Apart from lessened cough and expectoration, there was a definite diminution or absolute cessation of the pains so commonly complained of by tuberculous individuals, and a sensation of well being too pronounced and too widespread to be attributable solely to the dietetic hygienic routine.

Conclusions.—A summing up of all that has gone before leads me to the opinion that with the aid of tuberculin judiciously administered we have been able to obtain somewhat better results than with the ordinary methods employed, particularly in those cases advanced beyond the first stage of the disease.

The Time Factor in Surgical Operations.—Chase thinks this factor in surgical work has attracted little attention in some quarters, and none at all in others. Other things being equal, the author thinks that the man who performs his work with conservative haste is by far superior to his more moderate colleagues. Rapidity of operation is particularly to be desired for the aged and debilitated. The importance of entirely preparing the patient for the operation beforehand, as an element of economy in time, is urged. Also the employment of a skilled anesthetic to minimize the duration of anesthesia and the quantity of the anesthetic, also to be ready with the proper remedy in case of cardiac or respiratory complication. *American Journal of Obstetrics* October, 1907.

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXVII.—How do you treat delirium tremens? (Closed October 15, 1907.)

LXVIII.—How do you treat the vomiting of pregnancy? (Answers due not later than November 15, 1907.)

LXIX.—How do you treat post partum hemorrhage? (Answers due not later than December, 1907.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXVI has been awarded to Dr. Paul F. Ela, of East Douglass, Mass., whose article appears below.

PRIZE QUESTION NO. LXVI.

THE EARLY DIAGNOSIS OF PREGNANCY.

By PAUL F. ELA, M. D.,

East Douglass, Mass.

The symptom of pregnancy is amenorrhœa. I do not recall any disease process of which this is a primary symptom; and where it interrupts the regular recurrence of menstruation in a healthy subject after coitus only time can overthrow the probability of impregnation as an explanation. Among possible physical causes of the condition are: Acute illness, e. g., "catching cold;" fatigue, as from a long journey; chronic disease, as tuberculosis; or local pathological changes in the uterus or its annexa; and excessive coitus. Psychical influences, worry, grief, fear of pregnancy, mental shock, or excitement may also cause total or partial suppression for a time. Then there are the physiological cases of menopause and amenorrhœa during lactation. When these conditions appear in a patient's history they must be considered, and time must be allowed for the appearance of physical signs.

If a woman appears for examination within two weeks after a missed period no signs of pregnancy that are reliable will be found. In such a case an examination will give data which are useful for comparison with results of later inspection, and she may be told to come back for that purpose. On the other hand, signs may show that she is mistaken or has deceived the doctor about the duration of the amenorrhœa. She should be prepared as for any gynecological examination and should be examined lying on a table or firm mattress. A good light is important.

Pregnancy has always proved to be present in cases presenting abnormally dilated pupils and a pulse above 90, under my observation. The coinci-

dence has not always appeared in all pregnant women.

An ideal examination would include a thorough search for obscure signs of disease. I endeavor to be systematic, and where pregnancy is the question to be determined begin with mammary signs and take in turn the abdominal and pelvic regions, looking for the classical indications to be found in the textbooks. But leaving aside the order of examination, the sign for which I look as the earliest, is that known as Hegar's; the junction of the cervix and body of the uterus can be compressed to great thinness between the fingers about six weeks after conception. In ordinary cases this may be detected in the usual bimanual palpation of the uterus, or one forefinger may be inserted in the rectum and the other in the vagina; at the same time the finger in the vagina may take cognizance of the "softening" of the cervix, the pulsation of the uterine artery, and the size and shape of the body of the uterus. Another very early sign is slight violaceous color of the cervix, said to appear as early as the fourth week. This color appears in contrast with the color of other parts of the tract, especially the color of the posterior wall of the vagina. The anterior wall and the vicinity of the meatus also show the color change a little later than the cervix.

The physical signs which may be found in the first eight weeks are: Mammary, pigmentation of areola, enlarged sebaceous glands of areola, enlargement of the glandular segments, enlargement of superficial veins, presence of milky fluid. Abdominal, pigmentation of linea alba, retraction of the navel, flattening of the hypogastrium. Pelvic, violaceous color about meatus urinarius and anterior vaginal wall of the cervix, softening of the cervix, Hegar's sign, pulsation of the uterine arteries, enlarged, soft, globular uterus, lateral expansion of the fundus, late in second month.

As with any other list of symptoms, these are easy to read over in a textbook, and sometimes difficult to bring out in a subject. Excessive fat interferes much with early diagnosis. Approach of the climacteric change makes doubtful the value of the amenorrhœa, and obscures the taking in account of a coitus. On the other hand, a woman eagerly desirous of a child may produce symptoms in herself which only time can prove to be valueless for diagnosis.

There is here, as in other doubtful conditions, no one physical symptom of conclusive value. The symptoms should harmonize with each other and with the history. A darkened areola accompanied by a hard uterus, even if a little larger than normal, does not point unmistakably toward an uncomplicated diagnosis of pregnancy. The size, shape, and consistency of the uterus must be considered in relation to the duration of the amenorrhœa. The presence of milky fluid in the breasts of a nonparous woman even is not absolutely conclusive when she relates how in her anxious desire for a child she has manipulated them again and again to detect the wished for token of approaching motherhood.

There will be found in almost any community some busy body who prides himself on his keen eye for early signs of pregnancy scrutinizing brides and matrons for material for new innuendo and sooth-saying. But this diagnosis, which almost any lay-

man would think could be made out to a certainty, has tripped more than once the trained physician who relies on offhand methods and diagnosis in haste to apologize at leisure.

Dr. H. R. Coston, of Birmingham, Ala., says:

It is presumed that by "early diagnosis" is meant during the first three months; after that time we have the positive signs, ballottement, fœtal heart, placental souffle, and often movement by the end of the fourth month. Hence I shall try to diagnosticate a case prior to the beginning of the fourth month.

The subjective symptoms, the symptoms complained of by the patient, will be considered first. Suppression, or rather a failure of the menses to appear, is the most important, and, in the absence of any known cause of their failure to appear in a married woman, is strong presumptive evidence of pregnancy. Nausea and vomiting appearing about the time the period is missed adds strongly to this evidence. It may come on at any time of the day. A feeling of tenseness and a peculiar tingling, pricking sensation is often felt in the breast during this time. The woman complains that she has to urinate much oftener than normally. If it is known that she has previously had albuminuria, uranalysis will almost surely show an aggravation of this condition by the end of the third month. The temperament of the woman is often changed, she becomes irritable; occasionally a cross woman becomes quite docile. The appetite may be capricious; often she craves for food that in the nonpregnant state she does not like. Increased flow of saliva is occasionally observed. Despite the nausea and even considerable vomiting she often looks plump and rosy and has gained in flesh; when such is the case it is good evidence of pregnancy.

None of these, or even all of them if present at once, constitute positive evidence of pregnancy, but when considered along with the objective signs, those found upon inspection and palpation by the physician, aid greatly in making a diagnosis.

Upon inspection the breasts are found enlarged, the nipple more erectile and more deeply pigmented, more veins are showing under the skin, small nodules, the lacteal ducts, may be palpable, the glands of Montgomery are enlarged, and a secondary areola is often present at this time, and striation of the breasts may occasionally be found. The umbilicus is retracted. The linea alba is markedly darker and more easily seen. Upon inspection of the genitals an increased secretion will be found. The mucosa at the introitus is discolored, in blondes a deep pink; in brunettes a bluish red. I have learned to look for this coloration at the meatus and along the under surface of the urethra as often as upon the sides of the vaginal wall. The os uteri is plugged with a tenacious mucus. Upon palpation the os and cervix are found quite soft. Above the cervix is a very soft spot upon the uterine wall, and above this in the centre of the pelvis is a soft, elastic, almost spherical body. This body is not tender; it is more antverted than normal, there is increased pulsation in the uterine arteries, to the touch it seems to be about three inches in diameter, and considered along with the subjective symptoms it can be nothing but a pregnant uterus.

Dr. Harriett Hooper, of Johnstown, Pa., writes:

I never examine a patient for pregnancy unless she is reasonably sure she is at least six weeks pregnant.

The first noticeable sign after the suppression of the menses (which is not a certainty) is the slight changes in the breasts, at six weeks the breast in a first pregnancy are slightly fuller than normally, and there may be a little tenderness, usually a slight darkening. At eight weeks the ring about the nipples are wider and darker. This is not noticeable in multiparæ at so early a stage. At six weeks the uterus will be slightly lower than a normal nongravid uterus, the neck will be shorter and the fundus broader. During the first three months the uterus is abnormally low, producing the "flat belly" of pregnancy.

At eight weeks in a primipara this shortening of the neck and broadening of the fundus should be noticeable to the most casual-examiner. In a woman who had had several children in rapid succession, I would want two weeks longer before being certain of my diagnosis.

At two months the color of the uterus has begun to show a difference, changing from the normal pink of a healthy uterus to a darker shade, gradually growing purplish as gestation proceeds. To the examining finger the uterus gives a different touch. The normal nongravid uterus gives to the touch a sensation like touching the end of the nose. The gravid uterus is softer, feeling more like the lips. When I find a soft uterus I never hesitate to say "you are pregnant." I know of nothing else that softens it.

Therefore I would call the early signs, darkening of the breasts; broad fundus, short neck, change of color in the uterus, and most certain of all change of touch. There is usually considerable discharge after the first month.

Dr. G. C. Young, of Washington, N. J., remarks:

My personal experience and practice in diagnosis of early pregnancy is as follows:

In looking over my case books extending over a period of forty years in practice, with a record of 2,616 cases, with a loss of one child and no mothers. I find that 234 women have consulted me with the question as to whether they were pregnant.

No sane woman consults a physician in relation to the possibility of being pregnant unless she has been practising coition, and then only when her menstruation ceases after coition. This is usually from one to eight weeks after passing the usual date of her monthly flow without its appearance.

Out of the 234 consultations and examinations, my diagnosis proved to be correct in 192 cases. The patients were seen between the fourth and tenth week after impregnation. Some of the others moved away, and some escaped my notice, so that it is impossible to give the exact number of pregnant women so diagnosed.

My method of diagnosis, after making what I will call a psychological study of the subject, has been to make a digital examination and note the size and form of the uterus. This is done with the woman in two positions, first standing up and then lying down on her back. After this examination I

request another in ten days. When I have made the second examination my opinion is given.

Solomon said a barren womb or the mouth of the barren womb was not satisfied (Proverbs xxx-16), and I have always made this a strong point in my diagnosis. The normal or natural condition of a woman is more perfect with a child either in utero or at the breast.

We divide the uterus into three parts, the os uteri, the cervix, and the fundus, or as a man said to me the other day: "The baby's home." He said: "Doctor, I want you to come and see my wife, she is sick." I said: "Where is she sick." He said: "In the baby's home." Now, how do we find out when a baby is at home? Largely by the condition of the uterus. The mouth of the womb is usually of concave form when gravid. When nongravid it is much less concave and inclined to form lips; this is very apparent after the first pregnancy.

The cervix uteri, when impregnation is a fact, commences to shorten and becomes more tense. Placing ones finger upon the os and moving it upward over the cervix to the attachment of the vagina one will notice a little lateral curve from os to fundus. This shortening of the cervix and slight fulness of the fundus is a strong point, but it may mislead one as the same condition may exist in the retention, and during the swelling and bursting of an ovulum the vessels of the ovaries and womb, and more in particular the mucous membrane of the womb and the cervix, are so full of blood as to produce a condition of congestion such as might lead one to diagnose pregnancy, but an examination ten days later will disclose the true condition.

My diagnostic conclusions for many years have been based on:

- A.—The concavity of the mouth of the womb.
- B.—The shortening and lateral curve in the cervix.
- C.—The slight fulness of the fundus.
- D.—The breaking up of that knotty or rope like condition of the mammary glands which they assume as a rule, when the womb is not gravid, or the woman not nursing a child.
- E.—The slight discoloration of the vulva and vagina.
- F.—The restful eye, the calm and restful general appearance of the whole woman; satisfaction seems to be stamped upon her whole nature, even when she is disgusted with her situation.
- G.—These physiological, anatomical, psychological signs, and intuitive observations, have been my guide in diagnosing early pregnancy. The figures show the degree of success.

Dr. Alfred J. Hart, of New York, states:

The early diagnosis of pregnancy, i. e., before the third month, requires the distinction of the gravid condition from all other simulating pelvic and systemic conditions and abdominal tumor. Ballottement, fetal heat sounds, active and passive fetal movements, and the usual breast, vulval, and systemic symptoms, all must be cleared.

For the purpose of brevity and clearness, I shall first discuss the symptoms of a recently gravid woman, and then proceed to a discussion of the distinction of the gravid condition from the commoner, simulating conditions.

Subjectively one usually elicits the following: A cessation of menstruation (usually the first sign), important where a woman is not highly nervous or neurotic, and who has previously menstruated regularly. Nausea, especially on rising in the morning, and occasionally accompanied by vomiting; appearing usually from two to four weeks after the onset of the amenorrhœa, or scanty menstruation. Tingling, fullness, and secretion in the breasts to a greater degree than that usually accompanying the menstrual period. Increased secretion (discharge) from the genitals. Nervous symptoms, such as chills, flushing, irritability, and perversion of the appetite. A history of recent coitus (suggestive of the possibility of pregnancy, but of no moment, if denied).

Objectively there is usually to be found: Pigmentation of the face, usually around the lower eyelids and the nose (although this may be one of the menstrual molimina, accompanying a beginning amenorrhœa). The pigmentation is usually blotchy, or irregularly distributed, and varies from a pale *café au lait* to black in color. The breasts appear tense and full. A pigmented areola extends beyond the normal limits, or a "secondary" areola may be found. In a multipara this pigmentation may be one of the remaining signs of a previous pregnancy. Numerous enlarged, and occasionally dilated veins mark the surface of the gland. The glands of Montgomery are enlarged and prominent. On palpating the breasts, particularly in primipara, there is a tenseness, warmth and an increase of gland substance, while an increased amount of yellowish, watery secretion can be readily expressed by a gentle stroking of the gland toward the nipples, which latter are enlarged and easily erectile. The linea nigra on the abdomen is suggestive, but is normally present in brunettes. The vulva does not usually present any early signs, although occasionally there is slight congestion of the nymphæ with increased secretion. The vagina shows some congestion, and on palpation the rugæ feel soft and "velvety" to the examining fingers. The cervix appears congested and feels soft and patulous. The uterus presents by far the most important signs of early diagnostic importance. The uterine arteries are felt enlarged, full, and pulsating, and the uterine body is enlarged, spherical, and is usually anteфлекed. There is a larger or smaller area of softening on the anterior wall, which gives to the examining finger the sensation as of a small, easily depressed cushion. This area, at first a small spot, gradually enlarges, involving finally the entire uterine body in the softening process. This symptom can frequently be elicited as early as the fourth week, is usually apparent at the fifth week, and is practically constant. By grasping the fundus with the abdominal hand, and steadying the uterine body with the vaginal hand, the uterus can be felt to contract intermittently. Hegar's sign, the apparent separation of the upper two thirds of the uterine body from the lower third is frequently found, and is of diagnostic importance.

While these symptoms are far from constant in early pregnancy, a fair number of them are usually present, and of these the following are the most important: (1) Hegar's sign; (2) the small area of softening in the anterior, rarely posterior, uterine wall; (3) intermittent uterine contractions; (4) en-

larged, spherical, or pear shaped, anteфлекed uterus; (5) pulsating, enlarged uterine arteries; (6) amenorrhœa, especially in a woman previously regular.

The following most important simulating conditions must be ruled out:

Amenorrhœa. If the amenorrhœa is simple, a condition of anæmia usually exists, with a preceding history of disease, such as malaria, the acute infections, or tuberculosis; and the uterine signs enumerated before are absent. If the amenorrhœa exists in a multipara, with a subinvolved uterus, the diagnosis is more difficult; but the absence of the subjective symptoms and an enlarging spherical and softened uterus with pulsating uterus and Hegar's sign, with the amenorrhœa of longer duration than would be the case in early pregnancy, should make this distinction possible.

Hæmatometra, pyometra, and hydrometra present, as a rule, none of the subjective signs enumerated before, except amenorrhœa. They are usually accompanied by periodic cramp like pains in the pelvis or lower abdomen, and fluctuation of the enlarged, tense uterine body can be made out. The amenorrhœa is of long standing and congenital, or acquired atresia is usually readily demonstrable.

Tumors of the uterus are usually to be distinguished by their hardness, except cystic tumors, the occasional nodules on their surface, their slow growth, and the accompanying menorrhagia or metrorrhagia. In tumors, or disease of the annexa, and in ectopic gestation, a careful bimanual palpation will demonstrate the tumor in front, behind, or to one side of the uterus.

Where the pelvis is filled with exudate, or the site of an abscess, acute or chronic, the diagnosis of pregnancy is not possible, unless the pelvic viscera can be fully palpated and an early diagnosis cannot be made.

In the amenorrhœa of the menopause the distinction is made by the age of the patient, the absence of most of the subjective signs, and a careful palpation of the uterus, demonstrating the absence of the before mentioned signs.

A careful pelvic examination with the elicitation of the symptoms will make possible an early diagnosis in a large majority of cases.

Dr. E. K. Macomber, of Amsterdam, N. Y., observes:

The average pregnant woman has diagnosed her own case before she consults a physician, and her consultation is for the purpose of verifying the diagnosis. This, however, does not always obtain, for most of us have known women to go past the meridian of pregnancy without suspecting their condition; while many a would be mother has declared herself pregnant, prepared for the coming infant and gone to her lying-in bed with spurious labor pains when no pregnancy existed. Thus it falls to the lot of the physician to verify or nullify these diagnoses and clear up doubtful cases; and happy is he who makes no mistake.

The subject of diagnosis we will divide into two headings: (1) Interrogation and observation, and (2) examination, under which we will consider: (a) Breasts; (b) abdomen; (c) vulva and vagina; (d) uterus.

1. Interrogation and Observation.—Usually the

first symptom presented by the patient, on being questioned as to her trouble, is that she has ceased to menstruate. The patient is usually asked whether she is married, but the answer should not be allowed to carry much weight in our final conclusions. She is then questioned regarding her former regularity: whether she is troubled with nausea, especially on rising in the morning; whether she is nervous; whether her temperament, taste, or appetite have changed; whether she has special cravings, dizzy spells, or faint feelings. We then ask whether she has noticed the breasts enlarging, becoming sensitive, or tingling; and whether she has seen any discoloration about the nipple. Also whether she has had any urinary disturbance, or a congested feeling in the vagina or vulva. We then ask her about the fit of her clothing, whether she is larger around the waist than formerly. We may here ask her to stand on her feet and look at her abdomen from the side to see whether it indicates enlargement. If she has missed three or four periods we may ask whether she has felt a thumping in the abdomen. During this questioning we have had opportunity to observe our patient's countenance, whether it shows despondency, whether the face shows *anæmia*, or circles under the eyes.

2. *Examination.*—We now tell our patient that to be reasonably sure of our diagnosis we must make an examination.

(a) The breasts are first examined, and we note by inspection their size, shape, prominence of veins, nipples, and Montgomery's glands, discoloration around nipple, secondary areola, and the presence of striae. Then by palpation we note their consistency and whether they contain colostrum.

(b) The patient is now placed on the table or chair in the lithotomy position and the abdomen exposed. We note by inspection the size and contour of the abdomen, the depth of the umbilicus (this is usually flush with the abdomen at the sixth month, but is not reliable), the presence of the *linea nigra*, and of striae if the woman has borne children or if the abdomen is much distended. If the abdomen is large we look for signs of motion on the surface. By palpation we determine the size and shape of the uterus whether it has risen above the pubes. After the sixth month we can usually feel the outline of the fetus. After the third month the Braxton Hicks sign may be recognized, which is a rhythmical hardening of the uterus at intervals of about ten minutes, felt by holding the hand on the abdomen for some time. While holding the hand in this position fetal movements may be felt, either the heaving or the tapping sensation. These movements may be intensified by a cold hand or by pushing the fetus about in the uterus. Percussion is of but little diagnostic use. By it we can distinguish the nonresonant uterine ovoid from the tympanitic bowel, and also determine its height in the abdomen. This may be obscured by a distended bowel in front of the uterus. Succession is of use only in determining the presence of ascites or hydramnion. By auscultation we have a means of eliciting an absolutely reliable sign of pregnancy, i. e., the fetal heart sound. This can often be heard during the fifth month, although there are cases in which it can not be heard on account of hydramnion, thick abdominal wall, abnormal

position of the fetus, or if the child is dead. In the left occipito anterior position it is heard on the left side of the abdomen below the navel. In the right occipito anterior position it is heard on the right side. Uterine bruit can often be heard as early as the fourth month. Hirst states that it can best be heard on the left side, but my experience has been that it can be heard most distinctly on the side opposite to that on which the heart sound is heard. Fœtal movements are sometimes heard as early as the fourth month. Auscultation may be conducted with the ear or with a stethoscope. The author finds the ear more satisfactory in most cases. (c) The vulva and vagina are now inspected. The labia are separated and the color of the mucous membrane noted. A purple tinge is often seen as early as the second month and is found most conspicuous on the inner surfaces of the labia and on the lower portion of the anterior vaginal wall. The finger is now introduced into the vagina and is usually able to appreciate a smoothed out condition of the vaginal rugæ, giving a velvety feel to the examining finger. This change becomes more marked in the latter months, especially in the primipara.

(d) The finger is now carried to the cervix, which, in the gravid condition, presents a soft velvety feel, enlarged in circumference with a more or less patulous os. As the finger is pressed up around the cervix a globular condition of the uterine body may be detected at the end of the finger, whereas in the unoccupied state, only the hard cervical portion is felt at the side of the finger. A softening may also be detected at the junction of the uterine body and cervix (Hegar's sign). Ladinski has called attention to a sign which can be found as early as the fifth or sixth week, i. e., a small, softened, fluctuating area in the median line just above the junction of body and neck, anterior in normal and posterior in retrodisplaced uteri. This area increases as pregnancy advances. During and after the fourth month, by pressing the finger against this area, with the other hand on the abdomen, a thumping may be felt against the examining finger which is unmistakable. Now by raising the uterine body rather suddenly with the finger the impression is conveyed to the hand on the abdomen, and again to the finger as it returns. This is known as ballottement and is quite reliable. By this bimanual palpation we are able in most cases to determine the size and shape of the uterine body. Rectal examination may in some cases be of aid. We may now introduce a speculum and note the appearance of the cervix, which after the fifth or sixth week usually becomes enlarged and softened. If gently pressed upon by the end of the finger or a sound it will convey the impression of a soft rubber ball. The os is often seen plugged by a drop of mucous. One author has stated that by watching the cervix for some time it may be seen to blush at regular intervals of about ten minutes. This sign, the author of this paper has not been able to demonstrate to his satisfaction.

Having completed our examination the question is whether or not our patient is pregnant. This is determined not by one symptom as a rule, nor necessarily by finding all the signs mentioned, but by the grouping together of a few of the more reliable indications, a reasonably sure diagnosis may be ar-

rived at. It is no trick to make a diagnosis of pregnancy if we can hear the fetal heart sound, the uterine bruit, the funic souffle, or if we can feel the outline of the child and detect its movements; but before these signs are demonstrable is the time when our skill is put to the test. We all know that many of these symptoms may be produced by other conditions, or we may have pregnancy and other conditions coexisting. We must carefully weigh and consider each sign as it presents itself, and in doubtful cases withhold our diagnosis till we have made repeated interval examinations. Many a grave mistake has been made by a hasty snap diagnosis. Let us be wise and not sacrifice our reputations or the lives and happiness of our patients by handling these cases in a slipshod manner.

Maxim: Consider every doubtful case gravid until you have proved the opposite beyond a doubt.

Dr. Theresa Bannan, of Syracuse, writes:

When marriage occurs just after the cessation of menstruation and menstruation does not recur at the expected time, many women immediately consult a physician, and the opportunity for an early diagnosis is given. The most valuable early signs are found in the breasts, which almost immediately after conception begin to grow firmer, heavier, and hotter until at the third week these characteristic signs are well marked.

The patient is often unconscious of the changes until her attention is called to them. Sometimes secretion has already occurred and may be expressed; more often it is not present for another week or more by which the evidence of pregnancy is greatly strengthened, if not indisputably confirmed.

Next in order of time are the changes in the lower segment of the uterus, which becomes soft, yielding, and elongated, apparently increasing the length of the uterine cavity, and accentuating the globular form of the fundus above and the cervical cone below. One must be confident of one's skill to detect the change as early as the first month. Between the first and second month the change is more tangible.

Another sign of pregnancy between the first and second month is the bluish tint of the vaginal mucous membrane, visible on separating the labia and displaced by slight pressure. It should be observed therefore before an internal examination is made.

These four signs, changes in the breasts, absence of menstruation, softening of the uterus, and the bluish (venous) color of the vagina, are the earliest marks of pregnancy in the primigravida. They are the earliest signs in multigravida, too, but not in the same order of sequence, but vary with the condition and with the individual. When a multipara conceives before menstruation has been reestablished after a parturition and lactation, or during lactation, the signs vary with the condition. The suppression of menstruation cannot then be recognized and so fails as a sign. The breasts having already passed through their full functional cycle, and secretion being still present for lactation, their signs of a new pregnancy cannot be discovered. So the uterus, changed by previous pregnancy and parturition, does not show in the first weeks of a new pregnancy the softening so characteristic in the primigravida. There remains, then, as the earliest sign of preg-

nancy in a multipara, gravid again before menstruation has been restored, the other early sign of pregnancy, the bluish color due to venous hyperæmia of the mucous membrane of the vagina. This coloring may be general or in patches depending on the tone of the vessels of different areas. If, however, a multipara has resumed menstruation, then the interruption of menstruation becomes the first sign of the new pregnancy, mammary secretion coming next, then vaginal lividity, and uterine softening.

The earliest possible diagnosis of pregnancy is made when marriage is consummated just before the date of menstruation and the flow is suppressed. The latest diagnosis is when the child is born. Between these extremes is every possibility of error. The sound of the fetal heart, the absolute sign of pregnancy, may be inaudible through many causes; may be disguised by many conditions. But an early diagnosis in the vast majority of cases can be made with reasonable certainty.

Therapeutical Notes.

The Medical Treatment of Appendicitis.—Zollkoffler (*Correspondenzblatt für Schweizer Aerzte*) states that the three principal factors of the medical treatment of appendicitis are (1) absolute rest, (2) administration of opium, and (3) diet. The patient often complaining of thirst which the author relieves by saline injections (common salt in sterilized water 0.6 per cent.) given at a temperature of 104° F. Age, or diarrhoea are not regarded as contraindications. He has treated twenty-six cases without a death, although several were seriously ill. Although all food was withheld, the patients lost but little weight.

The Influence of Sodium Chloride Injections Upon the Action of Chloroform During and After Narcosis.—Burckhardt (*Archiv für Klinische Chirurgie*) has demonstrated, by a series of experiments and clinical observations, that an injection of physiological serum, previous to administration of the anæsthetic, diminishes the toxicity of chloroform, which is less easily absorbed by the blood, and on this account, the blood pressure remains very near the normal. In addition to this, the classical phenomena following chloroform narcosis are reduced in a large measure. The blood pressure remaining high, the narcotic is rapidly eliminated by the lungs. At the Würzburg clinic, all the patients who had to undergo major operations, for the last few months, have received an injection of 1,500 to 2,000 c.c. of physiological serum, fifteen or thirty minutes before the administration of chloroform. It is given preferably by the veins, with the assistance of local anæsthesia. So far, following the operations, there has not been observed excessive hæmorrhage or any other trouble. These injections are thought especially to be indicated in cases where the heart is feeble, the kidneys abnormal, or when the percentage of hæmoglobin is reduced, and also when major operations are to be done in the urinary domain.

Sodium Bicarbonate in the Treatment of Gastric Ulcer.—Sodium bicarbonate holds a very important place in the treatment of ulcer of the stomach. The quantity required to overcome the hyper-

acidity of the gastric secretion is large, usually from ten to fifteen grammes per day. For example, a teaspoonful may be given in some water or milk and this followed by a cupful of milk, several times a day, which generally will be sufficient to overcome the gastric pain. Debove recommends 20 to 30 grammes a day, which seems to be rather large. The dose must vary according to the patient, and it should be increased until the pain stops. In this quantity, the sodium bicarbonate greatly increases the quantity of urine and also the thirst. As diarrhoea also is produced, in some cases, Lemoine and Debove suggest the addition of prepared chalk to the sodium bicarbonate, 50 centigrammes (gr. viii) of the former and 60 centigrammes (gr. x) of the latter, to be given every hour. After a while these powders are to be replaced by others composed of:

℞ Sodium bicarbonate,	0.60 grammes;
Prepared chalk,	
Calcined magnesias,	0.15 grammes.

M.

The proportion of chalk and magnesias will vary in accordance with the tendency on the part of the patient, to have diarrhoea or constipation. Sodium bicarbonate by itself has the objections of easily forming sodium lactate, sodium chloride, and other purgative salts. This inconvenience can be overcome with the aid of chalk and of opium. The formation of sodium chloride, however, is a grave fault, as it is a constant source of hydrochloric acid in the gastric juice. To overcome this inconvenience, it should always be combined with other alkalies, or inert powders, which may, in part at least, prevent the formation of sodium chloride. The following combinations are in use, each is for one powder, which may be repeated four or five times a day:

℞ Sodium bicarbonate,	1.0 gramme;
Calcium carbonate,	0.20 gramme;
Bismuth subnitrate,	0.30 gramme.

M.

℞ Sodium bicarbonate,	0.60 gramme;
Calcium saccharate,	0.20 gramme;
Talc powder,	0.30 gramme;
Bismuth salicylate,	0.40 gramme.

M.

℞ Sodium bicarbonate,	0.50 gramme;
Prepared chalk,	0.25 gramme;
Bismuth subnitrate,	0.25 gramme;
Opium, pulverized,	0.01 gramme.

M.

℞ Sodium bicarbonate,	0.60 gramme;
Calcined magnesias,	0.20 gramme;
Talc powder,	0.20 gramme;
Belladonna, in powder,	0.02 gramme.

M.

The last two formulas are especially intended for ulcer with hypersecretion, and in cases with pain. To favor cicatrization, Lemoine recommends:

℞ Bismuth subnitrate,	15.0 grammes;
Mucilage (thin),	60.0 grammes.

M. S.: To be taken in tablespoonful doses in the space of two hours.

It is to be continued only for two days, then the doses of bismuth are to be reduced from 15.0 to 5.0 grammes, for the next five or six days, at the end of which time the bismuth should be stopped and the ordinary alkaline treatment followed. In order to prevent constipation while taking the bismuth, it is advised to swallow a quarter of a gramme to four grammes daily of magnesias, at the same time that the bismuth is administered. — *La Quinzaine thérapeutique*, September 25, 1907.

The Value of Rice Water in Enterocolitis in Infants.—At the present date, the treatment of gastroenteritis in children having the greatest popularity is that by vegetable broths. The original formula of Méry was:

Haricot beans and dried peas, }	25.0 grammes;
Turnips, }	
Carrots, }	65.0 grammes;
Potatoes, }	
Water,	1 litre.

This is to boil for three hours (with the addition of 5 grammes of salt), adding water to keep up the quantity to one litre, after it has been strained. Finally, add a teaspoonful of rice flour for each 100 grammes of broth, and allow it to cook for fifteen minutes longer. Comby's formula is wheat, haricot beans, lentils, corn (cracked), pearl barley, and dried peas, equal parts. These vegetables deprived of their cortex give a more nourishing broth. A tablespoonful (30.0 grammes) is added to 3 litres of water and boiled for three hours and then strained. Five grammes of salt are to be added. Of this broth, 150 to 250 grammes, are to be given every three hours, to which may be added cream, or a teaspoonful of barley or rice, then boil and strain. This is to entirely replace milk in the diet. For older children, the food may be thickened with rice, vermicelli, tapioca, flour, etc. Chevalier makes the criticism that on account of the difficulty of preparations and the time they consume, these preparations are not practicable among the poorer classes, and moreover they are not very nourishing. He prefers simple rice water made by adding two tablespoonfuls of rice to two pints of water and boiling for an hour, adding a little salt, and straining the solution. When a child has an intense diarrhoea the milk is entirely withheld, and the rice water substituted. In addition enemata of rice water are to be given night and morning with a rubber bag syringe. The introduction of a tube into the colon is not practised by the author, who considers it irritating to the mucous surfaces which are very vascular. If the child vomits tablespoonful doses are given of a solution of sodium citrate (5 to 300). This is the only medication employed. Especially is the use of opium excluded. The majority of cases of gastroenteritis are of toxic infections of the alimentary canal, and it is preferable to allow the intestines to evacuate themselves freely, rather than to paralyze with opium the contractions of the digestive tube. The best method of avoiding the reabsorption of poisons from the intestine is to allow a free course to the diarrhoea. The rice water has a soothing action upon the mucosa, which gives it a special value in the treatment of gastroenteritis. In the course of a day or two, if the child shows improvement under the exclusive use of rice water, as is shown by the condition of the stools, the diet may be extended and one third of sterilized milk may be added. This quantity is to be cautiously increased, until the patient is able to return to normal diet. In the opinion of Dr. Variot, the vegetable infusions are generally so deficient in nutritive matters, that they correspond to the absolute water diet, which in the grave cases may be necessary. He finds the rice water to be an efficient substitute for the vegetable infusions, and a little more nourishing as a diet. — *Gazette médicale de Paris*, August 15, 1907.

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A NEW ANTIVIVISECTION CRUSADE.

There are signs that some of the good people (O, so good!) who are ever ready to provide the world with conscience power of their own particular brand, are about to try to hamper the work of the Rockefeller Institute, and that they are to have some newspaper assistance—not much, we hope. It has been noised abroad that the institute is about to establish a farm for rearing and caring for animals to be used in experiments intended to further the progress of medical knowledge, a kind of knowledge which bears rather a close relation to the general welfare. This enterprise has aroused the hostility of the president of the New York Humane Society, which is said to represent the American Antivivisection Society. It is probable, therefore, that in the next session of the legislature some drastic antivivisection bill will be introduced and rabidly advocated. There is great danger that it will be passed, and that medical investigators in the State of New York will thus be robbed of a great part of their means of doing good to the human race. We therefore implore the physicians of the State to use their utmost influence with members of the legislature to secure the prevention of such obstructive and tyrannical legislation.

It is well known to our readers that we have always condemned cruelty in experiments on animals, and we are quite ready to oppose the needless repetition of experiments undertaken simply for the purpose of demonstrating anew such facts as have been abundantly proved. We do not sanction the sub-

jection of an animal to discomfort, to say nothing of actual suffering, for mere show purposes. But we do insistently advocate noninterference with the full liberty of vivisection done in the interest of real research—always, of course, with the understanding that the experiments shall be conducted with the most scrupulous avoidance of cruelty, and by cruelty we mean the infliction of unnecessary pain or terror. The good people whom we have alluded to ought to understand that the Rockefeller Institute is not operated as a means of teaching students. It is in such institutions that those things are ascertained which make for the preservation of the public health. Of course it is necessary to repeat certain experiments that, having been originally performed in other laboratories, have given rise to conclusions which need either to be confirmed or to be refuted, but that does not mean repetition *ad infinitum*. We suppose it must be taken for granted that there are wanton experimenters, men who are callous to suffering on the part of the animals which they deal with, but, as the *New York Times* says, “unless these societies can find such persons on the staff of the Rockefeller Institute, unskilled men, of proved unfitness for the performance of their grave duties, the objections to the institute's new project will not impress the community as valid.”

STUDIES IN PLAGUE IMMUNITY.

In our issue for May 19, 1906, we noted editorially the work of Dr. Richard P. Strong in producing immunity to plague by the injection of attenuated living cultures of *Bacillus pestis*. In the *Philippine Journal of Science* for June, 1907, Dr. Strong publishes in detail all his experiments concerned in plague immunity, with the conclusions drawn from them. The study is very complete, making a monograph of 174 pages and containing many tables and a review of the literature on plague immunity. His work was designed to discover the most efficacious method of protective inoculation against the disease. He discusses the prophylactics previously employed, the most important of which is that known as Haffkine's. Dr. Strong appears inclined to doubt the protective value of Haffkine's prophylactic. It is proper, in this connection, to call attention to some recent articles published by Indian physicians in which it is unhesitatingly stated that the prophylactic under consideration is of value in lessening plague incidence and plague mortality. In an editorial in the *Indian Medical Gazette* for February, 1907, the following statement is made: “The recent research into the aetiology of plague, far from lessening the value of prophylactic inoculation, has

rather tended to emphasize its value as one of the great practical means of protecting communities against that disease." And in the Croonian lectures on plague (*Journal of Tropical Medicine and Hygiene*, August 1st) W. J. Simpson says: "One injection of three cubic centimetres of Haffkine's prophylactic is sufficient to protect during an existing epidemic. Inoculation is powerless to arrest the disease in those in whom the symptoms have already appeared or develop in a few hours after inoculation. Inoculation mitigates or aborts the disease in those who are in the incubation stage or have been infected three or four days previously. The prophylactic, unlike the vaccines for cholera, rabies, anthrax, or smallpox, exercises its protective effect in less than twenty-four hours, acting in this respect with a rapidity which is known only in antitoxic sera."

The two papers referred to were the result of personal observation on inoculation in human subjects, and, while it is quite true that Strong failed to immunize guinea pigs with this material, it seems to us that the experience of the Indian physicians with Haffkine's prophylactic must be given great weight. Strong's studies show that inoculation with an attenuated culture of living plague organisms is productive of a higher degree and of a more certain immunity in animals, but it must be admitted that this procedure is attended by far greater risk than the inoculation of cultures of the dead germs. We by no means intend to detract from the great value of Strong's work. We merely think, from our reading of his paper, that he has dismissed Haffkine's prophylactic without giving it all the credit that it deserves. The unfortunate occurrence of tetanus in Mulkowal has been shown by careful investigation to have resulted from carelessness in administration and not from carelessness in manufacture.

As a result of the animal experiments it is shown that inoculation is superior to other methods of immunization. The author thinks highly of prophylactic inoculations of natural plague aggressin. There is apparently no difference in the quality of the immunity obtained with natural and that with artificial aggressin, but the experiments lead to the conclusion that aggressins must be considered hypothetical substances, and that, so far as their immunizing value in the exudates is concerned, the immunizing substance proceeds from the bacilli themselves. Inoculation with natural plague aggressin is not likely to come into general use, because of the great difficulties encountered in its preparation. The author could not observe any superiority in Klein's method over that of inoculation with natural aggressins.

From a large number of experiments the conclusion seems warranted that agglutinins are formed

slowly and only in very small amounts in animals which are being immunized against pest infection, and that they (the agglutinins) occur in demonstrable quantities only in those which have been highly immunized. In horses, which were known to possess immunizing power, only small quantities of agglutinins could be detected. In the majority of sera of persons who had been inoculated against the plague, as well as in a majority of several persons who had suffered from the disease and recovered no traces of agglutinin could be definitely demonstrated. In a few cases they were present in very small amounts. In studying the agglutination of *Bacillus pestis* it is extremely easy to mistake a false agglutination for a true one. It appears, therefore, that the development of the immunizing substances is quite independent of that of the agglutinins.

As to the bactericidal action of plague serum, the conclusion is drawn that in sera possessing immunizing power no such action can be demonstrated. On the other hand, if the bacillus has been prepared for the action of leucocytes by an immunizing serum, the leucocytes do play a part in the digestion and ultimate destruction of the organisms. The destruction of the plague bacillus, it appears, is effected in the immune animal partly in accord with the humoral theory of Buchner and partly in accord with the phagocytic theory of Metchnikoff. It is thought that the protective action may be of an opsonic nature. Attention is called to the fact that the absence of immunizing substances in a serum cannot be regarded as necessarily evidence of the absence of even a considerable immunity against the disease. There can be little doubt of the value of the serum treatment of plague, provided it is used early enough in the disease. Success appears to depend upon the number of plague bacilli in the animal at the time of the inoculation and upon the promptness with which the serum is injected after the infection has occurred.

It is shown that the plague organism is one which does not readily undergo fluctuations in virulence. It is possible, however, to produce artificially a decrease in virulence by growing the organism in bouillon containing a certain amount of alcohol.

In recommending inoculation against plague with suitable cultures, Dr. Strong emphasizes the fact that the method is not infallible, and says that very brilliant results may not always be obtained with it. This is dependent upon individual variations, in susceptibility to infection and in natural resistance. The monograph is of a most admirable character, representing a great amount of accurate scientific work, and the author, together with those who have aided him in his work, is entitled to the highest praise.

A NEW HYPOTHESIS OF THE ÆTIOLOGY OF BERIBERI.

Hewlett and de Korte have made interesting observations bearing upon the pathology of beriberi, which they report in the October number of the *Journal of Tropical Medicine and Hygiene*. In carrying out another investigation they came across a disease in monkeys which was very similar to beriberi. In procuring sixteen monkeys from one dealer they found them suffering from a malady which the merchant declared to be infectious and on account of which he kept the sufferers isolated from the healthy animals. The monkeys were apparently very ill and anæmic, the knee jerks were either exaggerated, diminished, or absent, and some of the animals were afflicted with œdema of the face and genitals, resembling dropsy, but without albumin in the urine. The urine showed hyaline casts and some highly refractive cells which the authors thought were possibly protozoa. The animals succumbed to the disease, and post mortem section revealed in every one of them congestion of the kidneys and their glomerular vessels, cloudy swelling of the renal epithelium, and hæmorrhages into the tubules with denudation of their epithelium. Attempts to infect healthy monkeys were not very successful; œdema appeared only on the eyelids, the knee joint became exaggerated, and the animals grew weak.

The authors then examined beriberi patients who on admission into the hospital showed general œdema; absence of the patellar and cremasteric reflexes; tenderness of the calves and numbness of the extremities; the presence of ankle and wrist drop, and forcible action of the heart with a soft murmur in the mitral area. In the urine were found three kinds of cells: (1) Small, refractive, spherical bodies, 2 to 3 micra in diameter, having a thick capsule and inclosing hyaline contents. They did not show the reaction of fat. (2) Globular cells, 20 micra in diameter, containing a cytoplasm studded with very refractive granules and possessing a single nucleus. (3) Cells 30 micra in diameter, inclosed in a thick capsule, containing a finely granular, oval nucleus with a rounded nucleolus. All these cells seemed to be degenerate cells or protozoa. Post mortem section of a man's kidney showed changes similar to those met with in the monkeys' kidneys, such as congestion of the glomerular vessels, hæmorrhages into the glomeruli and tubules with denudation of the epithelium, and cloudy swelling of the renal epithelium.

The investigators thought it possible that in beriberi an infecting protozoan might exist which was eliminated through the urine, thus conveying infection. They therefore fed monkeys with the urine of

beriberi patients, and these monkeys, that had previously been healthy, showed emaciation, puffiness, cyanosis, weakness of the hind legs, and alteration of the knee jerks.

Dr. Hewlett and Mr. de Korte therefore put forward the tentative hypothesis that beriberi is the result of a protozoan infection, the infecting agent being eliminated through the urine, and the urine becoming the source of infection.

THE LOUSE AS A CARRIER OF TYPHOID FEVER.

After the discovery of the germs of infectious diseases, such as malarial and yellow fever, cholera, plague, pneumonia, tuberculous disease, etc., it was only logical that special attention should be paid to the carriers of these germs; to the mosquito as the host of the malarial and yellow fever germs, the rat and its flea as the intermediate hosts of the Oriental plague, the mouse as the carrier of pneumonia and the ubiquitous fly as a general purveyor of infection, and that these pests should be marked for destruction for sanitary reasons.

Dr. Nakao Abe, of the University of Kyoto, Japan, has made investigations and conducted experiments with lice and fleas and the *Bacillus typhosus*. He has found (*Münchener medizinische Wochenschrift*, September 24th) that the louse, the *Pediculus vestimenti* as well as the *Pediculus capitis*, when parasitic on typhoid patients, may harbor the typhoid bacillus. He found it in seventy-five per cent. of his cultures. He could not prove that the same was the case with fleas, although he is of the opinion that they do play the host as often as the louse, for he attributes his negative results to the fact that he had only a small amount of material at his disposal.

Thus the rat and the mouse, the mosquito, the flea, the fly, the bedbug, and the louse, all may probably under certain conditions become a menace to man, and should be as nearly as possible exterminated, not only from the æsthetic point of view, but more especially from the hygienic. Even pet animals, such as dogs, cats, and birds, need careful watching, not only for their diseases, but also as to their parasitic vermin.

A NEW BRITISH QUARTERLY.

We have received the first number of the *Quarterly Journal of Medicine*, dated October, 1907. It is edited by Dr. William Osler and a number of other well known members of the profession in England, and published in Oxford. The number contains 108 pages of reading matter of a high quality, and is freely and beautifully illustrated.

A CORRECTION.

In Dr. Louis Fischer's article, *An Aid to the Diagnosis of Tuberculosis in Infancy and Childhood*, which appeared in our last issue, the paragraph entitled *Method of Inoculation*, page 735, should read as follows: "Scarify three small areas of skin, but not enough to produce a bleeding surface. Inoculate one drop of diluted tuberculin into two of the scarified areas and leave the third area as a control without inoculating. The method pursued should be similar to the one ordinarily employed in vaccination."

 News Items.

Philadelphia Change of Address.—Dr. James Weir Robinson, to 326 South Sixteenth Street.

Change of Address.—Dr. William B. Noyes, to The Inverness, 210 West Fifty-seventh Street, New York.

The Floyd County, Georgia, Medical Society.—At a meeting of this society, held at Rome, on Thursday evening, October 17th, Dr. R. P. Cox read a paper on Oponins.

The Quiz Medical Society of New York will hold its next meeting at the University Club, on Saturday, November 2, 1907, at 7 o'clock p. m. Dr. Charles T. Dade will speak upon the Treatment of Eczema.

The Hartford County (Conn.) Medical Association held its semiannual meeting on Tuesday, October 22, 1907. The president, Dr. E. K. Root, gave an address on *Urban versus Suburban Sanitation*.

Charitable Bequests.—By the will of Alexander M. Fox the Episcopal Hospital, the German Hospital, the Pennsylvania Hospital, and the Northern Home for Friendless Children will ultimately become beneficiaries. The estate is valued at about \$40,000.

The Orange Mountain, New Jersey, Medical Society met at the rooms of the William Pierson Medical Library Association, on Friday evening, October 18th. Dr. Frank S. Meara, of New York, read a paper on *Some Types of Meningeal Affections*.

A Tuberculosis Traveling Exhibit Destroyed by Fire.—The traveling exhibit of the Maryland Tuberculosis Association was destroyed by fire in the Baltimore & Ohio yard at Brunswick, Md., on October 13th, while en route from Baltimore to the Hagerstown fair.

The Methodist Episcopal Hospital of Philadelphia is without a pathologist. The position pays a salary, and the incumbent must have the degree A. B., in addition to the degree M. D. The staff earnestly desires to have the vacancy filled without delay.

Gift to the New York Postgraduate Medical School and Hospital.—As a residuary legatee under the will of Miss Margarette A. Jones, of New York, this institution received last July the sum of \$142,000 on account of this legacy.

The Buffalo Academy of Medicine.—The programme arranged for a meeting of the *Section in Obstetrics and Gynecology*, held on Tuesday, October 22nd, included the following: (a) Lithopædion, with report of cases, Dr. Herman E. Hay; (b) Our Friend the Enemy, Dr. T. H. McKee.

The Hospital Conference of the City of New York will hold a meeting at the New York Academy of Medicine, on Wednesday evening, October 30, 1907. Dr. W. Gilman Thompson will read a paper on *Modern European Hospital Construction*. The public is cordially invited to attend this meeting.

The Harvey Society Lectures.—The first lecture in the present year's Harvey Society course will be delivered on Saturday evening, October 26th, at the New York Academy of Medicine, by Professor E. O. Jordan, of Chicago University, on the subject, *The Problems of Sanitation*. All persons interested are cordially invited to be present.

The Philadelphia Medical Club held one of its regular quarterly receptions in the Bellevue Stratford Hotel on Friday evening, October 18th. The guests of honor were Dr. James Lyson, president of the College of Physicians of

Philadelphia, and Dr. James T. Walker, president of the Philadelphia County Medical Society.

The Richmond, Va., Academy of Medicine and Surgery.—At a meeting of this academy, held on Tuesday, October 22nd, Major C. E. Woodruff, Surgeon, U. S. A., read a paper on: *The Harmfulness of Excessive Sunlight in Phthisis; The Relation of Anthropology to Medical Climatology*, and Dr. E. C. Levy spoke on *Municipal Sanitation*.

The Medical Society of the County of Erie.—At a meeting of this society, held at Buffalo, on October 14th, Dr. John P. Sawyer, of Cleveland, Ohio, read a paper on *Diabetics*. The following officers were elected: President, Dr. Edward Clark; vice-presidents, Dr. C. A. Wall and Dr. Grover Wende; secretary, Dr. Franklin C. Gram; treasurer, Dr. A. T. Lytle, all of Buffalo.

The Clinical Society of the Elizabeth, N. J., Hospital and Dispensary.—The fourteenth annual dinner of this society was held on October 15, 1907, and was presided over by the retiring president, Dr. Stephen J. Keefe. Previous to the banquet the following officers were elected for the ensuing year: President, Dr. J. L. Perkins; vice-president, Dr. P. Du Bois Bunting; secretary, Dr. Russell A. Shirrefs; treasurer, Dr. J. H. P. Conover.

The Medical Association of the Southwest.—At the annual meeting of this association, held at Hot Springs, Ark., on October 10, 1907, the election of officers resulted as follows: President, Dr. Thomas E. Holland, of Hot Springs; secretary, Dr. G. F. H. Clark, of El Reno, Oklahoma; delegate to the American Medical Association, Dr. Jabez N. Jackson, of Kansas City, Mo. Kansas City, Mo., was selected for the place of meeting in 1908.

The Rockefeller Institute for Medical Research.—The following appointments have been made to the staff of the Rockefeller Institute for Medical Research: Dr. Hideyo Noguchi, promoted to Associate in Pathology; Dr. G. W. Heimrod, Assistant in Biological Chemistry; Dr. W. A. Jacobs, Fellow in Biological Chemistry; Mr. P. A. Kober, Scholar in Biological Chemistry; Dr. R. V. Lamar, Scholar in Pathology.

Scientific Society Meetings in Philadelphia for the Week Ending November 2, 1907.—*Monday, October 28th*, Mineralogical and Geological Section, Academy of Natural Sciences; Society of Normal and Pathological Physiology, University of Pennsylvania. *Tuesday, October 29th*, Medicolegal Society. *Friday, November 1st*, American Philosophical Society; Kensington Branch, Philadelphia County Medical Society.

The Medical Association of Central New York.—At the fortieth annual meeting of this association, held at the Genesee Valley Club, Rochester, on October 15th, the following officers were elected: President, Dr. Carlton C. Frederick, Buffalo; first vice-president, Dr. N. F. Conway, Auburn; second vice-president, Dr. A. A. Young, Newark; secretary, Dr. C. A. Greenleaf. The next annual meeting will be held at Buffalo.

The Union County, N. J., Medical Society.—The quarterly meeting of this society was held in Plainfield, N. J., on October 16, 1907. Dr. T. H. Tomlinson, of Plainfield, read a paper on *Adulteration of Foods and Drugs*. A committee from the county pharmaceutical association was in attendance, by invitation, and exhibited many of the elegant preparations of the National Formulary, for comparison with the proprietary medicines they are intended to replace.

The Society of the Third Councillor District of the Indiana State Medical Society, comprising the following counties: Perry, Crawford, Dubois, Orange, Harrison, Scott, Clark, Floyd, and Washington, held its semiannual meeting at New Albany, Ind., on October 14, 1907, under the presidency of Dr. Charles P. Cook, of New Albany. Dr. J. N. McCormack, of Bowling Green, Ky., delivered an address on *Things About Doctors Which Doctors and Other People Should Know*.

The Training School for Nurses of the West Philadelphia Hospital for Women held a convocation of nurses in the West House Church, on Thursday evening, October 17th. Dr. Anna Stuebel and Dr. William J. Lister made addresses. The diploma of the school was awarded to Miss Ida C. Kent, of Pittsburg, Pa.; Miss Ida Hagen, of Ontario, Pa.; Miss Nellie Farmer and Miss Margaret Fischer, of New York city; Miss Mamie Fyfe, of Philadelphia; and Miss Cordelia Rentschler, of Liverpool, Pa.

Section in General Medicine, College of Physicians of Philadelphia.—At the regular monthly meeting of the Section in General Medicine, College of Physicians, held Monday evening, October 14th, Dr. Clifford B. Farr reported a method of recording physical signs; Dr. J. Alison Scott reported a case of enterolith mistaken for floating kidney; Dr. Joseph Sailer read a paper on Trypsin as a Therapeutic Agent; Dr. Alfred Stengel read a paper on the Nervous Manifestations of Arteriosclerosis.

Section in Ophthalmology, College of Physicians of Philadelphia.—At the regular meeting of this section, held on Tuesday evening, October 15th, Dr. C. A. Veasey reported a case of unilateral nystagmus benefited by treatment; Dr. Burton K. Chance read a paper on The Visible Remains of the Vitreous Canal; Dr. Howard F. Hansell read a paper on The Significance of Pupillary Inequality; Dr. William Campbell Posey reported a case of Vernal Conjunctivitis Showing Unusual Corneal Conditions.

Dinner for Physicians and Druggists.—The Kensington Branch of the Philadelphia County Medical Society and the pharmacists of the Eleventh District of the Philadelphia Association of Retail Druggists, to the number of one hundred and fifty, enjoyed a dinner on the evening of Thursday, October 10th. Speeches were made by Dr. S. Solis-Cohen, Dr. John V. Shoemaker, Professor Joseph P. Remington, Dr. A. B. Hirsch, Dr. T. C. Fulton, Dr. H. C. Wood, Jr., Dr. H. Godfrey, Dr. A. M. Eaton, and Professor Charles H. La Wall.

The Mortality of Connecticut.—According to the State Board of Health's *Monthly Bulletin*, for September, 1907, there were 1,393 deaths during the month of September. This was 368 less than in August and 51 more than in September of last year, and 187 more than the average number of deaths during September for the five years preceding. The death rate was 17.0 for the large towns, for the small towns 14.6, and for the whole State 16.4. The deaths reported from infectious diseases were 184, being 13.2 per cent. of the total mortality.

Philadelphia Personals.—Dr. Stephen E. Tracy and Dr. John A. Boger have been appointed on the staff of the Stetson Hospital.

Dr. David L. Edsall has been elected professor of therapeutics in the University of Pennsylvania.

Dr. G. Bastianelli, of Rome, was entertained in Philadelphia on Thursday, October 10th.

Dr. J. M. Garber, of Plymouth, Ohio, and Dr. W. M. McNaughton, of Milwaukee, Wis., are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

The Third District Branch of the Medical Society of the State of New York, comprising the counties of Albany, Columbia, Greene, Rensselaer, Schoharie, Sullivan, and Ulster, held its first annual meeting at Albany, on Tuesday, October 22, 1907. The programme, in addition to hospital and special clinics, included the following titles: The Treatment of Suppurating Glands of the Neck, Dr. J. M. Berry, Troy; Treatment Following Abdominal Section, Dr. J. F. McGarrahan, Cohoes; The Diagnosis and Management of Extrauterine Pregnancy, Dr. S. B. Whitbeck, Hudson; The Transmission of Typhoid Infection, Dr. Herbert M. Pease, Albany; Acute Anterior Poliomyelitis in the Adult, with Exhibition of a Case, Dr. La Salle Archambault, Albany; etc.

The Hartford, Conn., Medical Society.—On Monday evening, October 28th, the *Surgical Section* of this society will hold a meeting in the Hunt Memorial Building. The programme arranged for the occasion is as follows: Presentation of patients and specimens: (a) Muscular Spasms Simulating Hip Disease, Dr. J. W. Felt; (b) Hypernephroma Magna, Dr. E. R. Lampson; (c) Renal Calculi, Dr. C. E. Taft; Relation of Cases: Tetanus, Dr. W. H. Crowley. A symposium on the Surgery of the Kidney: Nephroliathiasis; (a) Pathology and Diagnosis, Dr. O. R. Witter (b) Treatment, Dr. A. M. Rowley; Nephromata, Dr. A. J. Wolff. Discussion opened by Dr. W. R. Weiser, of Springfield; Dr. A. E. Abrams, and Dr. O. C. Smith. At the next meeting, November 25, 1907, Renal Tuberculosis will be the subject for discussion.

The Mortality of New Jersey.—According to the *Monthly Statement* of the Bureau of Vital Statistics of New Jersey for September, 1907, there were 3,405 deaths reported in New Jersey during the month ending September 15, 1907. Infantile diarrhoea caused the greatest number of fatalities. Among other important causes of deaths

were the following: Diseases of the nervous system, 346; pulmonary tuberculosis, 283; diseases of the heart and circulatory system, 266; pneumonia, 116; cancer, 111. Typhoid fever caused 55 deaths, 16 of which resulted from the outbreak of this disease in the State Hospital, Trenton. Cerebrospinal meningitis caused 43 deaths, this being 17 more than the monthly average during the past year. Diphtheria and scarlet fever caused fewer deaths than the monthly average. Deaths from suicide numbered 32, or 4 more than the average for the preceding twelve months.

The Mortality of Chicago.—According to the report of the department of health, for the week ending October 12, 1907, there were during the week 498 deaths from all causes, as compared with 528 for the corresponding week in 1906. The annual death rate in one thousand of population was 12.28. The principal causes of death were: Apoplexy, 12; Bright's disease, 32; bronchitis, 7; cancer, 24; consumption, 64; convulsions, 10; diphtheria, 11; heart diseases, 43; influenza, 1; intestinal diseases (acute), 71; measles, 1; nervous diseases, 18; pneumonia, 58; scarlet fever, 4; suicide, 10; typhoid fever, 8; violence (other than suicide), 22; whooping cough, 2; all other causes, 101. There were 109 deaths of children under one year of age; 49 between one and five years of age; 26 of persons between five and twenty years of age; 208 between twenty and sixty years of age; and 106 over sixty years of age.

The Pennsylvania Society for the Prevention of Social Disease held a meeting in Philadelphia, on Thursday evening, October 17th. Dr. Prince A. Morrow, of New York, read a paper entitled What Has Been Accomplished to Date in the Movement for Moral and Physical Hygiene? The following persons took part in a discussion on the question: Can and should instruction in moral physical hygiene be included in the school and college curriculum? Dr. Josiah H. Penniman, dean of the College Department of the University of Pennsylvania; Dr. H. S. Drinker, president of Lehigh University; Dr. Martin G. Brumbaugh, superintendent of the Philadelphia public schools; Dr. Robert Ellis Thompson, president of the Central High School of Philadelphia; Dr. Grace E. Spiegle, of the Girls' Normal School of Philadelphia; and Miss McCormick, of the Hollingsworth Public School, Philadelphia.

Personals.—Dr. E. P. Bledsoe, second assistant physician and pathologist at the Central State Hospital at Petersburg, Va., has resigned. He had been connected with the hospital two years. Dr. R. C. Hume and Dr. T. F. Jarrett have been promoted to second and third assistant physicians, respectively.

Dr. James E. Sullivan has been nominated by the democrats of the town of Narragansett, Rhode Island, for State senator.

On October 14, 1907, the one hundredth anniversary of the birthday of Dr. William M. Starr, of Washington, D. C., was celebrated at a banquet tendered by the Oldest Inhabitants' Association. Dr. Starr was made the recipient of a gold headed cane.

On Tuesday, October 22nd, Dr. William M. Polk, of New York, delivered a lecture in the Free Public Library, Newark, N. J., on the subject: Relation of the General Practitioner to the Specialties.

The Health of Philadelphia.—During the week ending October 5, 1907, the following cases of transmissible diseases were reported to the Bureau of Health: Malarial fever, 1 case, 0 deaths; typhoid fever, 72 cases, 7 deaths; scarlet fever, 23 cases, 0 deaths; chickenpox, 10 cases, 0 deaths; diphtheria, 51 cases, 0 deaths; cerebrospinal meningitis, 2 cases, 0 deaths; measles, 9 cases, 0 deaths; whooping cough, 16 cases, 5 deaths; pulmonary tuberculosis, 86 cases, 48 deaths; pneumonia, 23 cases, 20 deaths; erysipelas, 2 cases, 0 deaths; cancer, 15 cases, 16 deaths; mumps, 2 cases, 0 deaths; septicæmia, 2 cases, 1 death; tetanus, 1 case, 2 deaths. The following deaths were reported from other transmissible diseases: Tuberculosis, other than tuberculosis of the lungs, 12; cholera morbus, 1; diarrhoea and enteritis, under two years of age, 36; puerperal fever, 1. The total deaths numbered 406, in an estimated population of 1,500,595, corresponding to an annual death rate of 14.01 in 1,000 of population. The total infant mortality was 115; under one year of age, 95; between one and two years of age, 20. The temperatures were seasonable. The total precipitation was 1.54 inches.

Report of the Department of Sanitation of the Isthmian Canal Commission for the Month of July, 1907.—During the month of July, 1907, 357 deaths were recorded in the

canal zone, in a total population, including Panama and Colon, of 103,333, corresponding to an annual death rate of 41.46 in 1,000 of population. There were 14 deaths from typhoid fever, 50 from malarial fever, 13 from æstivoautumnal fever, 2 from malarial cachexia, 10 from dysentery, 6 from amoebic dysentery, 4 from beriberi, 24 from pulmonary tuberculosis, 9 from general tuberculosis, 5 from other forms of tuberculosis, 1 from acute articular rheumatism, 2 from epidemic cerebrospinal meningitis, 5 from bronchopneumonia, 54 from pneumonia, 1 from puerperal septicæmia. The morbidity rate among the employees was 28 in 1,000, against a morbidity rate in July, 1906, of 39 in 1,000. Furthermore, there were 38,000 men on the rolls this year against 28,000 in 1906. The mortality rate among employees of the commission was 16 in 1,000; in 1906 it was 30 in 1,000. No quarantinable disease of any kind originated on the Isthmus. The last case of yellow fever on the Isthmus was reported in May, 1906, fourteen months ago. In the city of Panama five fines were assessed during July against persons who persisted in keeping their premises in such a condition that larvae were found on them after a warning had been issued. Four persons were fined for keeping general unsanitary premises.

Collective Investigation of the Poliomyelitis Epidemic of the Year 1907.—By the Committee Appointed by the New York Neurological Society; With the Cooperation of the Committee Appointed by the Section in Pediatrics of the New York Academy of Medicine.—The members of the committees above mentioned are anxious to make a thorough investigation of, and to collect all the data relative to, the epidemic of poliomyelitis of 1907 in New York city and its immediate vicinity. To this end they must have the co-operation of all those who have had, or will have, an opportunity of studying this disease in hospital or private practice. Physicians willing to assist in this work will kindly inform the secretary, Dr. Edwin G. Zabriskie, No. 37 West Fifty-fourth Street, New York city, who will send them history forms so as to secure uniform records. Physicians who cannot collaborate with the committee will confer a favor by reporting to the secretary the number of cases of poliomyelitis they have treated during the past six months. The joint committee wishes to state most emphatically that due credit will be given to everyone who contributes to this collective investigation, and that the publication of the committee's report will in no wise interfere with any article or articles to be published on this subject. Moreover, the committee's report will surely not be printed earlier than a year from date, so that medical men will have ample time to publish their articles long before the committee will have its report ready. Respectfully,

The Committee of the Neurological Society, B. Sachs, chairman; E. G. Zabriskie, secretary; J. R. Hunt, J. F. Terriberry, L. Pierce Clark, Simon Flexner, for the Rockefeller Institute; C. F. Bolduan, for the Department of Health, New York city.

The Committee of the Section in Pediatrics of the New York Academy of Medicine, L. E. La Fetra, Herman Schwarz, L. C. Ager, Brooklyn.
New York, October, 1907.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending October 19, 1907:

	October 19		October 12	
	Cases	Deaths	Cases	Deaths
Typhoid fever	129	17	166	32
Smallpox	—	—	—	—
Varicella	16	—	22	—
Measles	125	4	114	4
Serolis fever	117	8	164	5
Whooping cough	21	6	14	3
Diphtheria	324	32	272	27
Tuberculous pulmonary	306	174	332	143
Cerebrospinal meningitis	16	10	11	8
Totals	1,114	251	1,092	218

Society Meetings for the Coming Week:

MONDAY, October 28th.—Medical Society of the County of New York (annual).

THURSDAY, October 31st.—Brooklyn Society for Neurology

FRIDAY, November 1st.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynæcological Society, Brooklyn, N. Y.; Manhattan Clinical Society, New York Practitioners' Society of New York.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

October 17, 1907.

1. The President's Address to the Sixth International Dermatological Congress Held in New York, September 9 to 14, 1907, By JAMES C. WHITE.
2. The Prostate from the Surgical Standpoint, By CHARLES S. BENSON.
3. The Treatment of Simple Infection of the Staphylococcus with the Vaccines of Wright, By H. F. HARTWELL and ROBERT J. LEE.
4. A Case of Rabies, By CHARLES F. WITHERTON.
5. Some Personal Experiences in Abdominal Surgery, By A. C. HEFFENGER.
6. The Question of Justifiable Homicide, By CHARLES GREENE CUMSTON.

2. The Prostate from the Surgical Standpoint.—Benson places four questions before his readers which he answers: 1. Catheter life or operation—is answered that after diagnosis is established the earlier we operate the better the chance of life, the better the chance of complete symptomatic recovery. 2. The desirability of operation being established, the following are indications, pronounced enlargement of the prostate, difficulty in starting and stopping the urinary stream, the discovery of a few ounces of residual urine. 3. But if the case is not operative, is there any treatment apart or combined with catheterization and the subject of prostatism with hypertrophy? Hypertrophy, according to the author, does not exist, we have a condition which he has diagnosed as prostatitis, in which there is a certain amount of irritation and congestion of the gland, without any increase in glandular and connective tissue elements, which in itself gives rise to very similar symptoms of the early stages of hypertrophy. Perhaps, if anything, this condition carries with it more pronounced discomfort than the graver type. If we consider the fact that in the majority of instances this is due to an old gonorrhœa, we shall come nearer appreciating the treatment which will be most efficacious. We will massage the prostate gland and use instillations of silver nitrate, deposited in the membranous and prostate urethra. 4. The three operations to be selected from are Bottini, suprapubic, and the perineal; the author points out the distinctive features of preference for these three methods.

3. The Treatment of Simple Infection of the Staphylococcus Aureus with the Vaccines of Wright.—Hartwell and Lee state that treatment with vaccines is the most effectual treatment for boils and carbuncles. Although the vaccine treatment does not prevent recurrence, cases of chronic furunculosis can be absolutely controlled by occasional inoculations. Vaccine treatment is a valuable surgical adjunct in appropriate cases. The treatment of this class of cases can be successfully carried out without the estimation of the opsonic index and without any special technical training.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

October 1, 1907.

1. The Relation of Iodine to the Thyroid Gland, By RICH HUNT.
2. Constitutional Ill Equipment of the Patient as a Factor in Determining the Performance of the Primary Cesarean Section, By EDWARD KEYNES.
3. The Delivery of a Dilated Woman, with Especial Reference to the Interest of the Child, By EDWARD P. DAVIS.
4. The Duty of the Physician to the School Child, By W. C. HORTON.
5. The Greatest Menace to Whole Milk in Cities' Supply, By ALEXANDER M. AUSTER.
6. Certified Milk and the General Milk Supply of Louisville, By HENRY LEON TULEY.
7. The Absorption and Elimination of Some Commonly Used Drugs, with Practical Deductions from a Knowledge of the Same, By F. R. ZEMER.

8. The Paraffin Injection Treatment of Inguinal Hernia,
By M. L. HARRIS.
9. The Use of Carbon Dioxide Snow in the Treatment of
Nævi and Other Lesions of the Skin. Preliminary
Report, By WILLIAM ALLEN PUSEY.

1. **The Relation of Iodine to the Thyroid Gland.**—Hunt concludes from his experiments that iodine free thyroid has a certain degree of physiological activity, but that this activity is greatly increased by the presence of iodine in proper combination; from the data obtained it would appear that sheep thyroid containing 0.176 per cent. iodine was approximately thirty times as active as iodine free children's thyroid. It was also shown that there is a close parallelism between the amount of iodine and the degree of physiological activity. Two suppositions may be made as to the varying amounts of iodine in different thyroids: (1) That there is a compound containing a definite amount of iodine and that this compound is present in much larger amounts in some thyroids than in others; (2) that some substance present in the thyroid is capable of combining with different amounts of iodine, as is the case with many fats. This subject has been discussed by Oswald in regard to iodothyroglobulin. Although a final answer cannot, perhaps, be given at present, the weight of evidence is decidedly in favor of the second view, although it is not probable that all of the thyroglobulin in a thyroid is equally iodized. It is interesting to recall in this connection instances in which the properties of substances vary with the number of certain groups contained in them. Thus Bechhold and Ehrlich found the antiseptic power of substituted phenols to be increased according to the number of bromine and chlorine atoms present in them. Certain substances, themselves but very faintly colored, are converted into powerful dyes by the introduction of certain groups (auxochrome groups), which of themselves make up but little of the total molecular weight, the depth of color being dependent on the number of such groups introduced.

4. **The Duty of the Physician to the School Child.**—Holloperer draws the following conclusions: 1. The school life of the child at the present day is too complex and difficult. Too many subjects for study have been introduced, and too great a thoroughness required for the young mind. This has a tendency to unbalance development and create nervous irritability. 2. In teaching large classes the personal equation is lost. The most valuable element of the teacher is showered on the bright child, while the backward or defective are frequently lost to sight. 3. Teachers who fail to recognize a defective child commit a great injury by permitting the child's mind to be unemployed. This is especially true of the depraved type of children. The children in our reform schools, the great army of the police court, chronic drunkards and criminals, the tramp, vagrants, low prostitutes, are largely recruited from this class of the slightly mentally deficient who were neglected in their youth. 4. In the gathering of classes of children of unequal capacity, the teacher fails to recognize the varied powers of attention, which is of first importance in the process of mental development. 5. The physician should take a deeper interest in watching the mental defects and having children so afflicted properly classified. The physical defects, including those of the eye, ear, nose, should receive more attention than is now given. 6. We as a profession are confronted with the appalling information that 120,000 defective school children exist in the United States.

7. **The Absorption and Elimination of Some Commonly Used Drugs.**—Zemp speaks of opium, cocaine, digitalis, nitroglycerin, belladonna, chloral, and iodoform. His practical deductions are: Opium: Large doses of opium should never be given; small doses frequently repeated are preferable. Opium applied locally has but little effect, and such as it has is probably of

central origin. Given repeatedly or in large doses to nursing mothers it may cause alarming symptoms in the infant. In opium poisoning one of the most important things to do is to keep the stomach free from the drug, as it is largely eliminated into this viscus to be reabsorbed. To accomplish this end the stomach should be washed out regardless of the way in which the drug has been taken. Or emetics with copious draughts of water may be given, and the patient made to drink at short intervals a weak solution of potassium permanganate, which may be given freely without fear of doing harm. On the other hand, the hypodermic use of this solution is useless. The urine, but more especially the saliva, can be used in making a diagnosis, as they both will respond to tests for morphine. This is important from a medicolegal standpoint, and in distinguishing between opium poisoning, cerebral hemorrhage, and acute alcoholism. Cocaine: In case of a patient on whom cocaine has never been used, the physician should exercise caution and should have close at hand alcohol and ammonia to use in case symptoms of collapse arise. When the drug is injected into the tissues to produce anesthesia, if the part of the body permits, a ligature should be thrown around it in order to keep as much of the drug as possible from entering the general system. After the operation is completed the ligature should be removed gradually. It is advisable to let the wound bleed freely before coapting it, in order to wash out as much of the cocaine as possible. Cocaine is of but little value, if any, in earache. To cocaineize the ear drum equal parts of cocaine, menthol, and phenol should be used. A few drops of this mixture may be dropped into the ear shortly before operating. Strong solutions should not be used ordinarily in the eye, nose, or mouth, but they can be used with impunity in the rectum and vagina, as solutions of less strength than 10 per cent. have but little influence in these localities. In dropping solutions of cocaine in the eye care should be taken that they do not run down into the nose through the lachrymal duct. This can be prevented by pressing on the duct with the finger, or holding the patient's head so that the solution runs out of the external canthus. Excessive dosage should not be used in applying the drug locally. Digitalis: We cannot rely on digitalis in cases of emergency, where it is necessary to stimulate the heart quickly. In these cases we should resort to the simultaneous use of alcohol, or ammonia and digitalis, for about the time the diffusible stimulant is waning the digitalis will begin to take up the work and carry it along for some time. Care should be exercised in draining off dropical effusions in patients who have been taking large doses of digitalis for some time. The sudden withdrawal of the fluid may cause the absorption of enough of the drug to poison the patient. As digitalis is irritating to mucous membranes, it should not be given by mouth to patients suffering from acute gastric troubles. Nitroglycerin: This drug may be used when a quick effect is desired to relieve severe pain due to muscular spasm, as in angina pectoris. In all cases where it is given for its relaxing effect on the circulation, as in cases of high arterial tension, it should be administered at short intervals. It is useless to give such a drug as this three times a day. Neither should it be combined with digitalis with the idea of overcoming the contraction of the arterioles caused by the latter, for the effect of the one is brief, while the other is greatly prolonged. This counteraction, however, may be obtained by giving the nitroglycerin separately and at the proper intervals. Belladonna: In using atropine in the eye the solution should be kept from running down into the nose through the lachrymal duct. In giving belladonna to nursing mothers the baby should be watched; especially is this true if we are giving large doses and the mother's health is poor. In making local applications of belladonna ointment the pa-

tient should be instructed to wash the ointment off if marked dryness of the mouth and dilatation of the pupils occur, as enough of the drug can be absorbed through the skin to poison the patient. If we suspect that a patient has been poisoned by belladonna a positive test can be made by dropping some of the urine into the eye of a cat, when dilatation of the pupil will occur if our suspicion is correct. This is important from a medicolegal standpoint. Chloral should be given well diluted, and as a rule infants should receive it by the rectum. As it is eliminated as chloral, and as chloral is irritating, it should not be given in acute inflammatory conditions of the kidneys. Being rapidly absorbed, it is better to give small doses at short intervals, say every hour, than to give one large dose, especially as patients vary considerably in their susceptibility to its effects. In examining the urine of patients who have been taking chloral for a long time, or in large doses, it should be remembered that a reaction with Fehling's solution does not necessarily mean sugar in the urine, for certain compounds of chloral found in the urine are capable of reducing copper solutions. Iodoform should not be dusted freely over large areas of denuded skin. It should be dusted with care within the abdominal cavity. As it is eliminated through all the secretions, babies may get it through the milk of their mothers when they are using the drug freely. In surgical cases the attendant should be on his guard when iodoform has been used and any alarming symptoms should not be credited to shock, hæmorrhage, or infection until the possibility of iodoform poisoning has been eliminated. It is possible that patients have died from poisoning by this drug and the case diagnosed as one of these before mentioned conditions. It is said that a quick diagnosis can be made by placing a silver quarter of a dollar in the patient's mouth. If iodine is present a taste of garlic is experienced; or a little saliva can be mixed with calomel, when a canary yellow precipitate is formed, due to the formation of iodide of mercury. When the pulse quickens, or the temperature rises, or the patient shows signs of distress after iodoform has been freely used, it is best to remove the drug and give the patient copious drafts of water. In the severe cases the prognosis is very bad, no matter what line of treatment is carried out. Iodoform by the mouth in ordinary doses very rarely causes alarming symptoms.

9. **The Use of Carbon Dioxide Snow in the Treatment of Nævi and Other Lesions of the Skin.**—Pusey describes his technique as follows: Liquid carbon dioxide is obtainable anywhere that soda fountain supplies are sold and can be preserved indefinitely. Liquid carbon dioxide as obtainable in commerce is not liquid under ordinary atmospheric pressure, but is held in liquefied state under a pressure of approximately 800 pounds to the square inch. When it is drawn from its drum into the air it evaporates so rapidly that it freezes and is deposited in the form of a white snow resembling very closely in appearance ordinary snow. The carbon dioxide snow is collected in a cloth or piece of chamois skin as it escapes from the cylinder. In order to collect it best the cylinder should be tipped up so that the opening is at the lower end. The carbon dioxide is deposited on the cloth in the form of a snow, which can be compressed and handled very much like ordinary snow. The liberation of gas is so rapid that unless the snow is firmly grasped there is a layer of gas between the solid mass and the skin so that it can be easily handled. The snow is pressed between layers of chamois skin into solid masses, as one would make a snowball, and then parted with a knife into whatever shape is desired. It is then held in forceps and applied to the surface. In treating lesions less than a centimetre square the snow can be parted or melted between the fingers, into the shape of the lesion. In treating a

larger lesion he has found that it is desirable to cut the snow in the shape of square sticks with an end surface not more than a centimetre square. In freezing, the end of the stick is applied. It is best to make the freezing surface of the snow rectangular, in order that adjacent areas when frozen may closely correspond to each other without overlapping.

MEDICAL RECORD.

October 19, 1907.

1. On the Asymmetry of the Cycle of Life. Being "The End of the Thread," By JOHN BEARD.
2. Ptosis of the Abdominal Viscera Surgically Considered, By CHARLES GREENE CUMSTON.
3. Advanced Age as a Contraindication to Operation, By OLIVER C. SMITH.
4. Correction of Faulty Fashions in Dress an Important Factor in the Treatment of Diseases of Women, By WILLIAM EDWARD FITCH.
5. The W. Gill Wylie Appendix Operation, By JOHN H. RICHARDS.

2. **Ptosis of the Abdominal Viscera Surgically Considered.**—Cumston believes that labor contributes the largest share in the production of visceral ptoses. During pregnancy the abdomen is for the greater part of the time insufficiently upheld, and an elastic binder or a special corset would, to a certain extent, prevent the excessive distention of the muscles and the skin. On the other hand, after labor, sufficient care is not given to properly apply the binder and to continue its use for a sufficient length of time. Women usually get up too soon, and the abdominal walls undergo pressure at a too early date which they are incapable of resisting. Then, again, sufficient attention to laceration of the perineum is not given, and, although the latter may be small, it should be immediately repaired. Surgical interference he believes only legitimate in those cases where all other means have proved unsuccessful, or where the patient's life is rendered miserable by the condition. In order to be sure that the operation is successful in its results, he employs the following technique: The patient is placed flat on the operating table, or very slightly tipped up, so that the position will not allow the prolapsed organs to return to their normal position. An assistant then grasps the abdominal wall with both hands, so as to tighten it as much as possible. Then, by palpation and percussion, the surgeon ascertains if the kidney, liver, and stomach have undergone any notable ascension. Since the operation has for an end to tighten the abdominal wall, it is performed as follows: An incision, starting a little below the point of the sternum, is carried down to the pubis, and the aponeurosis of the recti is exposed and is then dissected to the extent of about one third of its length. The posterior aspect of the recti is then exposed to the extent of about two centimetres in breadth. A row of continued kangaroo tendon sutures unites the recti by overlapping them. After having resected the excess of the anterior aponeurosis, a second layer of kangaroo tendon unites this. Then, by an elliptical incision, all the skin that is necessary should be removed and the borders brought together by silkworm gut sutures.

4. **Correction of Faulty Fashions in Dress an Important Factor in the Treatment of Diseases of Women.**—Fitch observes that tight lacing narrows and contracts the small intestines with accompanying mesentery and colon into the pelvis, filling Douglas's anterior cul-de-sac; if the rectum is loaded with feces and the bladder empty anteversion of the uterus follows; if the bladder is distended, and the rectum empty, retroversion results, displacing the intestinal cul-de-sac posterior cul-de-sac. In most of these cases where the compression is great enough to interfere with and retard the normal peristaltic action of the intestines, constipation is also produced. We no longer doubt that compression of any part of the organs interferes with physiological growth and function. Therefore all women

who wear tight corsets and constricting waist bands, breath with a well marked sternal movement, which is unnatural, since Nature intended woman to breathe like man, abdominally. Women when asleep breathe like men, and all animals, male and female, breathe alike, abdominally. Mays has shown that Indian girls breathe like men, and Kellogg has confirmed this observation. Among several Indian tribes, Chinese women, agricultural women, English pit-brow lassies, and civilized women who wear their clothing loose at the waist or suspended from the shoulder, all show the same type of abdominal breathing, and the flimsy argument that chest breathing is normal to women, because it is necessary during gestation, goes to the wind when it is shown that even in the last months of pregnancy abdominal respiratory movements predominate over thoracic movements. The most active respiratory organ, that muscle of respiration, the diaphragm, adapts itself most beautifully to circumstances, so that, when from tight lacing the abdomen is constricted, the type of breathing becomes thoracic; when pressure is relieved it again changes to the abdominal type. He concludes, therefore, that normal breathing in women is like that of man, abdominal; tight lacing changes it to costal. The pelvic organs normally make a considerable excursion with each respiration; tight lacing in the ambulatory position prevents this motion almost entirely. Sitting or leaning forward lessens intraabdominal pressure; tight lacing in these positions greatly increases intraabdominal pressure. Tight lacing displaces the uterus downward from 2 to 3 inches; the pelvic floor is bulged downward from $2\frac{1}{2}$ to 3 inches, and the circulation is rendered sluggish. Undue constriction of the waist from corsets is a constant impediment to free indoor exercise and outdoor gymnastics is hampered. It has been shown that a loosely fitting corset diminishes chest capacity one fifth, and a tightly fitting corset tends to atrophy of the abdominal muscle and accumulation of fat. With each movement of the diaphragm the structures of the pelvic floor with the uterus and its annexa are carried downward from 1 to 3 inches and up again. Africans, Indians, Eskimos, and all other nations who wear loose fitting clothing, are almost entirely free from pelvic disease. It is in this class of women that we find the most natural and perfect pregnancy, the easiest and almost painless deliveries, and the most rapid and perfectly satisfactory puerperium. Any physician who has practised medicine in the rural districts for the well developed and healthy country woman, and later in the city for the dainty, delicate, badly nourished, and poorly developed, where tight lacing and other foolish fashions are practically universal, will soon be convinced that there is an explanation for the frequency of female ills and frailty in the latter, as compared with the freshness, vim, and vigor, and fine physique of the former.

5. **The W. Gill Wylie Appendix Operation.**—Richards gives as advantages of the operation: (1) Not a muscle fibre is cut; (2) there is no danger of hernia; (3) from a mechanical point of view it does not weaken the abdominal wall; (4) from an artistic point of view the scar left is with difficulty to be found; (5) the peritonæum is opened for only one inch. Disadvantages of the operation are: 1. The incision cannot be extensively enlarged readily if such is needed. It can be enlarged in two ways: (a) Extend incision into the fibres of the external oblique, which is done in the few cases which require drainage; (b) make Kammerer's incision in the sheath and sew up the transverse incision. Dr. Wylie never enlarged his original incision, but in one case in which the appendix was in the left iliac fossa he sewed up his original incision and made a second in the median line. This latter incision he prefers in all cases of general peritonitis from rupture of the appendix. 2. The search for the appendix requires a keen

BRITISH MEDICAL JOURNAL.

October 5, 1907.

1. Medicine and Its Specialities in their Relation to the State; A Retrospect and a Prospect,
By C. S. TOMES.
2. The Limited Value of Diphtheria Antitoxine as a Prophylactic,
By O. H. PETERS.
3. Two Cases of Hereditary Dystrophy,
By W. OGILVIE and P. G. EASTON.
4. Remarks on the Bacteriology and Treatment of Yaws (*Frambasia tropica*),
By A. ROBERTSON.
(Seventy-fifth Annual Meeting of the British Medical Association).
- Section of Surgery.
5. Discussion on the Relative Value of Inhalation and Injection Methods of Inducing Anesthesia,
Introduced by H. P. DEAN.
6. Discussion on the Indications for Performing Cholecystectomy,
Introduced by J. BLAND-SUTTON.
7. Lesions of the Sigmoid Flexure as a Cause of Colitis,
By P. L. MUMMERY.
8. A Case of Sarcoma of the Small Intestine,
By L. G. ANDERSON.
9. The Indications for Prostatectomy,
By J. PARDOE.
10. A Further Series of Cases of Total Enucleation of the Enlarged Prostate, and a Review of Four Hundred and Thirty-two Operations,
By P. J. FREYER.
11. A Case of Successful Resection of Nine and a Half Feet of Small Intestine for Gangrene,
By C. P. CHILDE.
12. Intestinal Obstruction,
By W. TAYLOR.
13. Direction of Abdominal Incisions,
By A. E. MAYLARD.
14. Mobile Kidney, with a Description of a New Operation for Its Treatment,
By E. S. BISHOP.
15. A New Operation for the Complete Removal of Hemorrhoids,
By A. H. VERNON.
16. Hygroma Colli and Branchial Fistula,
By G. H. EDINGTON.

2. **Prophylaxis of Diphtheria.**—Peters states that while it cannot be denied that diphtheria antitoxine has a certain prophylactic value, yet its benefits have possibly been overestimated and its use pushed too far. He describes an outbreak of diphtheria in a general hospital in which antitoxine was used as a prophylactic. Out of twenty-one persons whose throats were known to contain diphtheria bacilli, and who were injected with antitoxine, seven developed an attack. Since antitoxine is rapidly excreted in the urine there is a limit to the duration of the immunity conferred. Three weeks is the period generally assigned, and this should probably be reduced. Increasing the dose does probably not increase to any extent the duration of immunity, as larger doses disappear just as quickly from the blood. The varying amounts of immunity of different individuals must probably also have some influence. The writer holds that prophylactic injections of antitoxine are not to be employed as a measure for stamping out an epidemic of diphtheria, but as a secondary aid in guarding against the consequences of attack. It has been generally agreed that the injection of antitoxine has no effect in hastening the disappearance of diphtheria bacilli from the throat, either after an attack or otherwise. Where injections of serum are the only means employed to suppress an epidemic, after the individual attack is ward off the infection passes unnoticed, and the "carrier" continues to spread the disease. The procedures of real importance in dealing with an attack of diphtheria are two in number: 1. Bacteriological examination of throats. 2. Isolation of "carriers" of infection under proper medical supervision. Where both these measures can be systematically carried out, there is really no necessity for prophylactic injections of antitoxine, the latter procedure being confined to the few whose throats are found to contain diphtheria bacilli. It is probably true that if an attack develops in spite of antitoxine, the symptoms are milder. Besides the trouble and expense of serum injections, the annoyance and danger occasionally associated with their use, must

be borne in mind. Healthy adults seem peculiarly susceptible to this "serum" disease. Fatal results are indeed so rare as to be almost negligible, but dangerous symptoms may be produced by repetition of the injections, as has been advised by some. The prophylactic use of antitoxine is much more important in children under four years of age, because in such the action of the toxine is more severe and the diagnosis is more difficult and contains greater risk if there is laryngeal involvement.

9. Prostatectomy.—Pardoe reaches the following conclusions regarding the indications for prostatectomy: 1. Except in very early cases it is not permissible to operate on carcinoma of the prostate, except with a view to permanent drainage. 2. In the case of fibrous enlargement interfering with micturition, piece meal enucleation or a prostatectomy should be done. The mortality of the latter operation is practically *nil*, and the results are satisfactory, both immediately and permanently. 3. In very aged men with a marked tolerance of catheter life prostatectomy should not be urged. 4. Unfortunately, catheter life has serious discomforts and dangers for the majority of sufferers, and for these enucleation is by far the best treatment. It should be done at the period of election—namely, before septic infection has taken place. Suprapubic is much preferable to perineal complete enucleation. 5. The surgeon should not refuse operation to cases seriously infected and very ill. Their lives are sure to be painful and seldom prolonged if operation is refused, and though the mortality is higher than in selected cases, it is not unduly high, especially if the operation is done in two stages.

13. Abdominal Incisions.—Maylard's conclusions are as follows: 1. When time is not of paramount importance, more permanently secure cicatrices result from transverse than from vertical incisions, whether median or extramedian. 2. Transverse incisions afford more room for the treatment of pelvic diseases, and are also better for exploratory purposes. 3. Vertical incisions involve the division of fewer bloodvessels, and the apertures can be closed by a single series of through and through interrupted sutures. For these reasons, therefore, they can be executed much more expeditiously than the transverse, and should be employed in all cases where time is a serious consideration. 4. In dividing the sheath of the rectus, the chief end to be aimed at is to carry the incision as much as possible in the line of the fibres of the aponeurosis. Thus, in the upper part of the abdomen for, say, two inches from the xiphoid, the incisions should course obliquely from above downwards and outwards. In the lower part of the abdomen for, say, two inches from the symphysis pubis, the incision should be carried obliquely upwards and outwards. In the central part of the abdomen—that is, between the parts just mentioned—the incisions should be transverse. 5. If sufficient room can be obtained by separation of the recti muscles after division of their sheaths, the fibres of these muscles should not be cut, and when division is necessary it should be carried obliquely, so as, if possible, to leave some of the outer fibres undivided. 6. Serial suturing should be employed and particular attention should be given to the accurate coaptation of the edges of the divided aponeurosis. 7. No operation should be performed, if the exigencies of the case do not otherwise demand it, when the patient has a cough which it is possible to cure or alleviate. 8. Four weeks should be allowed, at least, after the operation for rest in the dorsal or semirecumbent position, and two months more before any undue strain is exerted on the wound. 9. In wounds which become septic and therefore need be granulated, six weeks to two months should be allowed for complete rest in the dorsal position.

LANCET.

October 5, 1907.

1. University College and Some Points in Medical Education, By Sir R. D. POWELL.
2. "*Res Medica, Res Publica*": The Profession of Medicine, Its Future Work and Wage, By W. EWART.
3. The First Hundred Years of the Geological Society of London, By M. C. GRABHAM.
4. A Note on a Recent Epidemic of Trypanosomiasis at Mauritius, By A. EDINGTON and J. M. COUTTS.
5. A Case of Acute Lupus Erythematosus, By G. W. DAWSON.
6. Two Cases of Hyperplastic Tuberculosis of the Cecum Treated by Excision; Recovery, By W. G. NASH.
7. Relation of Polymastia to Tuberculosis, By T. IWAL.
8. Three Cases of Lobar Pneumonia with Unusual Complications, By P. C. P. INGRAM.
9. A Case of Primary Cancer of Left Bronchus, with Unusual Association of Pressure Symptoms; Secondary Growths in Thyroid Lymphatic Glands, By G. A. ALLAN.
10. A Case of Ruptured Aneurysm of Popliteal Artery in a Man Aged Seventy-three Years, the Subject of Chronic Lead Poisoning, Successfully Treated by Ligature of the Superficial Femoral, By T. S. T. McHATTIE.

4. Trypanosomiasis.—Edington and Coutts have studied a recent epidemic of trypanosomiasis at Mauritius. Regarding the evolution of trypanosomiasis from the points of view of experimental inoculation and observation in naturally infected animals, it seems probable that the virulence of the infection in a specific locality may become altered in type and assume a latent form in animals in which the disease usually runs a chronic course. As regards the infection harbored by certain big game, it seems probable that it follows the line which has been observed in cattle, and hence, while younger animals may be in active infection for some months, probably the older ones become immune. The evidence shown by the writers' experiments that it is possible to immunize cattle against the diseases caused by the tsetse fly and Mauritius trypanosomes is of value, since it establishes the possibility of preparing cattle to act as means of transport in infected areas.

6. Hyperplastic Cæcal Tuberculosis.—Nash reports two cases of hyperplastic tuberculosis of the cæcum, treated by the excision. One occurred in a woman, aged thirty years, and the other in a man, aged twenty-one years. It is only in the last five or six years that attention has been drawn to this condition. In the diagnosis the chief difficulty lies between tubercle and cancer. Tuberculosis of the cæcum in the beginning presents the same functional signs as carcinoma of the organ—namely, intestinal disturbances with alternating diarrhoea and constipation, violent colics, accompanied sometimes by vomiting, abdominal pains at first indistinct, but which become localized in the right iliac fossa. Blood in the feces rarely occurs in tuberculosis of the cæcum. Later on in its evolution tuberculosis takes on the clinical appearance of a tumor in the right iliac fossa, but the lymphatics of the mesentery become enlarged much more rapidly and more extensively than in carcinoma. In considering the diagnosis consideration must be given to the duration of the symptoms, to the presence of other tuberculous scars or lesions, and to the family history and age of the patient, as before the age of forty years tubercle would be more likely to occur than cancer. As to treatment, excision of the growth and gland holding a good base of recovery. Out of 220 operations there were forty-six deaths.

7. Polymastia and Tuberculosis.—Iwal, in the course of his investigation, ascertained that in the presence of such morbid conditions as tuberculosis, and that a certain relation exists between polymastia and tuberculosis. His conclusions are: 1. Cases of polymastia are found more among the tuberculous, especially pulmonary, patients than among the non-tuberculous. The former are nearly twice as numerous as the latter.

2. Those who have polymastia are more liable to be affected by tuberculosis than those who have not. The difference between them is more than fifteen per cent.

8. **Complications of Pneumonia.**—Ingram reports three cases of lobar pneumonia, furnishing examples of the rarer complications of that disease. Each had an erythematous rash, and one had a purpuric rash as well, together with parotitis and a pneumococcal abscess. Except for the characteristic herpes of the lips skin lesions are uncommon in pneumonia. A purpuric rash does occasionally occur. Parotitis is a very rare complication.

LA PRESSE MEDICALE.

September 28, 1907.

1. Clinical and Histological Study of the Cutaneous Reaction to Tuberculin in Children, By MARCEL FERRAND and JULES LEMAIRE.
2. Anæsthesia of the Incisors and Upper Canines Through the Nose, By P. D.
3. Apropos of the Intestinal Origin of Pulmonary Tuberculosis, By R. ROMME.

1. **Clinical and Histological Study of the Cutaneous Reaction to Tuberculin in Children.**—Ferrand and Lemaire consider that the cutaneous reaction to tuberculin in children has a distinct clinical and anatomical individuality. Its essential histological characteristics are a dermic œdema, sometimes considerable, and an inflammatory reaction at a certain distance composed wholly of little round cells. Both clinically and anatomically, the reaction is markedly different from that which follows simple scarification, or inoculation by scarification with glycerin, either plain or mixed with carbolic acid or bichloride of mercury, vaccination in the refractory, or the toxine of diphtheria. The clinical and anatomical appearance is the same in both tuberculous subjects and those that are apparently nontuberculous, a uniformity which they ascribe to the presence in the supposed nontuberculous subjects of a tuberculosis not detectable by ordinary means.

2. **Anæsthesia of the Incisors and Upper Canines Through the Nose.**—P. D. asserts that these teeth may be made anæsthetic by the introduction into the anterior portion of the nasal fossa of a tampon of absorbent cotton as large as an almond saturated with a solution of cocaine and adrenalin, which is thus brought into contact with the dental nerve, as it crosses the floor of the nose.

October 2, 1907.

1. Physiology of the Muscles. Gymnastics of the Lumbar Region, By P. DESFOSSES.
2. Systematic Medicinal Treatment of Arteriosclerosis, By A. MARTINET.

1. **Physiology of the Muscles.**—Desfosses describes the function of the various muscles of the back and abdomen, together with the gymnastic movements by means of which these may be strengthened. The article is well illustrated.

2. **Systematic Medicinal Treatment of Arteriosclerosis.**—Martinet, in the discussion of a paper by Gouget on arteriosclerosis, calls attention to that author's medicinal treatment which is intended to prevent the development of arterial lesions and to prevent the extension of lesions which already exist. The drugs usually employed for this purpose are those which are considered to reduce arterial tension, such as the iodides, the nitrates, particularly the derivatives of nitrous acid, and veratrum viride. The use of iodides is justified rather by the results of clinical observation than by experimentation. The derivatives of nitrous acid have the advantage of greater rapidity of action, but the disadvantages that they lack the resolvent power of potassium iodide and are unfitted for prolonged use because of their depressant effect upon the nervous system. The individual effects of amyl nitrite, trinitrine, sodium nitrite, and erythrol tetranitrate, or tetranitrol, are then discussed. Veratrum viride is dismissed with the brief

statement that it has been much employed in America, that its action is to reduce tension and as a diuretic, and that it may be used in the fluid extract in doses of twenty to thirty drops every five or six hours. To prevent calcification of the arteries and eliminate lime salts as far as possible he recommends as a drink for a month or two:

℞ Sodium carbonate,10.0 grammes;
Lactic acid,q. s. ad saturandum;
Additional lactic acid,10.0 grammes;
Syrup,10.0 grammes;
Water,200.0 grammes.

Two other formulas are suggested also.

LA SEMAINE MEDICALE.

October 2, 1907.

1. Rickets and Syphilis, By MARFAN.
2. The Way to Use Cocaine to Produce Local Anæsthesia in the Radical Treatment of Empyema of the Antrum of Highmore.

1. **Rickets and Syphilis.**—Marfan asserts that there are four characteristics which distinguish syphilitic rickets: (1) Its early appearance, it is either congenital or appears during the first three or four months of life, and this characteristic he considers the most important; (2) the predominance of cranial lesions; (3) the usual coincidence of a very marked anæmia; (4) the frequent presence of a chronic hypertrophy of the spleen, which he considers likewise to be a very important symptom.

BERLINER KLINISCHE WOCHENSCHRIFT.

September 25, 1907.

1. The Atoxyl Treatment of Pellagra, By V. BABES and A. VASILIU.
2. Results of the Experimental Investigation of Cancer, By E. F. BASHFORD, J. A. MURRAY, and M. HAALAND.
3. Concerning the Possibility of Filtering the Excitor of Trachoma and Concerning the Pathogenetic Value of the Cultivable Flora of the Trachomatous Conjunctiva, By C. FERMI and R. REPETTO.
4. Further Researches Concerning the Loss of the Peculiar Properties of Albumins Foreign to the Organism, By J. KENTZLER.
5. Concerning the Anæmias Produced by the Toxocelitides and their Medicinal Treatment, By J. MORGENROTH and K. REICHER.
6. Concerning the Value of the Complement Deviation Procedure in Bacteriological Diagnosis, By C. MORESCH.
7. A Case of Influenza Bacillus Pyæmia, By W. SPÄT.
8. Concerning the Influence of Nourishment Upon Tuberculosis, By R. WEIGERT.
9. Concerning the Practical Importance of Pharyngeal Disease in Cerebrospinal Meningitis, By WESTENBÖFFER.
10. Typhus Toxine, Typhus Antitoxine, and Typhus Endotoxine. The Relations Between Hypersensibility and Immunity, By A. WOLFF.
11. Death from Hemorrhage, By H. MARX.
12. Remarks on the Question of School Physicians, By L. LINKENHELD.
13. Results of the Climatic Treatment of Tuberculosis in Egypt, By HEIM.
14. Concerning a Danger from the Use of Benzin for Cleansing in the Disinfection of the Skin, By E. SENGER.
15. The Pavilion System, By ENDE.

1. **The Atoxyl Treatment of Pellagra.**—Babes and Vasilu, in this, their second paper on this subject, have increased the number of observed cases to sixty-two, and conclude that in acute cases in young people the atoxyl treatment is efficacious and rapid, in middle aged people nearly as efficacious, and in persons over fifty years of age efficient but slow.

2. **Experimental Investigation of Cancer.**—Bashford, Murray, and Haaland deal in this article with the subject of a transplantable squamous celled epithelioma of the mouse, but do not seem to add anything to what they have written on the subject in various English periodicals, particularly the *Proceedings of the Royal Society*, in the numbers of which are to be found the

complete reports from the laboratory of the Imperial Cancer Research in London.

3. **Trachoma and the Cultivable Flora of the Trachomatous Conjunctiva.**—Fermi and Repetto conclude that none of the various microorganisms which form the entire cultivatable flora of the trachomatous conjunctiva have the power, either alone or in combination, to call forth trachoma in the human conjunctiva, and that the trachomatous virus is not a microorganism, which can neither be filtered nor cultivated.

5. **Anamias Produced by the Toxoleicithides.**—Morgenroth and Reicher allege to have demonstrated that cholesterine is able to prevent the development of anemias which arise from injection of toxoleicithides in the control animals.

6. **Complement Deviation Procedure in Bacteriological Diagnosis.**—Moreschi asserts that with the bacteriolytic and hæmolytic system now in use, the complement deviation procedure is fitted to give neither a qualitative nor a quantitative demonstration of the antibodies in the serum of human beings or of the horse.

7. **Influenza Bacillus Pyæmia.**—Spät reports a fatal case in which the diagnosis of influenza bacillus pyæmia was made during life from an examination of the blood. The patient was also suffering from ulcerative endocarditis, pleurisy on the left side, and pyonephrosis.

8. **Influence of Nourishment Upon Tuberculosis.**—Weigert has conducted a number of experiments on animals in which he tried fattening with various forms of food, and as a result declares that no kind of feeding is able to check the course of tuberculosis. In the feeding of tuberculous patients, he says, the points should be borne in mind that the carbohydrates may take the place of fat as far as possible in the food without falling into the error of a one sided diet.

10. **Typhus Toxine, Typhus Antitoxine, and Typhus Endotoxine.**—Wolff, in a long and interesting article on this subject, remarks that the immunity produced is purely individual, that the serum obtains no marked poison restraining properties. The individual non-receptivity to poison is to be ascribed to an increase of the sessile organ receptors in the connective tissue. A transference of this form of immunity is impossible, and therefore is not to be taken into account from a therapeutic standpoint. His study of the relation between hypersensitivity and immunity, the first of which he calls the most paradoxical symptoms in the theory of immunity, is excellent.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

September 21, 1907.

- Concerning Ventilation of the Ceiling Air by the Wind, By QUINER.
- Further Studies in Regard to Kenotoxine and Its Antibodies, By WEICHARDT.
- Concerning Oposons and Phagocytosis in General, By KAMMERER.
- The Electric Loading of Toxines and Antibodies, By BUCHHEIT.
- Concerning an Extensive Presence of Nonoxigenated Drinking Water in Wells, By JANS.
- The Manner of Dissemination of Pemphigus Neonatorum, By LEONARDI.
- The Dissemination of Typhoid Bacilli in the Lapse of Typhoid Fever, By NAKAD.
- The Treatment of Syphilis with Arsenic, By BETTMANN.
- Concerning the Value of the Dark Field Reaction in the Clinical Diagnosis of Syphilis, By FRIE.
- Concerning the Medical and Local Treatment of Acute and Chronic Rheumatism and Rheumatoid Arthritis of the Joints, By GORDON.
- An Instrument for the Rapid Application of Irradiation, By FRIED.
- A Case of Cerebral Pneumonia, By FRIEDLÄNDER and BARTHOLOM.
- A Case of Bacterial Endocarditis Associated with a Pericarditis of the Heart, By FRIEDLÄNDER.
- Concerning the Various Relations Between the Process

of Ovulation, Including Menstruation and Internal Diseases (Concluded), By RIEBOLD.

- The Place of Institutions for the Care of Pulmonary Diseases in the Contest Against Tuberculosis as a Common Disease (Concluded), By BESCHORNER.

- The Garden City, the Hygienically Best Residence, By FISCHER.
- German Hospitals in Foreign Countries, By SCHUH.

2. **Kenotoxine and Its Antibodies.**—Weichardt gives the name kenotoxine to a substance which he has obtained in small quantities by the chemical and physical disintegration of albumin at temperature below 40° C. Another name that he gives it is perhaps more expressive, *Eiweißspaltungsantigen von Ermüdungstoxin character*, but is not as convenient. He says that this kenotoxine may be produced either in the living organism, or in the test tube, that when the chemical disintegration is produced by boiling heat specific antibodies are likewise produced, that these antibodies are also produced by injection of kenotoxine, that kenotoxine can be detected in the urine of warm blooded animals, that it is also excreted by the lungs as shown by the fact that if the exhaled air is blown for hours through ice cold water kenotoxine can be found in it. Experiments with mice showed that when injected the mice became sleepy, their temperature fell, and their respiration became slower, while in other mice which had been immunized previously similar injections did not produce the same effect. In certain doses and after a certain latent period kenotoxine increases the cell activity. Many sera contain in addition to their specific antitoxines the antibodies to this kenotoxine.

6. **Dissemination of Pemphigus Neonatorum.**—Kownatski reports a number of cases in which the transmission of the disease was shown to be through the hands of the nurses who had carried the disease from one to another.

8. **The Treatment of Syphilis with Arsenic.**—Bettmann does not speak highly of atoxyl as a remedy for syphilis, and says that in not a single case does it produce a true retardation of the outbreak of the secondary symptoms. At the same time atoxyl is not a nonpoisonous preparation.

14. **Relations Between the Process of Ovulation and Internal Diseases.**—Riebold says, in effect, that the process of ovulation has a certain influence in the pathogenesis of internal diseases, but that there is not much to say in regard to the influence of internal diseases upon ovulation or menstruation.

17. **German Hospitals in Foreign Countries.**—Schuh gives a brief description of the German hospitals erected in London, Buenos Ayres, Rosario, and Valparaiso.

LA RIFORMA MEDICA

September 7, 1907.

- Splenic Anæmia. Splenohepatic Sclerosis, By G. RUMMO.
- The Influence of the Salts of Calcium Upon the Heart and Its Vessels, By M. LOPER and P. BOVERI.
- On a Case of Fibre Disease, By PIERRE FAVES.
- The Influence of the Salts of Calcium Upon the Heart and Its Vessels.**—Loper and Boveri experimented with a view of determining the injurious influence of the salts of calcium upon the heart and arteries. The process of transformation which calcium undergoes in the body and the exact way in which it is utilized is unknown, we know, however, that a human being needs 1.5 grams of calcium per day in the first six months of life and then on up to the age of 20 years, 100 grams. In the adult of this is absorbed chiefly in milk and its derivatives and also in vegetables, meat, and water. Not all of the calcium, however, is absorbed and assimilated. The chloride and phosphate become less soluble than the bicarbonate and carbonate. The process of solution may be determined chemically in the quantity termed "soluble calcium." The soluble calcium is the calcium which is

lating action upon the heart and bloodvessels. The authors found that after doses of calcium salts the arterial pressure rose and the heart beats became slower. In rabbits the ingestion of large doses of calcium chloride, carbonate, or phosphate was followed in a month by enormous enlargement of the heart. It is probable that in small doses calcium is valuable as a stimulant, but that in large doses it is very injurious to the heart. The authors found that 60 or 75 centigrammes of calcium could be obtained from the ash of a normal man's aorta. The arteries therefore absorb a considerable amount of calcium. Whenever the kidneys or the intestines do not functionate properly there is a retention of calcium in the body. Such retention is injurious to the arteries where the calcium salts become readily deposited. While a retention of calcium does not directly cause arterial sclerosis, yet it markedly facilitates and promotes the lesions thereof.

ROUSSKY VRATCH.

August 28, 1907.

1. The Treatment of Chronic Inversion of the Uterus (To be concluded), By L. G. LITCHKUSS.
 2. The Pathology of Osteomalacia (To be concluded), By A. B. BERNSTEIN.
 3. A Rare Case of Anomaly of the Kidney, Crossed Dystopia, By B. N. KHOLTSOFF.
 4. On Cammidge's Reaction in Diseases of the Pancreas (To be concluded), By S. G. AGABEKOFF.
 5. Congenital Diverticula of the Male Urethra (To be concluded), By S. S. GIRGOLAFF.
3. Crossed Dystopia of the Kidney.—Kholtssoff reports a case of anomaly of the kidney which is exceedingly rare. The ureters were normal in number and normally implanted. There were also two pelves, but the two kidneys were located in the same loin and had grown together. The two renal vascular pedicles came from the same side of the great vessels of the abdomen. The name of this anomaly is crossed dystopia of the kidney. Its origin may be traced to the fact that in the early period of development the fetal kidneys are in the pelvis, whence they are moved later on towards the loin. During this transit one of the kidneys may travel accidentally to the opposite side and may become located under the other. Usually the two kidneys then grow together, forming one kidney with two pelves and two ureters. Ordinarily there are two renal arteries, while in this case there was only one. It is probable, therefore, that in this case the anomaly developed at a very early stage in life. Cathelin reports fourteen cases of this anomaly which he collected from the literature.

THE JOURNAL OF NERVOUS AND MENTAL DISEASE.

October, 1907.

1. Loss of Comprehension of Proper Names, By FRANK R. FRY.
 2. The Symptomatology of Lesions of the Lenticular Zone with Some Discussion of the Pathology of Aphasia, By CHARLES K. MILLS and WILLIAM G. SPILLER.
 3. Have the Types of General Paresis Altered? By L. PIERCE CLARK and CHARLES E. ATWOOD.
1. Loss of Comprehension of Proper Names.—Fry reports such a case. The patient, a cashier in a bank, had spent an evening rolling ten pins and drinking a good deal. Having been brought home by his friends he fell and hurt the left side of his head and face. When examined the next morning a large area of the scalp above the ear was swollen and tender, and he had a hæmorrhage from the right ear (the side opposite the trauma), which soon stopped. The patient could not remember names at all. This peculiar disability lasted for about three weeks; at the end of that time names were coming back rapidly enough to give him an assurance of recovery.
2. The Symptomatology of Lesions of the Lenticular Zone with Some Discussion of the Pathology of Aphasia.—Mills and Spiller conclude that lesions restricted to the lenticula apparently do not cause sensory symptoms.

Motor symptoms probably result from lesions situated in certain parts of the lenticula; speaking generally, the lenticula may be regarded as a motor organ. Anarthric or dysarthric speech disorders result from lesions of some portion of the left lenticula, which probably contains centres which are concerned with the movements which make speech possible. Destructive lesions of certain portions of the lenticula probably cause a paresis of the limbs or face; the paresis or paralysis caused by such lesions of the lenticula differs from that produced by capsular lesions, the impairment of power not being so severe and not being so characteristic in the former as in the latter case; and from that produced by cortical lesions in that it is less likely to be dissociated; although dissociated lenticular paresis may occur. While the loss of power which results from a destructive lenticular lesion is permanent, it is usually not intense. Persistent true motor aphasia, as this form of speech disorder is generally understood, is not caused by a lesion restricted to the lenticula, no matter what its size or destructiveness. The insula, cortex, and subcortex play an important part in speech phenomena, one entirely different from that played by the lenticula and the internal capsule; the insula is a part of the cortical motor centre for speech, Broca's convolution probably forming with the insula the entire cortical motor centre for speech. Motor aphasia may be present without a lesion of the left third frontal convolution. The lenticula forms too large a portion of the cerebral hemisphere to be regarded merely as a vestigial organ.

AMERICAN JOURNAL OF OBSTETRICS.

October, 1907.

1. Chorioepithelioma, By I. S. STONE.
 2. The Effect of Blood Transfusion on a Patient with Puerperal Eclampsia, By W. J. S. MCKAY.
 3. The Time Factor in Surgical Operations, By W. B. CHASE.
 4. Ruptured Pus Tubes, By E. C. MANN.
 5. Influenzal Meningitis, By W. M. SPRIGGS.
 6. The Scope of Treatment of Acute Pelvic Infections in Women by the General Physician, By J. W. BOVÉE.
 7. Blood Platelets During Pregnancy, Labor, the Puerperium, and Menstruation, and in the New Born, By S. REBANDI.
 8. Ectopic Gestation, By I. T. KELLY.
 9. Heart Complications of Scarlet Fever, By I. H. EDDY.
1. Chorioepithelioma.—Stone accredits Sänger as the first to call attention to this form of malignant disease. More than two hundred cases have thus far been reported, and it has been observed at every stage of the child bearing period. It usually follows an abortion or the discharge of a hydatidiform mole, hæmorrhage being usually the first noteworthy symptom. Pain, metastasis to the vagina, lungs, or other organs are also noteworthy. Its course is very rapid, and it usually progresses to a fatal issue within a year. The pathological process is essentially a rapid infiltration of the cells of the trophoblast into the maternal blood spaces. The tumor consists of great masses of well defined cells of various shapes, packed closely together, and adjoining other masses of syncytium or protoplasm, with many nuclei, but with no definite cell boundaries. It will usually be found near the fundus uteri at the site of the placenta. It is urged that in all cases in which hæmorrhage from the uterus follows abortion or the delivery of a mole curettage should be performed and the scrapings examined microscopically with great care.
2. The Effect of Blood Transfusion on a Patient with Puerperal Septicæmia.—McKay thinks the rigors of puerperal septicæmia may be abolished by the transfusion of blood. A case is narrated which was first treated with injections of antistreptococcic and of antiphtheritic serum, but without advantage. Ten ounces

of blood combined with twenty ounces of normal saline solution were then infused, and the patient's rigors immediately ceased. She continued to improve for twelve days and then, while sitting up in bed, suddenly died. The method of transfusion which is recommended consists in allowing the blood from the giver to flow into a funnel containing salt solution from which it runs through a tube and cannula directly into the vein and the arm of the patient. The advantage alleged for this method is its simplicity, and also that it does not involve the risk of sepsis to the giver. The author believes that a great future awaits this method when transfusion is more widely practised for the relief of hæmorrhage and shock, as well as sepsis.

4. **Ruptured Pus Tubes.**—Mann thinks these may be divided clinically into three classes: (1) Those which rupture into the peritoneal cavity, but in which the pus is restrained by adhesions from setting up a general peritonitis; (2) those which rupture into some adherent viscus, the bladder, intestines, or rectum; (3) those which rupture into the peritoneal cavity, the pus not being walled off, and if virulent, setting up a general peritonitis which acts much like an acute ruptured appendicitis, and usually causes death unless operative measures are employed. But it is more amenable to operative measures than peritonitis caused by appendicitis. The most common of these classes is the first, the pus escaping from a tube being frequently confined by adhesions. The quantity of pus may be very large, and rupture may take place into the bowel or the peritoneal cavity, or death may result from the absorption of toxins. In the second class there is great danger of secondary infection through the sinus, and complete cure is only obtained by removal of the tube and closure of the sinus. The third class is a very small one and usually results fatally.

THE PRACTITIONER

October 26, 1907.

1. Valvular Disease of the Heart, By R. CRAWFORD.
2. Movable Kidney, By C. M. H. HOWELL and H. W. WILSON.
3. Some Points in the Treatment of Diseases of the Heart, By J. HAY.
4. Some Complications of Diphtheria, By T. FISHER.
5. The Treatment of Microbic Invasions by Bier's Hyperæmia, By A. MACLENNAN.
6. The Treatment of Some Inflammatory Conditions by Bier's Method, By A. B. FLETT.
7. Deviations of the Nasal Septum and the Killian Submucous Resection, By D. MCKENZIE.
8. Review of Recent Literature on Syphilis and Venereal Diseases, By J. E. LANE.
9. Review of Some Recent Work on Diseases of the Nervous System, By H. C. THOMSON.
10. Recent Work in Diseases of Childhood, By G. F. STILL.
11. Infant Mortality and Fly Infection, By J. C. BRIDGE.

1. **Valvular Disease of the Heart.**—Crawford considers pulmonary regurgitation the rarest of all heart lesions, and one which is not often detected during life. It may originate in disease or defect of the valves themselves, or in dilatation of the pulmonary orifice, and of the artery as well, without abnormality of the valves. It may be either structural or functional, the latter being more frequent than the former. It is more frequently associated with mitral stenosis than with any other heart lesion. It is also associated with emphysema. The pathological change is the dilatation of the infundibulum of the right ventricle. Structural disease of the valve may be accompanied or followed by the latter being the more frequent. The former may be due to disease in the connective tissue, to degeneration of the leaflets, or to calcification. The latter may be due to dilatation of the artery or ventricle and is difficult. The author thinks there are no indications for treatment of pulmonary regurgitation different from

those which are applicable to valvular disease in general.

2. **Movable Kidney.**—Howell and Wilson state that while the recognition of this condition dates back hundreds of years, the treatment of it, especially the surgical treatment, is very modern. Hahn was the first to perform nephropexy, and his example was quickly followed by others. The diagnosis of movable kidney is justifiable under the following conditions: 1. Excessive descent with respiration, so that the anterior surface may be palpated with deep inspiration. 2. Abnormal mobility communicable to the organ from without. The organ is then no longer influenced by respiratory movements. 3. Possible rotation of the kidney, alone or in combination with descent. The following classifications is therefore suggested: 1. Kidneys which have merely prolapsed. 2. Kidneys which have prolapsed and the lower pole has rotated inward. The kidney returns to its normal position when the patient is recumbent. 3. Kidneys which have prolapsed, the lower pole rotated inward, and have undergone anterior displacement. There is no tendency to return to the natural position. 4. Kidneys which have undergone rotation only. There is no prolapse, and the organs are usually impalpable without an anæsthetic.

3. **Some Points in the Treatment of Diseases of the Heart.**—Hay refers to the importance of the work of Gaskell and others in developing the myogenic theory of the heart's action. Cardiac insufficiency generally means muscle inefficiency, but one or another function of the myocardium may be impaired and the remaining functions be unaffected. The digitalis group of drugs has a distinctly tonic action, and is therefore indicated when there is heart depression, or depression of tonicity. Squills has much the same effect. These two drugs are suitable on such indication irrespective of the variety of the valvular lesion. They will also be of benefit in any case in which the systole is weak and inefficient, the blood tending to accumulate in the veins. In the second stage of mitral stenosis digitalis, strophanthus, and squills will slow the heart action, but will cause coupling of the beats. In the first stage when there is depressed tonicity and ineffectual action of the ventricle these drugs will be of great value, irrespective of the action on the pulse rate. The value of the hæmodynamometer in searching for indications for treatment in heart disease, or heart failure is emphasized by the author. The steadying value of morphine in heart disease is of invaluable service and when dyspnea is present, the nitrites and ammonium hippurate may be added as vasodilators.

4. **Some Complications of Diphtheria.**—Fisher refers to complications additional to cardiac, failure, paralysis of the diaphragm, suppression of urine, bronchopneumonia, and certain nervous sequelæ, all of which are well known. The first of these is enlargement of the liver, which is usually associated with cardiac failure, and is due to distention of the liver capillaries with blood. If recovery from the diphtheria occurs the liver usually returns to its normal size. Disease of the arteries is also a complication, yellow patches being found in the aorta, and in the mitral valve, and nodules of varying size in the smaller arteries, especially in those of the brain. They are supposed to be due to septic microorganisms, which are associated with the diphtheria toxins. Interlobular emphysema may occur, the air which has escaped from the alveoli of the lung appearing beneath the pleura. It may result in pneumothorax. Clotting of the blood is a rare complication, and has been occasionally seen in children with whom gangrene of the leg has been noted.

5. **The Treatment of Microbic Invasions by Bier's Hyperæmia.**—Macleennan makes the form of microbic invasion the basis of his classification, and divides the microbic virus into two classes, the exogenous and the endogenous.

fight against it. The form of hyperæmia recommended by the author is obtainable with an elastic bandage. It must not be too tightly adjusted, one should have experience with it in mild cases before using it for severe ones; the patient's feelings must be considered in applying it; it should be combined with other methods of treating inflammation, antiseptics may be used during intervals of treatment, dry dressings should be used and only lightly applied when congestion is being produced; time should be allowed for the œdema to disappear, and parts remote from the site of treatment may be massaged. The advantages of this treatment are as follows: (1) It is agreeable to the patient; (2) it relieves pain and obviates painful procedures, like packing an abscess cavity; (3) it is beneficial before infection is established, and in all mild inflammations; (4) it aids recovery, repairing going on in the face of infection; (5) it permits small incisions and diminishes scarring; and (6) it diminishes the number of operations and is helpful in many cases for which there is no other treatment.

6. The Treatment of Some Inflammatory Conditions by Bier's Method.—Flett suggests that Bier's name has usually been associated with a method which has been applied principally in the treatment of tuberculous joints, the rationale of which is not fully understood, and the use of which is empirical and of limited value. On the contrary, the value of passive congestion and its applicability to inflammatory, especially septic disease, is very great, and its results have been remarkable. The relief from pain by this method is one of the most striking results, relief being usually obtained in fifteen or twenty minutes. Furthermore, under the influence of the artificially produced œdema inflammations subside, suppurative processes are hastened or aborted, or become localized and easier to treat. An elastic bandage may be used to induce the desired hyperæmia, which is removed and reapplied as the condition indicates. Important points to be noted in inducing congestion are as follows: (1) The bandage must relieve, not cause pain; (2) the limb must swell, but retain its warmth; (3) it must become red, not blue or white, in color.

8. Review of Recent Literature of Syphilis and Venereal Diseases.—Lane reviews Neisser's paper on experimental syphilis, the latter referring to the recent progress in the pathology and treatment of the disease, owing to the discovery of its pathogenic organism and the experimental inoculation of animals which were susceptible to it. Experimental inoculation of monkeys showed that it was impossible to introduce the virus of the disease without the production of the primary lesion or chancre. Subcutaneous injections were not followed by infection, nor did they produce immunity. The infection had been transmitted by rubbing a testicle which had been incised, with the syphilitic virus. The contagion of all syphilitic products in all stages had been verified except in the case of degenerating tertiary neoplasms. Experiments to determine whether the introduction of mercury into the body influenced the evolution of the disease showed that 1, the chancre developed in a mercurialized subject the same as in one who was not mercurialized; and 2, the disease became generalized similarly in animals which had and in those which had not been mercurialized.

THE EDINBURGH MEDICAL JOURNAL.

October, 1907.

1. The Making of a Staff Below the Unduly Mobile Kidney, By ALEXIS THOMPSON.
2. Observation on the Blood Changes Subsequent to Excision of the Spleen for Traumatic Rupture, By FREDERICK MATTHEW and ALEXANDER MILES.
3. Operative Injuries of the Thoracic Duct in the Neck, By W. J. STUART.
4. The Skiagraphy of Rheumatoid Arthritis, By GEORGE BOWLER and JAMES LINDSAY.

5. Hydrotherapy and Electricity in the Treatment of Neurasthenia, By G. L. KERR PRINGLE.
6. Résumé of Some Recent Papers on the Ultimate Results of Operations for Cancer of the Breast, By ALEXANDER MILES.

2. Observations on the Blood Changes Subsequent to Excision of the Spleen for Traumatic Rupture.—Matthew and Miles observe from their cases that only a comparatively slight degree of violence is necessary to rupture the spleen in an alcoholic subject. The blow their patient received was not struck in anger, and all the available evidence went to show that it was not a severe one. Nor was there any reason to believe that the patient met with any violence subsequent to his being struck by his companion. There was a long interval between the accident and the onset of definite symptoms referable to the splenic injury. This they are inclined to believe was due to the bleeding having been at first subcapsular, and it was only when the stripped capsule gave way and the blood escaped into the peritoneal cavity that the symptoms attracted attention. In a number of the recorded cases of this injury a considerable time has elapsed between the injury and the onset of alarming symptoms. Due allowance must, of course, in their case be made for the effects of alcohol in dulling the patient's sensations and masking the symptoms. The associated tearing of the liver is difficult to explain, except on the assumption that it was produced by counter stroke. There was some difficulty in diagnosis. Apart from the history of injury, the clinical features present when the patient was admitted to hospital all indicated a septic condition rather than one due to loss of blood. The clinical changes after extirpation of the spleen are mainly of the blood and lymphatic tissues, namely: 1. An enlargement of various groups of lymphatic glands occurs. The increase in size sets in early after the operation, is not of any great degree, is probably general, and is not permanent. 2. Corresponding to the lymphatic hyperplasia, there appears in the blood an absolute increase in the number of lymphocytes. This increase persists in man for years after the removal of the spleen. 3. Appearing along with the lymphocyte increase, a moderate eosinophilia is present for some weeks. During this time the blood plates are very numerous. 4. After recovery from the loss of blood, the red cells and hæmoglobin follow a normal course. 5. After excision of the spleen, individuals who recover suffer from no inconvenience; the spleen is consequently not indispensable.

3. Operative Injuries of the Thoracic Duct in the Neck.—Stuart remarks that the anatomy of the thoracic duct suggests that a wound or complete division of it in the neck need not, in most cases, be attended by serious consequences. Surgical experience proves that, in an aseptic wound and with proper treatment, such injuries are rarely fatal, and if the injury is recognized during the operation, are rarely followed by even a temporary chylous fistula. The best treatment, if the wound of the thoracic duct is recognized during the operation, is ligature of the peripheral end; ligature of the central end in addition is in most cases unnecessary, but can do no harm. Suture of a wound in the duct is worth attempting only in very favorable cases. Packing is only justifiable if the surgeon is unable to apply a ligature. The best treatment, if the wound of the thoracic duct is not recognized till after the operation, is probably firm packing of the wound, which almost invariably results in cure with or without a comparatively short lived fistula. Firm supraclavicular external pressure may be successful if the wound is firmly closed, and may also be successful even if the wound is not closed; there have been too few cases of this treatment to allow of a definite expression of opinion upon it. Probably where the accumulation in a closed wound is recognized as being chylous, supraclavicular pressure—the accumulation be-

ing left *in situ*—will be a safe and satisfactory method. The wound may be reopened, and a ligature of forceps applied to the duct, usually with complete success; but this is a difficult procedure, and hardly justifiable unless packing has been tried and has failed. Operative injuries of the thoracic duct are probably far commoner than is generally imagined.

THE GLASGOW MEDICAL JOURNAL.

October, 1907.

1. Infantile Mortality and Morbidity from the Obstetric Standpoint, By ROBERT JARDINE.
2. Skin-grafting by a Modification of the Wolfe-Krause (Whole Thickness of the Skin) Method, By ARCHIBALD YOUNG.
3. Case of Septicæmia Secondary to Small Abscess in Intestinal Wall, By JOHN HENDERSON.
4. Normal Plasma in Abnormal Lactation, By D. MONTGOMERIE PATON.

2. **Modification of the Wolfe-Krause Method.**—Young states that in his modification the most important points are: (1) The rapid outlining of a flap by cutting directly down upon the fascial plane; (2) the immediate and complete closure and suture of the wound thus made; (3) the application of the graft or grafts directly on a fresh surface, or upon a granulating surface the local health of which is satisfactory; (4) the expeditious removal of all underlying fat from the graft or grafts; (5) the use of a suitable protective gauze for covering the grafts and keeping them in intimate contact with the surface grafted; (6) the use of a moist dressing throughout; (7) the daily changing of this from the first, down to, but not including, the protective gauze; and (8) the free use of sterile saline or borax solution, and the avoidance of strong antiseptics. The method as thus outlined is a technical modification of that advanced originally by Wolfe, of Glasgow, and further elaborated by Krause, of Altona. He also says that, contrary to what has been suggested by some surgeons, experience has not shown that these whole skin grafts are liable to serious or substantial contraction subsequently.

Proceedings of Societies.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Meeting of February 18, 1907.

The President, Dr. T. E. SATTERTHWAITHE, in the Chair.

(Concluded from page 761.)

The Early Diagnosis of Insanity.—This paper was read by Dr. ARTHUR C. BRUSH. The importance of the recognition of the prodromal stage of insanity, he said, became every day more important, not only from the rapid increase of insane in the community, but also by the not infrequent disastrous result of some insane act on the part of patients whose real condition had not been recognized. Yet the early diagnosis of insanity was rendered difficult by the facts that there was no abstract difference between the sane and insane mind, that there were no elements found in insanity which were not present in sanity, that there was no sharp dividing line between the two, and that, with the exception of a single variety of the disease, our knowledge of insanity was purely clinical and rested on no substantial basis. Since there was no abstract difference between the sane and insane mind, the recognition of the latter was most easily made by a study of the former and the changes in the healthy mechanism which formed the sane mind. The highest of psychic control had the power of selecting the concept needed for the train of thought which was occurring in the mind and of suppressing all others from the field of consciousness, while the concept groups

which were not thus within the field of consciousness formed the subconscious mind. It was the power thus to register concepts and to call them into consciousness at will which formed the faculty of memory, and the power to recall them was known as attention. Built upon this faculty of attention were the highest of all our mental powers, reason and judgment. Besides controlling the attention, the highest centres had the power of controlling what was known as mood. When from any cause, such as a strong impulse received from the environment, this habitual control was weakened, a reaction occurred which was known as an emotion.

It was the derangement of this wonderful mechanism which constituted an insanity. In the prodromal period the picture presented was simply one of cerebral weakness, such as was found in ordinary neurasthenia. At first the insane patient might be able to recognize his condition, but soon this difference was seen to widely separate neurasthenia from an insanity, that the neurasthenic recognized his true condition, while the insane patient did not. This fact had long been recognized, and formed the basis of all our law relating to the questions concerning insanity. An insanity from its onset showed itself by a disturbance of the whole psychic mechanism, although it might be most marked, and so remain, in certain functions. As would naturally be expected, it was in the highest levels of the mind that the abnormal mental conditions were most marked from the beginning. The weakening of the reasoning power rendered the patient unable to refer the various impressions received by him to their proper causes (illusion); or he might be unable to distinguish old impressions from recent ones, and he would hear, see, feel, or taste something which had no present existence (hallucination). By reason of the damage to the primary concept groups, these hallucinations were composed of unnaturally associated and distorted groups, such as were not infrequently met with in the dream state of healthy persons. At first the patient might doubt the reality of both his hallucinations and illusions, but after a time the weakening of his reasoning powers caused him to accept them as real; and this transition usually marked the change from the prodromal to the active stage of insanity.

The mood was profoundly disturbed early in the disease, and was usually in accordance with the character of the concepts occupying the mind. This increase in the mood, with the weakening of the judgment, caused a loss of control over the emotions and impulses, and the patient became irritable, coarse, profane—at times with violent outbreaks—and often indulged in alcoholic and other excesses. These latter were frequently regarded as the cause, instead of as a result, of the insanity. All the changes referred to in the paper could and did occur at times to a slight degree in the normal mind. It was their permanency and their exaggeration to a point which rendered the patient unable to judge as to the nature, quality, and consequences of his acts, and thus unable to adapt himself to his environment, which divided the sane from the insane mind.

Aural Affections in Relation to Mental Disturbances.

—Dr. W. SCHERER BAYANA read this paper (See *New York Medical Journal*, March 23, 1907, page 1301).

Phototherapy in Nervous Diseases.—This paper was read by Dr. A. D. ROCKWELL. In the artificial incandescent electric light, he said, we had a method of utilizing powerful luminous and colorific effects, and to a less extent action effects as well, caused only by the source of all light and heat, the sun. Simply speaking, the term phototherapy should include the visible spectrum only. The incandescent light was manifestly inferior in some respects to other methods, as used by the Finzen method, or to the arc light; but the heat emitted was far greater than in the case of either of the others, while in his experience this combination of colorific and

light effects rendered it far more valuable than the arc light in its general constitutional influence and in the relief of local painful conditions. The incandescent light bath differed in its heat, to say nothing of its light, effects from the ordinary hot air bath for the reason that the heat was communicated to the body through the transmission of radiant energy, leaving the surrounding air but slightly affected. In the hot air bath the heat was derived from the air, and, while more depressing in its effects, it was far less penetrating than radiant heat, as well as inferior in its physiological and therapeutic effects. The superior physiological effects of radiated heat appeared to consist in its more powerful rubefacient effect upon the skin, with accompanying dilatation of the superficial vessels. This vascular relaxation, being unaccompanied by any appreciable heating of the surrounding air, could be maintained for a long time without discomfort, and was followed by interesting alterative and reconstructive effects, through its influence upon metabolism. Perspiration was induced more quickly by radiant heat than by most other methods, and this was accounted for by the stimulating effects of the light rays upon the peripheral nerve endings. As compared with the hot air bath, it had been found that the increase of the natural oxidation of the body, as indicated by the elimination of carbon dioxide, was four times as great in the light bath.

As the nervous system was the only route through which sensations were conveyed, it followed that light and heat effects should be classed as a nerve stimulant or a nerve sedative according to the degree of their intensity resulted in an increase or reduction of energy. Augmentation, diminution, modification, and destruction of the nervous influence were demonstrable changes in innervation which followed thermic and chemical stimulation, and it was by the inhibition or modification of nerve conduction that the combined thermic, luminous, and chemical effects of light influenced the hyperæsthesias, the anesthetics, and pain in general. In entitling his paper *Phototherapy in Nervous Diseases* he would by no means thus limit it, although the condition of the nervous system was largely responsible for many diseases not classed as nervous. The primary and perhaps most important effect of the application of light and radiant heat was the relieving of nerve pressure and pain by exciting the circulation through congested areas, with the result of producing a sort of circulatory drainage. More prolonged and intense applications were still effective in the dissipation of local hyperæmias, principally, it was believed, by inducing a secondary contraction of the arterioles. As a rule, whenever and wherever pain existed, whether neuralgic, due to neuritis, or of the rheumatic or gouty type, a judicious application of the light bath was pretty certain to give temporary relief, and in a large proportion of cases was followed by permanent relief. These concentrated light and heat rays were of great service as a general tonic and aid to nutrition, especially in enfeebled children, and in the toxæmias, the toxic neuroses, and the palsies, the therapeutic value of light energy was beyond question. The favorable action of the light bath in disease would seem to depend upon (1) its bactericidal power, (2) its power of promoting tissue metabolism, (3) its influence in increasing the hemoglobin carrying power of the red blood corpuscles, and (4) its analgetic properties, due to its power to relieve blood pressure through induced congestion of superficial vessels and to its infinitely rapid vibratory action on the nerve units of the body.

Meeting of March 18, 1907.

Dr. F. C. RAYNOR, Corresponding and Statistical Secretary, in the Chair.

"Weak Foot" and Its Treatment.—The first paper of the evening was by Dr. CARL R. KEEPLER on this

subject (see *New York Medical Journal*, June 8, 1907, page 1066).

Results of the Bloodless Operation in Congenital Dislocation of the Hip.—This paper was by Dr. DEXTER D. ASHLEY, who said that from the flood tide of popular enthusiasm attending and immediately following the memorable visit of Dr. Lorenz, four years ago, a strong ebb tide soon set in, due to various causes, among which were oversanguine expectations and failure to appreciate the limits of the operation in varied hands and the long and careful after treatment called for. While much was written in disapproval of this method, little consideration was given to the state of opinion in Europe, where, after known results in over two thousand operations (slightly modified by the individual operator), the bloodless procedure had been almost universally accepted. During the last three years, however, the operation had been gaining ground in America, as more operators, appreciating its application and limitations, had reported increasingly favorable results. It was not maintained that this was the only method to be employed in all instances, but recent statistics had raised the percentage of successes over that quoted by Lorenz and his followers in 1902.

This was principally due to the acceptance of good functional results, instead of regarding as cures only those anatomically perfect. While it was manifestly impossible to secure an anatomically perfect hip where there was a deformity of the head or a coxa vara or valga, yet, notwithstanding such conditions, the functional results might be perfect. Where chances were taken which were not warranted by the recognized limitations of the operation, the results met with ought not to be included in the statistics of those cases to which the operation was generally considered applicable. While perfection was not attained by this method, it was contended that the average results were better than with the open operation, and the danger to life during the age of selection was almost nil.

Dr. Ashley then presented and briefly described nearly twenty-five cases, taken from public and private practice, which he said showed typical results, though these were not all perfect. In each case there were one or more skiagraphs, showing the condition which had been present. All the patients walked freely about, and in but very few of them was any limp apparent.

Affections of the Sacroiliac Joints.—Dr. HENRY LING TAYLOR read a paper on this subject. He suggested that, as a matter of convenience, the cumbersome and misleading term *sacroiliac synchondrosis* be dropped in favor of "iliac joint," one which was short, convenient, and free from serious objection. Consequently, he said he would make use of the latter in the present paper. He thought it strange that one of the largest and most important joints in the body had attracted so little attention. If the ilia were firmly cemented to the sides of the sacrum, the junction should be proof against ordinary strains and infections. When great force wrenched the parts asunder, fractures of the pelvis and injury to the contained organs would be likely to occur; and such, in fact, were the injuries to these joints described in the books. Occasionally a case of tuberculous or purulent infection of the iliac joint was reported, but, on the whole, primary infections here were still regarded as extremely rare. Having referred to the differences in the normal characteristics of these joints as described by different authors, he stated that it seemed to be true that they varied in structure in different individuals and under different conditions rather more than most joints.

Obstetricians had long recognized that a considerable degree of mobility in the pelvic joints supervened during uterogestation, this occasionally being so great as to give rise to marked disability and entire loss of locomotion in the late months or after delivery. Not

infrequently it gave rise to pains and less serious interference with locomotion, the cause of which was often unrecognized, and he thought the liability of the pelvic joints during and after pregnancy to relaxation sufficient to cause persistent backache, and more or less interference with locomotion should always be borne in mind. Infections of the iliac joints after parturition had also been reported. This was the extent of our knowledge when in 1905 Goldthwait and Osgood, of Boston, published their paper on the pelvic articulations, in which they showed from original research that the iliac joints were normally movable in men and women and were subject to the same affections as the larger joints of the body. It was now known that hyperæsthesia and relaxation of these joints might be associated with menstruation, and that similar conditions might be associated with chronic congestive disorders of the pelvic organs in women. When anomalies of the iliac joints were found in women suffering from pelvic disease, the latter might require treatment before the iliac affection could be cured. The transition from such cases to the neurotic or semineurotic was easy. Points of intense sensitiveness over the iliac joints in cases of neurotic spine and neurasthenia had long been observed. In some instances, especially when associated with certain characteristic disabilities, this iliac hyperæsthesia no doubt indicated a relaxed or irritated joint. In others, however, it was probably of no more significance than the local sensitiveness at other points. Iliac cases were not uncommon in neurological clinics, both as a complication of neurasthenia and also under the guise of various forms of sciatica. In the latter, however, the pains, differing from those of true sciatica, were apt to be irregular in distribution, with little or no nerve tenderness.

In men, iliac strains, from lifting or from wrenching the pelvis, were quite common, and were often called "crick in the back" or lumbago. Sometimes there was a definite displacement, the reduction of which would relieve the condition. As the iliac joints were the cross-roads of the strains of the larger trunk and leg movements, and as they were now known to be movable joints, it might be expected that they would not infrequently be overstrained. These facts also served, in great part, to explain the symptomatology. Pain was felt across the sacrum, behind the hip, and often definitely over one or both iliac joints, while tenderness over the joint, at the side of the sacrum, was usually present. Pains referred to the pelvis or down the leg were common, and might be, partially at least, due to the strain put upon certain cords of the sacral plexus as they passed over the front of the iliac joint. There was often a lateral curvature of the spine, with its convexity to the side opposite the affected joint, and standing, sitting, walking, and lying down, and especially changing the position, were more or less painful. Sacroiliac affections did not, however, interfere with the ordinary motions of the hip joint. Other forms of iliac strain were those due to continuous fixation in unnatural postures during prolonged operations or to prolonged confinement in the dorsal decubitus after an operation, and these might be relieved by placing a small felt or hair wedge shaped pillow under the sacrum.

Osteoarthritis was a frequent cause of stiff back, and it should be borne in mind that the iliac as well as other joints were not infrequently included in this process. Osteophytes being frequently thrown out in front of the vertebra, and thus being apt to press upon the cords of the sacral plexus, secondary sciatica was extremely common in this form. The symptoms were considerably relieved by carefully fitted jackets, but the results of treatment were less satisfactory than in simple strains.

The danger of derangement from disease of the hip joint was even greater in the latter motion of the hip,

was more or less restricted. Having referred to the diagnosis from primary sciaticas, Dr. Taylor said that the prognosis was good, under proper management, in a considerable proportion of cases. A certain few were fairly obstinate, and could be only partially relieved. The treatment for laxity, irritation, or inflammation was pelvic strapping with two inch adhesive plaster, as an emergency measure; the adjustment of a pelvic belt; the use of a special corset reinforced by shaped steel bars and provided with a pelvic belt, or of a long plaster jacket or corset firmly grasping the pelvis. In a few instances recumbency was necessary.

Posture, with Reference to the Early Diagnosis of Bone Disease.—This paper was by Dr. REGINALD H. SAYRE. It very frequently happened, he said, that a child was brought to the orthopaedic surgeon with the statement that it turned its toes in, and the request that it should be caused to turn its toes out. Investigation of such patients almost invariably showed that the position was a voluntary act on the part of the child, made in an unconscious attempt to protect a weak arch from the strain of weight bearing. Knock knees not infrequently lay behind the pigeon toes as a cause, the weight, in consequence of this condition, being brought much more on the inner than on the outer border of the foot, if held in the usual position, and, as a result, the child turned its toes in because it was more comfortable with them in this position. The surgeon, therefore, who compelled it to turn its toes out before first remedying the knock knee was doing it more harm than good. This attitude of pigeon toes was typical of a number of so called "bad habits," which were held responsible by parents for various deformities, whereas the truth was that the habit was only the expression of motion along the path of least resistance; the child assuming certain postures or walking in a peculiar manner because certain abnormalities of structure rendered it easier to do this than to take ordinary positions or walk in the usual way. Thus we found that ignorance frequently scolded the child for what it could not help doing, and failed to investigate the underlying influence which produced the "bad habit." Children were reproved for being inattentive where as a matter of fact they were deaf; efforts were made to correct a forward stoop of the shoulders by braces when a myopia should have been relieved by properly adjusted glasses; and he had seen the walk of Pott's disease, caused by an effort to relieve the spine from injury, ascribed to a desire to imitate the peculiar gait of the fat negro cook.

When, in 1636, André described orthopaedic surgery as "the art of preventing and correcting deformities in children," he included a part of the subject which had too frequently been neglected, and the speaker did not hesitate to say that this was by far the most important. An ounce of prevention was worth many, many pounds of cure. Almost all the acquired deformities of the human body were the result of disease which had been present for long periods of time and would have been early discernible to those who knew how to interpret properly the danger signals which Nature hung out. The marked deformities occurred only after a long time, and could usually be prevented if the cause producing them was recognized in the incipient stages of the disease. Many of these diseases were characterized by certain peculiarities of attitude before bone destruction had taken place, and to some of these he would now invite attention. He then proceeded to show, with mounting lanterns and a series of photographs of patients which were thrown upon the screen. The first of these was the attitude of a child suffering from rickets, which had caused a severe knock knee. When being allowed to sit in a chair with its feet protruding over the edge of the seat, or in a similar position in its mother's lap, the deformity was due to the bending of the knees, which, when the child was lying down, as illustrated, was not

stages from the very earliest, ankle and knee joint disease, hip joint disease, rotary lateral curvature of the spine, and Pott's disease.

Dr. F. H. ALBEE said he had made a very careful study of the anatomy of the sacroiliac joint, examining forty joints at the Cornell Medical College; and he had found that the anatomical characteristics of the part differed materially from the descriptions given in all the works on anatomy and gynecology to which he had had access. All the authors he had consulted varied in their accounts. Thus, some of them stated that the joint had no synovial membrane; others, that the membrane was more constant in the female than in the male; and still others, that it was met with in all cases. The speaker said that, on the other hand, he had ascertained that constant anatomical conditions were present in this joint. For one thing, the posterior ligament was thick and strong, while the anterior ligament was very thin.

Dr. A. E. GALLANT said that the strain upon the pelvic joints during parturition referred to by Dr. Taylor was frequently observed by obstetricians. In one difficult forceps case that he had had he had heard something crack during the delivery, and the next day he found the patient lying on her side and unable to turn without excruciating pain. The trouble here, he believed, was a separation of the symphysis, and the painful condition remaining was promptly relieved by strapping the pelvis with adhesive plaster. In regard to post-operative pain, he made it a practice not to keep his patients on the back, but to allow them to turn over just as soon as they liked.

Meeting of May 20, 1907.

The President, Dr. T. E. SATTERTHWAIT, in the Chair.

Some Plain Truths About Syphilis.—This was the title of a paper by Dr. L. DUNCAN BULKLEY. Syphilis, he said, was much more common than was generally supposed. In his own statistics of 20,000 personal dermatological cases, syphilis had been noted as the cause in over twelve per cent. As was now clearly recognized, it was not necessarily a venereal disease. Thousands of cases were on record in which it was acquired in as thoroughly innocent a manner as tuberculosis, and this fact had placed the subject of its control or prevention by public measures on quite a different footing from that which it had formerly occupied. Syphilis, certainly in its earlier stages, was a contagious affection, and too much care could not be exercised in order to prevent the infection of others, innocently or otherwise. During the first year, and possibly also the second, there was great likelihood of the occurrence of moist lesions, principally on the mucous surfaces, which gave off a most virulent contagion. When the disease was under perfect medical control there was much less danger of the development of such lesions, but in neglected cases there appeared to be a possibility of contagion even for many years. Of late there had been brought forward more or less evidence to show that the gumma, one of the later manifestations of the disease was really contagious. Syphilis was really a serious affection, which, under unfavorable conditions, was capable of inflicting a vast deal of injury, often irreparable, and even of causing death. In neglected or unusually severe cases it might play havoc with any portion of the body, while its relation to procreation and the matter of hereditary syphilis were also of extreme importance. The physician, therefore, should always take great pains to instruct the patient, even frightening him if necessary; so that its more serious later inroads might be prevented. Although syphilis might be called a rebellious disease, as regarding any tendency to spontaneous recovery, yet it was a very tractable one if exactly the proper measures were carried out in every respect with perfect strictness and for a sufficient

length of time. Unfortunately, however, the instances in which all these conditions were fulfilled were few, indeed, and it was undoubtedly a fact that the laity and, it would seem, the medical profession also did not sufficiently appreciate the importance of a full and perfect treatment, not only until the lesions had entirely disappeared, but until sufficient time had elapsed for the complete elimination of the poison from the system. Many of the best authorities had now come to regard the commonly accepted term of two years' treatment as too short a period, so that three, four, and in some cases even five years were judged necessary. Both alcohol and tobacco, and especially the former, were to be avoided as long as there remained any syphilitic taint.

In the treatment, mercury was still the one and only remedy which exercised a specific control over the disease. While the forms and methods of administration were many, it was the mercury itself which always did the good, and the only question was as to the best method or combination by which it might be made to permeate the system with the least harm. Dr. Bulkley's advice was, not to run after every novelty, but to adopt a good plan of treatment and stick to it, with such modifications as individual cases might demand. The dose of mercury was a variable factor, depending on the character of the case and the results obtained; the main point was that the patient should have enough of the remedy, and for a long enough time, to overcome the poison. The inunction method was now relatively seldom used in private practice, but in certain cases in hospitals, and also in infants especially, it was of very great value. Mercurial vapor, given in baths, was likewise rarely used, but this, too, at times served a valuable purpose. The administration by the mouth was still, and probably always would be, the common and favorite method of introducing the drug, and it was the one which he himself generally employed. It was a fact, however, that, as ordinarily given, it often failed to control the disease effectually. To be really effective, it should be given to the limit of tolerance, the mouth being very carefully watched to avoid salivation. He constantly saw patients with florid manifestations of syphilis who had been receiving only a quarter of a grain of mercury protiodide, three times a day—a totally inefficient amount. The hypodermatic administration of mercury was steadily gaining ground in the profession, and by many was advocated as the only proper method of treatment in all stages of the disease. He could not subscribe to this opinion, but, while the method had its disadvantages, it was unquestionably a valuable addition to our means of combating syphilis. By it we could often produce very rapid effects, and in instances where the brain or other vital parts were involved, it had certainly secured results which it would have been very difficult to effect in any other way.

As to potassium iodide, this agent had really no effect in eradicating the syphilitic poison, although often erroneously given with this idea; but as an adjuvant to mercury, in the removal of some of the later results of the disease, it was of inestimable value. It also probably aided in effecting the rapid elimination of the mercury from the system. Many erred, however, in employing it alone in late syphilis, because more or less mercury was needed throughout the entire course of treatment. The mistake was also often made of giving the iodide in uselessly and irrationally large doses, and it was well to remember that much less of it would be required for the absorption of effused products if, in addition to it, mercury was continuously employed in a judicious manner. Another plain truth, which seemed to be too often lost sight of, was that the patient was to be constantly regarded and treated quite as much as the disease itself. Too many thought only of the infection, and from first to last went on giving their antisyphilitic remedies, utterly regardless of the condition of the

patient, his diet and mode of life, and the manner in which his bodily functions were performed. The value and importance of mineral springs, especially the Hot Springs of Arkansas, had been very greatly overestimated. Indeed, he would not hesitate to say that much harm was often done by the false security which patients who had undergone what was called a "cure" at one of these places were apt to feel. He had seen many syphilitics who had made the trip, often at great pecuniary sacrifice, who subsequently acknowledged their mistake; and in all his experience he did not recall a single instance in which he had regarded it as necessary or wise for the patient to make a trial of this method of "cure."

Dr. B. LAPOWSKI spoke of the great value of mercurial inunction and hypodermatic injection, especially the latter, and said there could be no doubt of the infectiousness of the gumma. The diagnosis of syphilis, he said, was of more importance than that of either tuberculosis or malignant tumor, because in this disease we could accomplish so much more by treatment.

Dr. L. WEBER said that for a number of years he had treated his syphilitic patients by means of hypodermatic injections of mercury salicylate. The results had been excellent, and he had never met with any unpleasant complications in connection with the method.

The Transmission and Cure of Cancer.—In a paper on this subject, Dr. WILLIAM SEAMAN BAINBRIDGE made a vigorous protest against the idea, which, he said, seemed to be rapidly gaining ground, that cancer was an infectious disease, readily capable of transmission. So prevalent was this opinion in the community that he had known of a number of instances in which nurses had flatly refused to take charge of cancer cases, on account of the supposed danger to themselves. For this condition of affairs the men of the Buffalo school were largely responsible. He regarded it as most unfortunate, and thought it was the duty of the medical profession to endeavor in every way to check this unnecessary alarm. Up to the present time there had been no proof whatever advanced of the transmissibility of the disease, and the promulgation of such a doctrine could not but be attended with much evil. As to the curability of cancer, the facts were constantly accumulating to show that with an early and radical operation the chances were excellent for the future health of the patient.

Dr. JAMES EWING said he was surprised to learn that so many believed in the transmissibility of cancer, as there was absolutely nothing to show it. From time to time organisms of various kinds had been fixed upon as the specific microorganism of the disease, only for the statement to be disproved upon adequate scientific investigation. The latest of these was the spirochæta. The speaker presented arguments, from the pathologist's point of view, against the positions taken by the Buffalo school, but in conclusion, stated that, as he had criticised the contentions of these workers, he desired to give them full credit for the excellent point they had made in effecting the immunity of man.

Dr. S. P. BEEBE took up the same line of argument. He referred particularly to the affection, known for years to pathologists, which always passed under the name of infectious lymphosarcoma of the dog, and stated that the facts showed that there was very little likelihood of its transmissibility to man. While it was called infectious, it was in reality a true tumor.

Dr. LAWSON B. FORT said that this was a question for the pathologist to decide. As to the clinical evidence of the transmissibility of cancer, there was none.

Dr. HOMER WAKEFIELD said that in ancient times it was the custom to mark cancers, but, so far as was known, those who engaged in this pleasant practice never contracted the disease.

Dr. RAYMOND E. VAN GILLEN said that the reader

of the paper had not referred to the fact, which he thought must be admitted, that traumatism frequently stood in a causative relation to cancer.

Dr. BAINBRIDGE replied to this that he had not done so because traumatism was not the essential cause. It was undoubtedly contributory, but he believed that there must be something else beside.

The Role of the Gonococcus in Disease.—This paper was by Dr. ROBERT W. TAYLOR. He referred first to the discovery of the gonococcus by Neisser, in 1879, as marking an epoch in the history of gonorrhœa, and said the allegations that Neisser had made for it were soon verified and supported by a large number of observers. Having traced the pathological process set up by the gonococcus in the mucous membrane, he said it was to be remembered that gonorrhœa not only produced a chronic catarrhal condition, but gave rise to a severe exudative inflammation in the submucous tissue. In the urethra the normal cylindrical epithelium became destroyed and was, on healing, replaced by flat pavement epithelium. Again, the exudative inflammation might cause ulcers or erosions, and frequently induced the formation of connective tissue in the urethral walls. He presented two drawings from sections of the urethra of a subject suffering from gonorrhœa of some months' standing, stating that they served to show that when the disease had become chronic it must necessarily take a long time for the tissues to heal. From the urethral focus contamination of the whole organism might quickly or slowly result, so that it might truly be said that there was no organ or tissue of the body which might not become implicated.

Though it was proved beyond question that the gonococcus was the essential causative agent in urethritis, it was necessary to consider the effect of other organisms in the production of urethral suppuration. In 1887 Lustgarten and Mannaberg showed that in the normal urethra a variety of microorganisms grew. Most of these were harmless parasites or saprophytes, but three seemed to deserve attention: 1. The staphylococcus. 2. A bacillus resembling the tubercle bacillus. 3. One or several species of diplococcus resembling the Neisser gonococcus. Since then some forty essays had appeared on the subject, but in spite of all this laboratory work, the fact stood out clearly that the cases of gonorrhœa in which any other agent than the gonococcus was the materies morbi, as compared with the whole number of infections, were simply infinitesimal.

Within the past few years considerable attention had been directed to the cytology—the study of the structural details of the cells—in urethritis, and he gave some observations just made on the subject, which were illustrated by a series of diagrams. In these the methods and line of study were practically an application of the recent advances in the study of the morphology of the blood. The conclusion reached was that any clinical aid or therapeutic indications derived from this kind of work, although sustained by quite an amount of literature, were of very doubtful value. In brief, it gave no certain results of practical utility.

There could be no doubt that the toxins of gonococci were active in many diseased conditions, and to these Dr. Taylor briefly referred. For lack of time, he was obliged to omit the reading of the remainder of his paper, stating that it treated of the following points: Hibernation of the gonococcus, septicæmia resulting from the microbe, cardiac and pleural infections, epididymitis, orchitis, cystitis, pyonephrosis and pyelonephritis, and, finally, serum therapy. As to gonorrhœa of the tubes, this paper would be the same as the gonococcal, and the author would like to hear him out on this question. When we considered the vast range of pathological conditions which gonorrhœa might cause or lead to, we were naturally warranted in assuming that it was taken as a whole, one of the most formidable and

far reaching infections by which the human race was attacked.

Dr. HERMAN J. BOLDT expressed the opinion that gonorrhœa, in view of its extensive and diversified manifestations and its far reaching consequences, was a more dangerous disease than syphilis.

Book Notices.

A Manual of Hygiene and Sanitation. By SENECA EGBERT, A. M., M. D., Professor of Hygiene and Dean of the Medicochirurgical College of Philadelphia, etc. Fourth Edition, Enlarged and Thoroughly Revised. Illustrated with Ninety-three Engravings. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. 498. (Price, \$2.25.)

The author has thoroughly revised this, the fourth, edition of his manual. Among the new material may be mentioned the latest regulations of the United States government in regard to disinfection and quarantine, the latest improved methods in the disposal of sewage, and the opsonin theory. The data on the vital statistics have been revised so as to include the figures given in the most recent reports of the United States Census Bureau. The work is a good manual and a handy reference book.

Five Hundred Surgical Suggestions. Practical Brivities in Diagnosis and Treatment. By WALTER M. BRICKNER, B. S., M. D., Chief of Surgical Department, Mount Sinai Hospital Dispensary, New York, and ELI MOSCHOWITZ, A. B., M. D., Assistant Physician, Mount Sinai Hospital Dispensary. Second Series. New York: Surgery Publishing Company, 1907. Pp. 108.

The first issue of this little work, published in 1906, has been so well received that the authors have prepared a second series, incorporating the suggestions of the first one with many more, thus bringing the total to 500. What has been said of the first edition can be repeated of the second: "It will prove practically invaluable to every physician practising major and minor surgery, as well as to the general practitioner as an aid in surgical diagnosis."

Die Einwirkung der Genussmittel auf den menschlichen Organismus, speziell auf die Verdauungs-Organen. I. Tabak, Kaffee und Tee und Verdauung. II. Alkohol und Verdauung. Von Hofrat Dr. FRIEDRICH CRÄMER. München: J. F. Lehmann, 1907. Pp. 190.

Dr. Crämer continues in this book his lectures on diseases of the stomach and intestines. It contains four lectures on tobacco, coffee, and tea, and their influence on digestion, and two on alcohol and digestion. The author voices his opinion that tobacco is an entirely unnecessary luxury (*Genussmittel*), and that its poisonous influence upon the body is not well enough understood. The physician should become acquainted with the clinical picture of chronic nicotine poisoning. We cannot decide at present, says he, whether chronic nicotine poisoning has, like alcohol, a general influence affecting all classes and all nations—in short, whether or not it is a *Volksgift*. But one of the important causes of arteriosclerosis is excessive smoking. Tea and coffee have most decidedly a detrimental influence upon the body, and can never become a substitute for alcohol, as their effect is often more obnoxious than that of the moderate use of alcohol. The injury to the nervous system is often more severe when produced by nicotine than by alcohol. Pregnant women should not be allowed to use tobacco, tea, or coffee. Children and adolescents should be instructed about the dangers of these luxuries, and should never be permitted to use alcohol, tea, coffee, or tobacco. This is the substance of the author's teaching.

Hay Fever, Hay Asthma. Its Causes, Diagnosis, and Treatment. By WILLIAM LLOYD, Surgeon in Charge of the Nose, Ear, and Throat Department, Kensington General Hospital, etc. London: Henry J. Glaiser; Chicago: W. T. Keener & Co., 1907. Pp. 95.

Mr. Lloyd has added a new book to the long list of treatises on hay fever. The author divides the treatment into curative, prophylactic, and palliative. The curative comprises treatment where some definite pathological condition or deformity is present and where no disease or abnormality exists in the nose. The last chapter gives the histories of twenty illustrative cases. From these we see that the author has successfully used cocaine and adrenalin, the electrocautery, removal of adenoids, removal of parts of the turbinates and of parts of the septum, applications of caustic solutions to the membrane of the nose, etc.

Alte und neue Gynäkologie. Herrn Geheimrat Professor Dr. FRANZ RITTER VON WINCKEL, zur Feier seines 70. Geburtsfestes. Ueberreicht von den Aerzten der kgl. gynäkologischen Universität-Poliklinik im Reisingerium zu München. Mit 30 Abbildungen im Text und 5 Tafeln. Herausgegeben unter Mitwirkung von Dr. E. AULHORN, Dr. R. BENNDORF, Dr. H. ELTZE, Dr. M. KACHEL, Dr. Th. PETRI, Professor Dr. SAKURAI, und Dr. A. STOECKER, von Professor Dr. GUSTAV KLEIN, Vorstand der kgl. gynäkologischen Universität-Poliklinik. München: J. F. Lehmann, 1907. Pp. 174.

Dr. Franz Ritter von Winckel, for over twenty-five years professor of obstetrics and gynecology in the University of Munich, celebrated a short time ago his seventieth birthday, resigning at the same time from the chair which he so long had occupied in the leading university of southern Germany. Combining a wide experience with a great talent for teaching, he has been admired and beloved by his students, who came from all parts of Germany, attracted to the Bavarian capital by the fame of its medical school.

Alte und neue Gynäkologie is dedicated to their retiring teacher by the physicians of the gynecological department of the Reisingerium of Munich, the largest dispensary of the city. The *Festschrift* is divided into two parts, history and practical gynecology, and contains thirteen articles. Very interesting is the pictorial description of the female genital organs from the ninth century to the time of Vesalius, written by Professor Klein, with twenty-five illustrations. The author mentions here also the allegation of Jackschat that Andreas Vesalius had plagiarized Leonardo da Vinci's most important, but lost, work on the anatomy of men. This statement of Jackschat has not been proved, and the fame of Vesalius is still that of the greatest anatomist of all times.

Professor Sakurai has contributed a comparison of the time of labor as observed in Japanese and European women. The author states that he had under his care in Nagasaki during thirteen years, 172 obstetrical cases in European women and 545 in Japanese. He found that the average time of labor with European women in primipare was twenty-one and a quarter hours and in multipare eleven and three quarter, but with the Japanese, sixteen and a half and ten and a quarter hours. The difference in the time Dr. Sakurai finds in the second period of labor, and he attributes it to the difference in weight (European, fifty to sixty kilogrammes; Japanese, forty to fifty); the length of the vagina (European, 8.5 to 9.5 cm.; Japanese, 6.5 to 7.5 cm.); the inclination of the brim of the pelvis (European, 55° to 60°; Japanese, 40° to 50°); the difference of sensibility to pain (greater in the European); and, finally, to the strength of pressure of the abdominal muscles (less in Europeans).

BOOKS, PAMPHLETS, ETC., RECEIVED.

The Development of the Human Body. A Manual of Human Embryology. By J. Playfair McMurrich, A. M., Ph. D., Professor of Anatomy in the University of Toronto. Third Edition, Revised and Enlarged. With Two Hundred and Seventy-seven Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 528. (Price, \$3.)

The Pancreas. Its Surgery and Pathology. By A. W. Mayo Robson, D. Sc., F. R. C. S., London, and P. J. Cammidge, M. B., D. P. H., London. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 546. (Price, \$5.)

Blood Examination and Its Value in Tropical Disease. By Claud F. Fothergill, B. A., M. B., M. R. C. S., L. R. C. P., etc. With a Preface by Major Ronald Ross, F. R. S. C. B., Professor of Tropical Medicine, University of Liverpool, etc. London: Henry Kimpton, 1907. Pp. 34. (Price, 60 cents.)

Manual of Physiological and Clinical Chemistry. By Elias H. Bartley, B. S., M. D., Ph. G., Professor of Chemistry, Toxicology, and Pediatrics in the Long Island College Hospital, etc. Third Edition, Revised and Enlarged, with Fifty-one Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 202. (Price, \$1.)

Annales de la Société royale des sciences médicales et naturelles de Bruxelles. Soixante-huitième année. Tome xvi, Fasc. i et 2. Bruxelles: Henri Lamertin, 1907. Pp. 345.

Textbook of Diseases of the Skin. By Arthur Van Harlingen, Ph. B., M. D., Emeritus Professor of Dermatology in the Philadelphia Polyclinic, etc. Fourth Edition, Thoroughly Revised and Rearranged, with One Hundred and Two Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. xii-482. (Price, \$3.)

The Chemistry of Commerce. A Simple Interpretation of Some New Chemistry in Its Relation to Modern Industry. By Robert Kennedy Duncan, Professor of Industrial Chemistry at the University of Kansas, etc. Illustrated. New York and London: Harper & Brothers, 1907. Pp. 263.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending October 16, 1907:

Smallpox—United States.		
Places.	Cases.	Deaths.
Colorado—Long Beach.	1	0
Colorado—Pueblo.	1	0
Colorado—Brighton.	1	0
Kentucky—New Richmond.	1	0
Massachusetts—Boston.	1	0
Massachusetts—Salem.	1	0
New Hampshire—Salem.	1	0
Utah—Salt Lake City.	1	0
Texas—San Antonio.	1	0
Virginia—Thomas's station.	1	0
Wisconsin—La Crosse.	1	0
Sept. 20-Oct. 5.		
Smallpox—Foreign.		
Austria—Vienna.	1	0
Belgium—Brussels.	1	0
Brazil—Rio de Janeiro.	1	0
France—Paris.	1	0
Germany—Berlin.	1	0
Italy—General.	1	0
Japan—Tokyo.	1	0
Spain—Valencia.	1	0
Sweden—Stockholm.	1	0
Switzerland—Geneva.	1	0
United States—San Francisco.	1	0

Cholera—Foreign.		
China—Tientsin.	Aug. 18.	Present
India—Bombay.	Sept. 4.	Present
India—Calcutta.	Aug. 24.	Present
India—Madras.	Aug. 18.	Present
Japan—Yokohama.	Aug. 18.	Present

and 45 deaths: Osaka-fu, 42; Suma and Fokusan, suburbs of Kobe, 2; Hiroshima Ken, 7; Obita Ken, 5; Okayama, Ehime Ken, 2; Nagasaki Ken, 27; Kanagawa, 1; Saitama Ken, 1; Wakayama Ken, 1; Kanagawa Ken, including Yokohama, 1, from S.S. Glamorganshire.

Russia—City of Samara.	Aug. 20.	Sept. 3.	66	29
Russia—City of Samara.	Sept. 4-10.	66	21	2
Russia—Government Samara.	Aug. 20.	Sept. 3.	5	25
Russia—Gov't of Astrakhan.	Aug. 1.	Sept. 3.	7	3
Russia—Gov't of Astrakhan.	Aug. 20.	Sept. 31.	666	460
Russia—Gov't of Astrakhan.	Sept. 4-10.	66	380	
Russia—Government Simbirsk.	Aug. 20.	Sept. 10.	65	16
Russia—Government Saratov.	Aug. 20.	Sept. 10.	381	191
Russia—Gov't Nizhni-Novgorod.	Aug. 20.	Sept. 10.	140	37
Russia—Government Kazan.	Aug. 20.	Sept. 10.	21	1
Russia—Government Baku.	Aug. 20.	Sept. 10.	18	3
Russia—Government Kostroma.	Aug. 20.	Sept. 10.	10	1
Russia—Government Perm.	Aug. 20.	Sept. 10.	8	1
Russia—Government Penza.	Aug. 20.	Sept. 3.	1	1
Russia—Government Vladimir.	Aug. 20.	Sept. 3.	1	1
Russia—Territory of Amolinsk.	Aug. 20.	Sept. 3.	1	1
Russia—City of Iod'z.	Aug. 20.	Sept. 3.	1	1
Russia—Rostov.	Aug. 20.	Sept. 3.	1	1

Yellow Fever—Foreign.			
Cuba—Campo Florido.....	Oct. 9.....	2	2
Cuba—Cienfuegos.....	Oct. 7-15.....	6	16
Total from Aug. 3-Oct. 15....		6	16
Cuba—Palos.....	Oct. 9-11.....	3	1

Plague—United States.			
California—Oakland	To Oct. 9.	3	3
California—San Francisco	Oct. 9.	1	1

Plague—Foreign.			
Algiers—Oran.	To Oct. 1.	6	2
Brazil—Bahia.	Aug. 24-Sept. 7.	14	13
Brazil—Rio de Janeiro.	Sept. 18.	1	1
Egypt—Alexandria.	Sept. 1-15.	16	6
Egypt—Dakkeh Province.	Sept. 1-15.	1	1
Japan—Tokyo.	Sept. 24-31.	1	1
India—General.	Aug. 15-24.	5,285	2,691
India—Bombay.	Aug. 15-24.	1	1
India—Calcutta.	Aug. 24-31.	1	1
India—Rangoon.	Aug. 24-31.	1	1
Madagascar—Mauritius.	Sept. 1.	Still present.	
Turkey in Asia—Beirut.	Aug. 9.	1	

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the seven days ending October 16, 1907:

- BEAN, L. C., Acting Assistant Surgeon. Granted leave of absence for twenty-eight days, from October 1, 1907.
- BERRY, T. D., Passed Assistant Surgeon. Granted leave of absence for one month and ten days, from November 1, 1907.
- CARRINGTON, P. M., Surgeon. Granted leave of absence for three days, from October 14, 1907, under paragraph 189, Service Regulations.
- CLARK, T., Passed Assistant Surgeon. Directed to proceed to Allentown, Pa., for special temporary duty, upon completion of which to rejoin his station at Philadelphia, Pa. Directed to report at Washington, D. C., on October 22, 1907, for special temporary duty, upon completion of which to rejoin his station at Philadelphia, Pa.
- DUFFY, E., Acting Assistant Surgeon. Granted leave of absence for ten days, from September 6, 1907.
- EDERT, H. G., Assistant Surgeon. Relieved from duty on the United States Revenue Cutter *Perry*, and from duty at Seattle, Wash., and directed to report to Passed Assistant Surgeon Hobdy, San Francisco, Cal., for special temporary duty.
- FRISSELL, C. M., Acting Assistant Surgeon. Granted leave of absence for fifteen days, from September 15, 1907.
- FROST, W. H., Assistant Surgeon. Granted leave of absence for fifteen days, from September 15, 1907.
- GARDNER, H., Passed Assistant Surgeon. Directed to proceed to New York City, for special temporary duty, upon completion of which to rejoin his station at New York City.
- HALL, L. P., Pharmacist. Excused from duty, without pay, for ten days, from October 1, 1907.
- KENNER, H. T., Acting Assistant Surgeon. Directed to proceed to New York City, for special temporary duty, upon completion of which to rejoin his station at New York City.
- MC LAUGHLIN, A. T., Passed Assistant Surgeon. Directed to proceed to New York City, for special temporary duty, upon completion of which to rejoin his station at New York City.
- ONCE, R., Acting Assistant Surgeon. Granted leave of

absence for nine days, from September 26, 1907, on account of sickness.

SAFFORD, M. V., Acting Assistant Surgeon. Directed to report at Washington, D. C., on October 22, 1907, for special temporary duty, upon completion of which to rejoin his station at Boston, Mass.

SCHIERESCHESKY, J. W., Passed Assistant Surgeon. Directed to report at Washington, D. C., on October 22, 1907, for special temporary duty, upon completion of which to rejoin his station at Baltimore, Md.

SPANGLER, L. C., Pharmacist. Granted leave of absence for twenty-three days, from November 7, 1907.

STANTON, J. G., Acting Assistant Surgeon. Granted leave of absence for fifteen days, from October 12, 1907.

STONER, G. W., Surgeon. Directed to report at Washington, D. C., on October 22, 1907, for special temporary duty, upon completion of which to rejoin his station at Ellis Island, N. Y.

Promotion.

Pharmacist J. M. BELL, promoted to pharmacist of the second class, effective October 31, 1907.

Casualty.

Surgeon JOHN GODFREY died at Detroit, Mich., October 16, 1907.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending October 19, 1907:

BAILY, H. H., First Lieutenant and Assistant Surgeon. Arrived on the *Logan* at San Francisco, Cal., for duty in the United States.

BANISTER, J. M., Lieutenant Colonel and Deputy Surgeon General. Left Omaha, Neb., on leave of absence for fifteen days.

CRAIG, C. F., Captain and Assistant Surgeon. Arrived in San Francisco, Cal., on the *Logan*, for duty in the United States.

HEYSINGER, J. D., First Lieutenant and Assistant Surgeon. Ordered from Key West Barracks, Fla., for temporary duty at Fort De Soto, Fla.

HOWELL, PARK, Captain and Assistant Surgeon. Arrived in San Francisco, on the *Logan*, for duty in the United States.

HUMPHREYS, H. G., First Lieutenant and Assistant Surgeon. Arrived in San Francisco, on the *Logan*, for duty in the United States.

KENNEDY, J. M., Major and Surgeon. Having completed duties for which he was ordered to Washington, D. C., ordered to return to his proper station.

MACY, F. S., First Lieutenant and Assistant Surgeon. Ordered to duty on the *Buford*, sailing on November 5, 1907, for Manila, where he will report for duty in the Philippines Division.

RICH, E. W., Captain and Assistant Surgeon. Relieved from duty at the rifle range, Annapolis, Md., and at the Jamestown Exposition, and ordered to Fort Ontario, N. Y., for duty.

WICKLINE, W. A., First Lieutenant and Assistant Surgeon. Arrived on the *Logan*, at San Francisco, Cal., for duty in the United States.

YOST, J. D., Captain and Assistant Surgeon. Granted an extension of fourteen days to his leave of absence.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending October 19, 1907:

DOLLARD, H. L., Assistant Surgeon. Detached from the Naval Hospital, Newport, R. I., on October 15, 1907, and ordered to the *Rhode Island*.

HULL, H. F., Assistant Surgeon. Ordered to the Naval Hospital, Newport, R. I., on October 15, 1907.

JENNESS, B. F., Passed Assistant Surgeon. Detached from the *Constellation* and ordered to the *Glacier*.

LEDDETER, R. E., Passed Assistant Surgeon. Detached from the *Glacier* and ordered home to await orders.

WILSON, H. D., Surgeon. Detached from the *Dixie*, when placed out of commission, and ordered home to await orders.

Births, Marriages, and Deaths.

Born.

HUTSON.—In Fort Moultrie, South Carolina, on Friday, October 4th, to Dr. T. Ogier Hutson, United States Army, and Mrs. Hutson, a daughter.

SWIFT.—In Los Angeles, California, on Wednesday, September 25th, to Dr. E. L'H. Swift, United States Army, and Mrs. Swift, a son.

WHITING.—In New York, on Wednesday, October 9th, to Dr. James R. Whiting, Jr., and Mrs. Whiting, a son.

Married.

ALLEN—CONRAD.—In Philadelphia, on Thursday, October 17th, Dr. Henry Croskey Allen and Miss Edith Longaker Conrad.

BAKER—NICHOLS.—In Roxbury, Massachusetts, on Saturday, October 12th, Dr. William H. Baker and Miss Sarah M. Nichols.

JOHNSON—WHITE.—In New York, on Tuesday, October 15th, Dr. Alexander B. Johnson and Miss Louise Tilden White.

LININGER—BOYNTON.—In New York, on Tuesday, October 15th, Lieutenant Clarence Lininger, United States Army, and Miss Emily Orinda Boynton, daughter of Dr. Frank Hopkins Boynton.

McLAUGHLIN—RILEY.—In Springfield, Massachusetts, on Wednesday, October 9th, Dr. Patrick William McLaughlin and Miss Anna May Riley.

MILLIKIN—LEESE.—In Plainfield, New Jersey, on Saturday, October 12th, Dr. Seth M. Millikin, Jr., of New York, and Miss Alinda K. Leese.

NIEDER—NEVENS.—In Geneva, New York, on Tuesday, October 15th, Dr. Charles F. Nieder and Miss Lucy S. Nevens.

UPHAM—BUNDY.—In Foxboro, Massachusetts, on Saturday, October 12th, Mr. Everett Lyman Upham, of Boston, and Miss Mary Bundy, daughter of Dr. Frank E. Bundy, of Boston.

WALCOTT—RICHARDSON.—In Boston, on Friday, October 11th, Mr. Robert Walcott, son of Dr. Henry P. Walcott, and Miss Mary Tuckerman Richardson, daughter of Dr. Maurice Howe Richardson.

WILSON—DIENER.—In Philadelphia, on Tuesday, October 15th, Dr. William O. Wilson and Miss Katharine E. Diener.

Died.

CHANDLER.—In Hot Springs, Virginia, on Thursday, October 17th, Dr. George W. Chandler, of Newark, New Jersey.

CLARK.—In the Soldiers' Home, Richmond, Virginia, on Wednesday, October 9th, Dr. David B. Clark, aged sixty-seven years.

DEWITT.—In Cincinnati, Ohio, on Friday, October 11th, Dr. William H. DeWitt, aged sixty-one years.

FRENCH.—In San Diego, California, on Monday, October 7th, Dr. James M. French, aged forty-nine years.

HART.—In Cleveland, Ohio, on Saturday, October 12th, Dr. Albert G. Hart, aged eighty-six years.

LATON.—In Minneapolis, Minnesota, on Sunday, October 6th, Dr. W. S. Laton, aged fifty-five years.

NOBLE.—In Narberth, Pennsylvania, on Tuesday, October 15th, Dr. William H. Noble, of Cumberland, Maryland, aged forty-seven years.

PATTERSON.—In Avoca, New York, on Thursday, October 10th, Dr. Christopher Patterson, aged ninety years.

PIPER.—In Towson, Maryland, on Friday, October 11th, Dr. Jackson Piper, aged seventy-nine years.

SOUTHWORTH.—In Leonardsville, New York, on Thursday, October 10th, Dr. Oscar L. Southworth, aged sixty-eight years.

SUTPHEN.—In Newark, New Jersey, on Tuesday, October 15th, Mrs. Sarah L. Sutphen, wife of Dr. Theron G. Sutphen.

WILKINS.—In Kansas City, Missouri, on Thursday, October 10th, Dr. W. F. Wilkins, aged sixty-three years.

YORK.—In Brooklyn, New York, on Thursday, October 17th, Dr. Thomas A. York, aged thirty-eight years.

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WHOLE No. 1509.

Lectures and Addresses.

ADDRESS IN SANITATION.*

By EUGENE H. PORTER, M. D.,
Albany, N. Y.,
State Commissioner of Health.

We are gathered this afternoon to inaugurate the Seventh Annual Conference of the Health Officers of the State of New York. This is a day of salutations. We are met here to greet a new sanitary year, to welcome those who have come to join our ranks and to exchange words of encouragement with one another. It is well that from time to time the principles that govern this conference, the traditions that affect it, the aspirations that move it, should court the fullest inquiry. For the conference is to a great measure representative of the department. That which moves the one, moves the other. If there is development and advancement here, there is, you may be sure, progress and fruitfulness there. But if our teaching has hardened into dogmatism, our precepts into formulas, and our system into routine, then is our custom a yoke, not of freedom, but of bondage. We have fallen somewhat below our standards. For in our day we are restless, drawn by a discontent not always divine, dragged down by laxity, selfishness, and the tremendous materialism of the age. And besides all this there remains the monumental words of the first and greatest physician of western civilization "Life is short, and art long, occasion fleeting, experiment fallacious, and judgment difficult."

But while the road is difficult and advance not easily won, knowledge is greater, conviction clearer, purpose more resolute, and accomplishment nearer.

And so if our meeting here shall be a fresh incentive to continued labor, if it shall bear a particular and special message to each listening ear, and if in addition to that comradeship, so enjoyable, and that living sense of power through unity of organization, so essential, it shall bring to each of us a more complete realization of the problems that confront us, a wider and keener mental vision, an inspiration leading to better public service, the purposes of this conference have been fully attained.

This is the largest gathering of health officers ever held in this State or, for that matter, in any other State in the Union, and that it is so is due to the untiring devotion to public duty, and the constant enthusiastic interest in sanitary affairs always manifested by the health officers of the Empire State.

In greeting you this afternoon I find some diffi-

culty in adequately expressing how much your presence here is appreciated and how fortunate we esteem ourselves that we have the opportunity to meet so many of our coworkers in sanitary matters.

The conference extends its heartiest greetings to our good friends, the citizens of Buffalo. This splendid audience is an index of the public spirit and intelligence of the people of this municipality and in sanitary, as well as in other things, Buffalo is certainly a city of the first class.

SOME SPECIAL DEPARTMENT WORK.

It has seemed to me that the best use of my brief period of time would be to tell you some of the things we have done since the last conference, and then discuss briefly a few important matters that closely concern next year's work. So much has been done, compared with anything we were able to undertake before, that I can hardly do more than mention some of the many lines of endeavor entered upon.

1. *The investigation of summer resorts* has been continued, and a large number of hotels have been personally inspected. The reports secured by the blank forms sent out last year to the owners of summer hotels and boarding houses have been thoroughly studied and tabulated, and where the conditions are unsatisfactory, and possible or probable danger threatens visitors, measures have been taken to correct the evils. The number of summer resorts in this State is enormous, and to properly supervise their sanitary condition requires more money than is now available. I hope next year, however, to approximately complete this work and so prevent many cases of "summer resort typhoid."

2. *Sanitary Investigations of Various Cities.*—It is not enough to tabulate death returns. These melancholy statistics taken in bulk do indeed serve to remind us of "that bourne from which no traveler ever returns," but afford very little other information of practical value.

But when intelligently studied they are employed for purposes of comparison, and the results attained, interpreted by the sanitary methods of to-day, they may serve as beacon lights pointing out existing danger and demanding its avoidance.

So the dead shall speak to us, and these voices from the grave may not be lightly disregarded. And when it was found that in one of the cities of this State the average annual death rate from typhoid for ten years was 1.88, in another 87, in another 82—in still another that the mortality from tuberculosis was three times what it should be, and in still another city the conditions indicated by the tables pointed unmistakably to an epidemic outbreak of

* Delivered at the Seventh Annual Conference of the Sanitary Officers of the State of New York, at Buffalo, October 16, 17, 18, 1907.

disease, it needed no labored argument to convince me that one of the urgent duties right before the department was the correction, if possible, of these conditions.

And so we have begun this summer a sanitary investigation of the conditions existing in various towns and municipalities in this State. In this study were included the water supply and all possible existing sources of contamination; the method of disposal of sewage; the method of garbage disposal, if any; the chief occupations of the people; the number and kind of manufacturing or other industrial establishments; the number and character of tenement houses, together with many other matters bearing relation to the general investigation. Some of these investigations are completed, others are still under way.

When these reports are finally passed upon the department believes that it will be able to give to each of these municipalities specific and substantial aid in correcting the very serious existing dangers to health and life. It will not only point out the evil that exists, but it hopes to be able to suggest the adequate remedy, and it will use all the influence and moral force at its command to effect a change for the better.

But the department does not undertake to do the required work. The town must work out its own sanitary salvation. The department investigates, studies conditions, suggests, gives expert advice; points out the way. The rest of it belongs unmistakably to people dwelling where the conditions exist. And this it would seem is one of the most important functions of your department of health; to give to any town or municipality needing it expert advice and aid in the avoidance of sanitary perils and their speedy correction if in existence.

It will be readily seen that such work as this required much time and considerable expenditure of money. But we went as far as we could.

3. *The pollution of our streams and lakes* is one of the most important and difficult questions before us. It is obvious that a problem so serious, affecting so many and varied interests, must be dealt with in a broad and comprehensive fashion. As a basis for such treatment positive information is needed. It became, therefore, imperatively necessary to thoroughly study all the principal watersheds of this State. This work included the present pollution of streams, their suitability as sources of water supply, the wastes from factories and creameries, the refuse from pulp mills, and many other important facts. Sanitary maps have been prepared of many of these watersheds on a scale to show plainly each stream of appreciable size, with the location of each source of water supply, and all important sources of pollution. The Oswego, Upper Hudson, Lower Hudson, Susquehanna, Genesee, and Niagara watersheds are now practically completed.

4. *Examination of All Public Water Supplies.*—It has always seemed plain to me that one of the most legitimate functions of the State Department of Health was a continuous and efficient supervision of public water supplies. The work done by Massachusetts in this line has been most excellent and far ahead of anything we have ever been able to do. But the increased appropriation in the supply bill rendered it possible to begin this important work and

every public water supply in the State has been examined and reported on. These examinations will be repeated at regular and necessary intervals, and where the supply is contaminated the cause will be removed as promptly as possible. Hand in hand with this work goes the

5. *Investigation of All Sewage Disposal Plants.*—The value of a sewage disposal plant depends upon its efficiency. The quality of the effluent tells the story. So every disposal plant has been examined and every effluent has been analyzed. The results of these examinations will be used where indicated to better conditions.

6. *Examination of the Eyes and Ears of School Children.*—Last year you will remember it was stated that the department had in mind the institution of an examination of the eyes, ear, noses, and throats of school children. This, of course, was to be done with the cooperation of the Educational Department.

I am very glad to announce to you that the plan proposed last year by Dr. Schenck, with some slight modifications, goes into operation this fall in 450 high schools of this State. As Dr. Schenck will tell you a little later just how all this is to be done, I will not go into details.

7. *Examinations of New Series of Meats.*—The report of the laboratory on the first series of samples of meat products excited much attention, and had a most excellent effect. A second series of samples of meats has been collected and examined, and the full report will be published in a short time.

8. *Analysis of Beers, Etc.*—A large number of analyses have also been made of beers, wines, and whiskies which will shortly appear in the *Health Bulletin*. No appropriation was made for these examinations, but it seemed necessary to make them and the expense has been paid from the general fund.

9. *Tuberculosis Exhibition.*—Another line of special work undertaken this summer is the Tuberculosis Exhibition, the first ever owned by the State, and the Hygienic Laboratory Exhibit, which is but the nucleus, it is hoped, of a much larger collection. The work of preparing these exhibits has been most onerous, the more so because of limited means, but the enthusiasm of Dr. Pease and his faithful assistants never flagged. It is our purpose to further perfect these exhibits, particularly the tuberculosis exhibit, and use it as a traveling exhibit for educational purposes. It is one of the things most sorely needed by the department. Already we have received many requests from cities and towns to have it sent to them.

10. *Traveling Libraries and Bacteriological Outfit.*—You will notice also in the exhibition here a collection of books and some apparatus for tuberculosis work. These are traveling outfits—the one a small collection of specially selected books on sanitation for the use of health officers, and the other a practical and always ready outfit for bacteriological work to be done on the spot where investigation and action are needed without delay. Although these things may not seem large, yet they are of no little importance because they will add materially to the efficiency of our work.

11. *Special Circulars.*—The very general interest now manifested by the more intelligent citizens of our country in sanitary matters is due not so much

to the general advancement of scientific knowledge, by the arduous labors of students and laboratory workers, as it has been to the dissemination of this increased knowledge. If these discoveries of truth never passed beyond the closed doors of our laboratories, or could only be found between the covers of technical pamphlets, their influence and power for good would be as nothing. They would be mummified truths—embalmed, but not available. Education then must continue to be the watchword. Education in sanitation spells progress in sanitation, and no positive and decisive advance may be made until our fellow citizens are educated to the point where they are generally convinced that the advance must be made.

So we have determined to begin the publication of a series of circulars and pamphlets on topics vitally concerning the public health for popular distribution. Work on the first series has already begun, and the topics and dates of publication will be duly announced in the *Health Bulletin*. It will be a very modest beginning, but we hope these little pamphlets will prove an important factor in our campaign of education.

What may be termed the first one of the series is the very complete and instructive prize essay by Dr. Knopf on the *Treatment of Tuberculosis*. This may be found at the registration office, and a copy will be given to each health officer attending the conference.

These then, my friends, are some of the things we have tried to do since our Syracuse meeting a year ago. Of course, in addition to these lines of work, the routine work of the department, which has quadrupled during the last two years, has been going steadily on.

APPROPRIATIONS.

Efficiency and appropriations—the union of affinities, the one a complement of the other—married by general consent—let no legislature put them asunder.

For it ought to be true, even if it is not altogether so as yet, that no appropriation of public moneys should be made without a definite expectation of efficient and honest public service in return. To the question: What is the expense of a certain line of work? must be added the significant inquiry: "What service has been rendered for that expense?" But there can be no service without means; there can be only inadequate service with insufficient funds; there can be efficiency in its fullest sense when the appropriation is enough to meet actual needs.

The last legislature increased the appropriation for our department by almost \$42,000. The governor allowed every increase asked for by the department and stated that he did so in order to increase the efficiency. This increase of income has enabled the department, for the first time, to begin lines of work that could not be undertaken before because of the expense.

But the appropriation does not as yet, by any means, meet the requirements. The total amount of money available for the department, exclusive of the Cancer Laboratory, is still less than \$100,000. We are still severely crippled in the amount allowed for "Investigations," for the "Division of Engineering," and for the "Division of Laboratory Work." I have no hesitation in stating that the efficiency of the department is materially lessened and its administration

hampered by lack of funds. Pennsylvania for the two years beginning June 1, 1907, has appropriated for its Department of Health—after the payment of the annual salary of the commissioner, \$10,000, and the salaries of numerous other officers, the sum of \$1,459,312—\$400,000 of which is for "the dissemination of knowledge relating to the prevention and cure of tuberculosis." I may add that the appropriation made by Massachusetts also exceeds that of New York. All we want is enough to do thoroughly and well the work that lies before us.

PURE FOOD LAW.

The attitude of the department regarding a pure food law was made so clear at the Syracuse conference that it seems unnecessary to dwell upon the subject now. It perhaps is sufficient to say that the department believes the State should have, without delay, a wise and practical pure food law, and that the enforcement of it should be placed in the hands of the Health Department.

THE CANCER LABORATORY.

It is perhaps appropriate in the city of Buffalo, which contains an offshot of the laboratory division of the State Department of Health, the Cancer Laboratory, for a few words to be said on the subject of this most serious and intractable disease. It might be well if we advised the citizens of the State not to put too much credence in the newspaper reports as to the curability or incurability of cancer.

The laboratory here has been working faithfully and well on the problem of determining a probable cause for the disease. It has not concerned itself with attempting to find a cure. Its work, therefore, may not be popular, but it is scientific, and in the end will accomplish more than would a search first in this direction and then in that for possible remedial agents. When we have determined the cause of the malady there is little doubt that a remedy will be forthcoming comparatively soon after.

It is true that deaths from cancer are increasing, and the situation is a serious one, and the State has a right to impress its seriousness upon the laboratory here, and urge that the money it appropriates shall show results.

In addition to exploiting various cancer cures, some newspapers have done considerable harm by publishing alarming articles on the contagiousness of cancer. Unfortunately the origin of those is to be found among some irresponsible members of the medical profession, who, not realizing the serious nature of their claims, and their far reaching effects upon the general public, have drawn hasty conclusions from insufficient data, and have published in the medical press their immature opinions, more than suggesting the contagiousness of the disease. Such an announcement is eagerly seized upon by the sensational press, and the public, already educated by the physicians and sanitarians to accept specific terms as the cause of cancer, and as the entire infectious character of germ diseases, have proved fertile soil for the spread of the idea that cancer is contagious.

We need to let the public know that there is no sufficient evidence as yet that this is the case.

PUBLIC HEALTH DIPLOMA.

In the spring of this year I received from the secretary of the Medical Society of the State of New York, a copy of a resolution passed by the society at its last annual meeting. The import of this resolution was that it was the opinion of the society that only those physicians should be appointed as health officers who could show evidence of special training in public health work. I want to say that the department is in hearty sympathy with the spirit of this resolution, and is very glad to recognize the interest manifested by the medical profession in this State in matters of public health. There are, however, practical difficulties which must be taken into consideration.

I take it that those who framed the resolution, and were responsible for its passage by the society, had it in mind to secure in this State the adoption of the method in vogue in Great Britain and other European countries, in appointing medical officers of health. Let us consider for a moment the requirements as they exist in Great Britain.

A candidate for appointment as a medical officer of health must be possessed of special qualifications, known briefly as the D. P. H., which stands for a diploma in public health. The examination for this diploma consists of two parts. Before the candidate can be admitted to part one of the examination, he must be twenty-three years of age, and have been a qualified practitioner of medicine twelve months, and after his graduation he must have had six months practical instruction in hygienic chemistry, bacteriology, and the pathology of the diseases of animals transmissible to man. This part of the examination covers the following subjects: 1. Physics in their application to health, and with reference to ventilation and heating, water supply, and sewerage. 2. Chemistry in its relation to air, water, food, soil, and sewage. 3. Microscopical examination of air, water, food, articles of clothing, and parasites. 4. Bacteriology in relation to sanitary work.

Before admission to the second part of the examination, the candidate must show that after his graduation he has spent six months in acquiring practical instruction in the duties, routine and special, of public health administration under a medical officer of health in a community of not less than 30,000, and also has had three months' experience in a hospital for infectious diseases. The subjects embraced in part two of the examination are as follows: 1. Origin, pathology, and prevention of diseases, with special relation to infectious diseases. 2. Effects of unwholesome air, water, and food. 3. Diseases of animals in relation to the health of man. 4. Influence of occupation—unhealthy trades. 5. Influence of climate. 6. Sanitary administration in relation to requirements of houses and other buildings; sanitary engineering. 7. Construction, arrangement, and management of hospitals. 8. Statistics in relation to health. 9. Sanitary laws, including by-laws, orders, and regulations. 10. Duties of sanitary officers.

That every health officer should be possessed with the knowledge indicated in the above outline is a consummation devoutly to be wished. But under the present circumstances it cannot be expected. In the first place, an investigation conducted by the department, has revealed the fact that there is not an in-

stitution in this State offering a course of postgraduate instruction covering these subjects. The prospectuses of the various medical schools show that hygiene and sanitary science are taught to students in their first or second years. The scope of the instruction is not as full as is necessary for the mental equipment of the health officer, if we are to put British standards in force; and, moreover, we all know from practical experience that the subjects taught in the first two years of a medical student's career are considered by him as very largely theoretical, and therefore of not sufficient practical importance for him to make really a part of his medical knowledge. If he retain sufficient to answer satisfactorily the few questions set by the State Board of Examiners he considers he is doing well.

Again, if opportunity were afforded for postgraduate instruction of the character I have outlined, it is a very serious question whether the recompense received by the majority of health officers would warrant them in going to the expense of obtaining a special training.

I want to say, then, to the medical profession in this State, that these two practical obstacles must be removed before the department can adopt for its own the rule suggested by the State Medical Society.

As to the first obstacle, the department intends to do what it can to provide some opportunity for instruction in sanitary science and public health. During the past year sanitary institutes have been held by the department in various parts of the State, which have afforded opportunity for the acquirement of increased knowledge on the part of the health officers. But we recognize that we have only scratched the surface. The division of publicity and education, however, is seriously considering the problem, and I hope to be able a year from now to make an announcement at our next annual conference of plans for some special courses of instruction for health officers, and those desiring to become such. If the department accomplishes this, the medical profession must do its part, and I believe this part can best be the removal of the other obstacle to which I have referred. The organized medical profession in this country has recently shown its power in the matter of fixing the recompense for services rendered, by forcing some of the largest life insurance companies in this country to restore the fee which was granted for examinations prior to the recent enforced retrenchment in insurance circles. I want to suggest that this same power of the organized medical profession can well and rightly be employed in securing adequate recompense for the health officers throughout the State. With very few exceptions these public servants are miserably underpaid. They are the means of saving millions of dollars every year, and a fair premium on this saving would furnish adequate compensation for these faithful public servants. I would like to see the medical society of this State initiate a movement of reform in this matter, and I hope to learn by our next meeting that the subject has been well discussed in many medical circles.

My answer, therefore, to the Medical Society of the State of New York, addressing me on the subject of requiring evidence of special qualifications from candidates for appointment as health officers, is, that the department is willing and anxious

to comply with the suggestion as soon as it is feasible to do so.

TYPHOID AND POLLUTION.

A fact most gratifying to record is that, during the past two years, marked and increasing progress has been made in lessening the pollution of our rivers, streams, and lakes. That public sentiment is more and more actively supporting the position of the department in this important duty is unquestionably due to the general dissemination of knowledge concerning the dangers of unrestrained pollution. It is a striking illustration of the fact that you must first educate and then advance. In some cases you educate by advancing. But in this matter, so far reaching were its consequences, so many important interests, both public and private, were vitally interested, so many difficulties and peculiar embarrassments were in the way, that it was essential that the people should see as clearly as possible the imperative and urgent necessity for this sanitary reform before much progress could be made. That there is now throughout the State a general sentiment that our waters must be purified there can be but little doubt; when occasion arises it must be crystallized, specially informed, and wisely directed.

It is needless now and here to again enter upon an elaborate discussion of the dangers of polluted and infected waters. If we estimate that 20,000 cases of typhoid occur in New York State in one year with 2,000 deaths, the money loss to the State is easily figured. Allowing each life to be worth \$3,000, a low estimate, as the young and vigorous are most often victims, and estimating that 15,000 of the 20,000 cases were men and were kept from labor 40 days, and putting the value of a day's work at \$1.50, the total pecuniary loss to the State amounts to \$7,000,000. We know without telling what misery and suffering were caused by these thousands of cases, what grief and distraction occurred when death entered hundreds of homes; and to this must be added the very serious business loss of a community when the disease occurs in any way approaching epidemic form. Let us remember also the danger of infection by tuberculosis—a danger more serious and grave, I fear, than it is at present supposed to be.

Then, too, when the stream is not infected, the conditions of pollution existing cause a disfigurement of its natural features often peculiarly repulsive. The banks are covered with deposits offensive to both sight and smell; dirty and slimy scum floats on the surface of the stream and accumulates in eddies and coves; the bed of the river is covered with a mass of material that is promptly when disturbed and yields to the grooved nostril a pungent odor peculiar to itself. Fishing is impossible for there are no fish; boating, as a pleasure is destroyed, the banks of the river no longer yield enjoyment. The comfort and enjoyment of the people living along such a stream are impaired and sometimes totally destroyed.

We are all agreed that such conditions should not continue to obtain. The policy of the department remains as announced at Albany two years ago. That the continued pollution of our waters must cease. It does not expect this pollution will cease in a day, not in a year, but it does expect that

within a comparatively short period it will be entirely stopped. When a given case of water pollution presents itself for consideration two questions arise which must be definitely answered before advance can be made. The first question is what is the best and wisest thing to do in order to correct the existing conditions? and the second question is: How is it to be done? The first question the department will always try to intelligently and comprehensively answer. To know what to do is perhaps the most important part in purifying our waters and the department feels it is a clear duty to furnish that information if possible.

The answer to the second question will, it is hoped, correct a great amount of misapprehension as to the powers and duties of the State Health Department under the existing law. It is evidently not the present intention of the State to remove from localities or the individual citizens inhabiting such localities, certain duties and responsibilities relating to health matters. Their powers begin in most instances where those of the commissioner of health end, and under the terms of the present health laws the reply to the second question must be: It must be done by the town or individual affected. In other words, in the majority of cases when the department is appealed to for relief from water pollution or abatement of nuisances, the department may point out through its experts, the proper way to correct these evils; but the town or individual must do the rest. If the town above, on the stream, is polluting the water seriously, the town below must take the active and legal steps in the majority of cases to have the nuisance abated. The department may investigate, declare the existing conditions an intolerable nuisance, and report its conclusions, including the remedy for the evil, to both towns. But in the majority of cases that is as far as it can now go.

The responsibility rests where it ought to rest in many cases, on the shoulders of the local authorities, who are much too willing very often to shirk their plain duty. It is as much the duty of health boards to enforce the health laws of this State as it is that of the commissioner of health, and the local authorities of the towns of this State should shoulder their responsibilities and not attempt to place them elsewhere. The department has no arbitrary powers of the matter of stream pollution. It cannot in the majority of cases, directly order a town to take its sewage out of a stream or direct it peremptorily to construct a sewage disposal plant. It can, of course, through the attorney general, appeal to the courts, but so can the towns and individuals in the majority of cases, and it is the intention of the law as it stands that they shall do so. I am not discussing the value or effectiveness of the present health laws; I am simply trying to make clear their practical working. In a number of cases the department has no doubt been deemed very inefficient and unsatisfactory when it has done all the law permitted and stopped only because the limitations of the law compelled it to.

TYBURN RIVER.

That tuberculosis, such back-combustible and preventable was so well known to Tyburn twenty years ago as it is to-day.

And it may be taken as a most striking illustration

of the slowness with which knowledge filters down from the laboratory and the school to the profession and the public, that not until comparatively recently has such a realization of conditions obtained as to cause an imperative demand for the enforcement of preventive measures. It may be safely said now, I think, that it is an universally accepted fact that some kind of supervision is necessary, opinions only differing as to the extent of the supervision and the manner of its enforcement.

You will undoubtedly agree that there are at present some thousands of our fellow citizens throughout the State in the early stages of tuberculosis who might, under favorable conditions, be kept among the living. I am not speaking now of advanced cases, who must inevitably be soon numbered with the dead, nor of those incipient cases receiving competent care, but of those who are entitled to treatment which they do not receive. Shall the State that houses, treats, and cares for both the acute and chronic insane refuse to consider the needs of those afflicted with tuberculosis? Are the blind, the crippled, and the epileptic to be given State aid and the consumptive refused it? And it must not be forgotten the indigent consumptive in any stage of the disease, unlike the wards of the State just mentioned, is a very constant menace and danger to those with whom he is living. If we admit, then, that the State should take some action, the instant question arising is, What action?

It is indeed a most grave and difficult question and a complete and thoroughly satisfactory answer is perhaps impossible to give at present, nor would I attempt at this conference to suggest even a tentative policy for our State were it not for the overshadowing importance of the subject and a clear conviction that some kind of action should be taken as quickly as possible.

You will remember Pennsylvania has an appropriation of \$400,000 for the dissemination of information regarding tuberculosis, its prevention and cure. Our department has in the last supply bill an allowance of one thousand dollars for the creation of a travelling tuberculosis exhibit. There will be practically no money left when that exhibit is fully completed. But if we go ahead with the courage of our convictions and demonstrate the efficiency of our plans, the money to carry on the work will come.

In this campaign, then, against tuberculosis, the following steps might be taken:

1. *Notification and Registration.*—Without notification it is apparent that any real progress is rendered impossible. You cannot give aid to any consumptive until you know where he is, nor can it be known what help he requires until the case is properly reported and the conditions are described. Every physician in the State should promptly notify his health officer of any case of tuberculosis occurring in his practice, using for that purpose the cards and blanks already provided by the department. The health officer in turn reports all cases to the department. There is no publicity and all such returns strictly confidential communications. This step was begun on January 1st of this year, and while the registration of cases has been fairly good, the step is as yet only half taken. To have it entirely satisfactory we must have the active and cordial support

of the profession at large and more systematic work from some of our health officers.

2. *The Establishment of District Stations.*—The medical officers of the department have been for some little time so selected that it is now possible to divide the State into districts, each one having within its boundaries at least one medical officer.

At some central point in this district a station may be established in charge of the medical officer and should contain a supply of diphtheria and tetanus antitoxine, a bacteriological outfit, report cards and blanks, and a full supply of all the circulars and pamphlets issued by the department on tuberculosis. The station would also contain outfits for the collection of sputum in order to facilitate an early and definite diagnosis. The station and its contents would be an educational centre. The circulars would be for both physicians and the laity, and their distribution would be made by the medical officer and the health officers in the district. The circulars would be sent to the press and would undoubtedly be published. Addresses by health officers before medical societies and popular audiences, organizations of sanitary societies, the sanitary institutes of the department and the use in larger towns of our tuberculosis exhibit, would all prove powerful and effective factors in the fight against the great white plague.

In this campaign of education the department will endeavor, acting with the health officers, health boards, and public spirited citizens, to organize anti-tuberculosis societies whose local influence and aid would be invaluable. For it must be steadily borne in mind that the greatest single factor in the winning of this battle is the constant and persistent dissemination of practical knowledge of the disease, its dangers, and how to successfully combat it.

You have doubtless noted that the proposed stations serve not only as centres from which tuberculosis may be fought, but also as points where the antitoxine of the State Laboratory may be obtained and, in some cases at least, bacteriological examinations made. The necessity for the promptest possible distribution of antitoxine is obvious and needs no comment. It may be said, however, that the high cost of commercial antitoxine seriously interferes with the sanitary control of diphtheria among the better classes. Diphtheria, which now stands fifth among diseases as a cause of mortality with 3,167 deaths yearly, will continue to maintain this position until sanitary authorities and the profession at large are as free to use it without restrictions as they now are to use ipecac or nux vomica.

In its bacteriological work the State Laboratory labors under these two disadvantages; namely, physical inability to make speedy reports and lack of contact with the physician and health officer.

To obviate as far as possible the first difficulty, I have recently issued a notice to the effect that the reports upon the primary cultures from suspected cases of diphtheria and upon the Widal tests for typhoid fever be made by telegraph at the department's expense. This will effect a saving in some instances of twenty-four hours in placing these reports in your hands, and will relieve health officers from the burden of paying for such services out of their own pockets as has heretofore been too often the case. It is not unlikely that a further saving in

time can be obtained in the future by the improvement in the details of the transportation of specimens, such as, for example, a provision for the incubation of cultures while en route.

To obviate the second difficulty, to a slight extent at least, I have had prepared a traveling bacteriological laboratory which will be sent with a trained laboratory diagnostician to those communities in which problems especially difficult of solution arise in connection with these diseases. Already the State Laboratory has conducted one such field investigation in an extended and uncontrollable outbreak of mild diphtheria with, I believe, excellent results.

But these provisions do not entirely overcome the difficulties or make the State routine bacteriological work the ideal method for the diagnosis of suspected diseases in the rural districts.

The local laboratory will always have its superior opportunities for the purely routine work. A movement has been started in this State by one of our most progressive health officers and his colleagues, and has resulted in the foundation of the Ontario County Laboratory at Canandaigua. The legislature passed a bill permitting the county authorities to pay the salary of a county bacteriologist. The building and equipment for the work was generously donated by a public spirited woman, and the small fees obtained for the examinations of a private character which are made, pay at present for the incidental running expenses.

A plan of cooperation between this County Laboratory and the State Hygienic Laboratory has been arranged by the directors of both institutions. Assistance is given by the State Laboratory in connection with those technical procedures where operation in bulk tends toward economy. On the other hand, the County Laboratory reports all the positive results of the examination of cultures, sputum, and Widal tests to the State Laboratory. It would seem most desirable that this plan be introduced in other sections of the State.

Whenever such a laboratory is established, the State department will be prepared to make it a station of the department as outlined above, supplying a certain amount of apparatus, and aiding its efficient operation in every possible manner. I am of the opinion, however, in the development of this new work that provision should be made not only for a permissive cooperation between the county and the State laboratories, but that the county laboratory should be introduced into the public health service on somewhat the same legal basis as now applies in the relation between the local and the State health departments.

To this end I believe a bill should be introduced into the legislature during the coming session, permitting the establishment of hygienic laboratories by counties or groups of counties, and for a proper relation to the State Hygienic Laboratory and the State Department of Health.

It will be seen at once what added strength the establishment of laboratory stations would bring to the fight against tuberculosis.

§ *State Camps for consumptives.*—And now what care should the State give to the thousands of cases of incipient tuberculosis needing help?

Many care is to be exercised if it is plain that it must be as simple and inexpensive as possible; otherwise

the cost of caring for those people would be prohibitive. But we must always remember that we pay for them anyway. Whether we provide proper care or send them to almshouses and charity hospitals and thence to Potter's field, the expense is always ours. Remember, also, that every case removed to a suitable environment ceases to be a source of infection to his family, to his neighbors, and the people in the streets.

I would advocate, therefore, the establishment of State camps for consumptives on State land. Plain board cabins should be erected, fashioned after sanitary plans. A little simple furniture should be provided. The inmates should be required to furnish, when able, all other furniture necessary. Such camps should have a resident physician and patients admitted only after proper and competent examination.

The results attained by such camps in other States and indeed in our own, have been most surprisingly gratifying and the percentage of cases cannot be exceeded. I do not forget the very admirable Raybrook Hospital and the fine results reached there; but the State cannot, it seems to me, commend itself to the policy of erecting such expensive buildings and demanding large allowances for maintenance. The number of consumptives seems to be too great to carry out such a plan, admirable though it may be.

I believe that State camps instituted somewhat as outlined would produce the maximum of results at the minimum of expense.

4. *Local Hospitals.*—There still remain for our consideration the chronic, the hopeless cases of tuberculosis. What shall be done with them? Should the State go as far as I have suggested, it would very probably deem it well to stop there, at least for the present.

Nor ought the State to do all of this work. The cities and towns of this State have responsibilities and duties which they, too, must recognize. It must be their part to care for the chronic cases of tuberculosis. Just how this should be done is a matter for determination by the local authorities. There is no time here to enter upon a discussion of methods.

Some such policy as the one I have tried to explain to you should be at once adopted by New York. I have only been able to present the bare outlines and many important matters have not even been alluded to. All that has been planned could not, of course, be done at once even if funds were available. But even with the little we have, we can begin this work and if nothing prevents I propose to make the first move on the 1st of January, 1908.

FOR THOMAS SWAIN.

He succeeds best who serves best. For success is service, and the greatest hero is the greatest helper. The difference that existed between the greatest emperors of the Roman Empire and the greatest great emperors who ever occupied a throne, is precisely the difference that existed between good men and bad men in the world. The good would advance the world; the other would advance himself. The world would be the other world as well. The community made by private men are but more things that stand out for a moment, but he who serves himself even the best of the world will find some one who will not do it for a moment.

With every true man his work is first, his fee second—very important, indeed, but still second. But in every walk in life there is a class ill educated, cowardly stupid. And with these just as certainly, the fee is first and the work second as with the noble, the work is first and the fee second. And this is no small distinction. It is, as Ruskin says, the whole distinction in a man; distinction between life and death in man, between heaven and hell for man.

"Society," said Burke, in his *Reflections on the Revolution in France*, "Society is indeed a contract. It is a partnership in all science; a partnership in all art; a partnership in every virtue and in all perfection. As the ends of such a partnership cannot be obtained in many generations, it becomes a partnership not only between those who are living, but between those who are living, those who are dead, and those who are to be born." With but slight changes in phraseology this beautiful and impressive statement applies with great exactness to our organization. It is for us with great opportunities for efficient service before us, to bear this partnership into which we have entered, constantly in mind. It lies with us to illustrate the meanness of an education which produces learned shirks or selfish skulkers, or to illumine the perfection of a rounded culture with the radiant light of devotion to humanity. If difficult problems confront us, so much greater becomes the opportunity to solve them. If great obstacles are in the way, the greater glory to remove them. The watchword is service. This it is that crystallizes our belief that enthusiasm and faith are the precursors of great deeds. As Dr. Van Dyke says, it impressively embodies our conception that the greatest success for a man, the only one at command, is to bring to his work a mighty heart. For it is more man that we need. Recent developments and discussion have driven us back upon the old, old truth—that only personality is the solution for the times—that all of the world's needs are embodied in its need for manhood.

About the plain and clear duties before us to perform we should have settled and fixed convictions. A man without convictions is a man of blubber. I do not say beliefs, opinions, views; all these are chaff in comparison. I say convictions so intertwined with his whole intellectual being, so coloring every thought, plan, purpose, labor, that they can no more be separated from them than his own existence can be separated from them. They should be seen and felt as powers wherever he goes; not because he is sounding a trumpet before him proclaiming their presence, announcing their glory, but because they are an inseparable part of his own personal character as the sun's brightness is of the sun's. So shall we labor that what come, to us as seed shall go to the next generation as blossom and that which come to us as blossom may go to them as fruit.

But in this fight in which we are justly engaged, the Empire State sends to us her message:

Have you heard it?

"On the night of July 2, 1863, after a bloody battle, a council of war was convened by the commanding general. The corps commanders present expressed their views. Slocum, being the ranking officer in the council, was the last to reply. He said: 'Stay and fight it out.' Slocum was not an orator, but no orator made a better speech. It was brief

like Cæsar's *veni, vidi, vici*, but it told the whole story. Stay and fight it out was the advice given by the Council to General Meade, who was not satisfied with his position at Gettysburg. The army of the Potomac did stay and fight it out, and the victory gained is the last comment that can be made."

That is the message of the Empire State—"Stay and fight it out." And on the unsullied surface of the scroll that shall record our advance during the coming year, first of all let us write across it in living letters of light the motto of this conference,

"STAY AND FIGHT IT OUT."

Original Communications.

PHYSICAL DEFECTS OF SCHOOL CHILDREN, CAUSING SUBNORMAL AND MENTALLY DEFICIENT PUPILS.*

By S. W. NEWMAYER, M. D.,
Philadelphia.

I regret that the short time allotted to the reading of a paper admits of my giving only an abstract on this important subject. This paper is chiefly a plea for the early recognition of physical defects in school children, causing mentally deficient, backward, subnormal, or morally retarded pupils.

This subject has caused some interest for the past ten or fifteen years abroad and in this country. This interest consisted mainly of theory evolved by educators and psychologists, but it remains for the medical profession to join forces with these other professions, to place the practical application to the subject. As early as 1888 England, realizing the importance, appointed a commission to conduct an investigation into the average development and condition of brain power among school children, and the physical defects which would influence their mental condition. Various cities in this country, in the past ten years, have had prominent psychologists study the subject. In Philadelphia, at the University of Pennsylvania, Dr. Lightner Witmer, with his associates have done extensive work along these lines. Mr. Allan Latshaw, with his classes of industrial training, has accomplished considerable.

A mentally deficient pupil is one who is so far behind the normal child of a similar age, in the development of its mental faculties, that it is unable to acquire a normal education. There have been various methods of classifying mental defectives, most of these classifications have been based on the grade in school, occupied by a pupil at a certain age. Compulsory education forcing a child into school at the age of seven or eight years, and allowing a year to a grade, the child at nine years should be in the second grade, at ten in the third grade, and so on until at fifteen he should enter the high school. For various reasons to my mind these classifications are erroneous. "Time in grade" is one of the best criterions of backwardness. A child who spends three or more years in one grade, through which the average pupil passes in one school session, gives conclusive evidence that he is mentally deficient. Dr. Oliver P. Cornman, one of the district superintendents, furnishes us with the following statistics of the findings in the schools of Philadelphia: In 1906,

* Read at the meeting of the Medical Society of the State of Pennsylvania, held at Reading, Pa., September 25, 1907.

there were 13,830 pupils between two and three years in one grade, and 792 pupils three years or more in the same grade; or 10.6 per cent. of the total enrollment were two years or more in the grade. These seem large numbers, but can be proved considerably lower than a more accurate count would show. Retardation is shown greater in the primary grades, especially the first three. The 792 pupils who were three or more years in the grade are the ones who especially require our attention. At the close of school, June, 1907, 9.9 per cent. of the total enrollment in the public schools were found to be between two and three years in the same grade; and 0.4 per cent. were three or more years in grade, 10.3 per cent. were thus two or more years in the same grade.

Defects are either inherited or acquired, and these subdivided into: Imbecile; feeble minded; mentally deficient; backward or dull pupils; and those suffering from minor defects in acquiring certain subjects. There are no sharp lines of demarcation, and one runs into the other, making it one of degree only. An idiot, imbecile, or feeble minded through inherited defects of brain, cannot be made a genius, and some of the mental abnormalities cannot be ameliorated sufficient to place the child safely in school or society. Here the institutions for feeble minded are the proper places of abode. However, it has been stated that of the inmates of an asylum for feeble minded, 25 per cent. can be made normal men and women, by the correction of physical defects, and proper training; also 40 per cent. can be made half normal. Think of it, 65 per cent. can be made wholly or partly useful and self dependent citizens with some mental and moral status. I venture to say that 80 per cent. or 90 per cent. of those suffering from minor mental defects can be saved by the correction of physical ailments in their early school days, and proper training in the school room. Two hundred and seventy-five millions of dollars spent annually in this country, and seven tenths of this is self imposed or local taxes, to give to the children a normal education, and many are losing the opportunity of becoming valuable citizens, because of mental defects which could be corrected. We know that all children cannot be made equally bright and intellectual, but we can and should place each child in a physical condition to use his entire capacity at acquiring an education. All children labelled by the teacher as defective are not so, and we must not mistake for such, the children seemingly defective because of wrong home conditions, or faulty system, or incompetent teacher. An educational system must be elastic enough to reach nearly alike the mental capacity of the slowly progressing normal child and the precocious one. The teacher may lack the opportunity or the patience, to study the best methods to impart knowledge to each child as an individual. Teaching can no more be accomplished by a set method or system for an entire class, than the cure of all cases of typhoid fever by a routine treatment. Each pupil is a case in itself.

The chief factors which may cause mental deficiency, backward or subnormal pupils are: Fatigue or chronic exhaustion; starvation; toxæmia; nervousness; defective vision; defective hearing; and defective speech.

Chronic exhaustion or fatigue from whatever

a cause is sure to produce a backward pupil. It may be due to home conditions as late hours, the use of drugs or narcotics, or tobacco. There may be some physical condition producing sleeplessness, or disturbed rest at night. The strain from a defective vision or hearing is important. A child may be required to work after school hours, and possibly late in the evenings. Such children are unfit for their school work.

Toxæmia.—Constipation in children produces an autointoxication, headaches, sleeplessness, and nervousness which unfits the child for study. Much harm is done by a teacher refusing a child permission to go to the toilet, especially if a child asks several permissions a day. The teacher should not be the judge in these cases. Another form of toxæmia, that of rheumatism or uric acid diathesis, is oftentimes overlooked in children. Frequently a child complaining of pains in the limbs is taken to a physician and the parents are given such antiquated expression as "the child has growing pains and will outgrow it," and a serious condition goes untreated. Ill tempered and vicious children are frequently found to be cases of uric acid toxæmia. Cigarette smoking or the use of alcoholic liquors result in a toxæmia producing mental dullness. Possibly under this heading should be considered syphilis. This is more frequently found than we would ordinarily suspect.

Starvation, whether from improper or insufficient food, or from a constitutional disturbance which impairs of nutrition, is of great importance. An ill nourished child or one who habitually comes to school without its breakfast cannot expend the necessary energy required for an education. Drunken, careless parents as found among the lower classes, are apt to neglect their children in this manner. Poverty and pride may cause a weak anæmic child to attend school regularly and make a brave effort to obtain an education under these adverse circumstances. Where a child is weak and anæmic due to some constitutional disturbance, the child is unfit for school, and the physician should urge the parents to keep the child at home, as it would profit more by fresh air and treatment. To-day we realize more than ever the necessity of healthful exercise in the schools. Where formerly we were content to allow the class fifteen or twenty minutes recess a session, now we employ competent teachers of physical culture, and a systematic training is afforded each pupil. A much needed reform in our educational system is the abolishing of all home exercise. The child devoting five or six hours daily to school work is taxed as much as their brains and physical capacity will stand in these early years. The child should be devoting the after school hours to healthful pleasure and exercise.

Nervousness may cause minor or serious mental deficiency. Under this term I desire to hold separate and distinct those major nervous conditions such as epilepsy and chorea, also those nervous states secondary to defects of vision, hearing, or speech. By nervousness I mean that state of nerve unbalance that allows of irregular and restless movements. Such movements are found frequently in the infant, and only as the infant grows old enough to use its arms and legs are these movements coordinated and of a purpose. In children at a school

age it is the return of these infantile movements, to which I refer as nervousness. The mental capacity is mainly judged by movements or the results of movements as expressed in speech, writing, or gesture. The coordination of these movements are the signals of the condition of the nervous system. It must not be inferred that all children suffering from nervousness or even the major lesions as chorea are mentally deficient; on the contrary, many of these are well developed and intellectual, and some are even precocious. A picture of the nervous child would be thus: Asymmetrical balance of the body, feet unequally planted, or faulty posture if seated at a desk; left shoulder drooping and on a lower plane than the right; fingers twitching, hands opening and closing, and possibly playing with some of the wearing apparel; frontal muscles or those of the jaw twitching; eyes unfixed and roving from object to object; possibly a grinding of the teeth; ask the child to hold his arms straight out, and with a quick movement he extends them unevenly and the hands droop at the wrists; tremors are visible as he tries to steady the arms, while he shifts the weight of the body first on one foot and then on the other. Examination shows a spinal curvature, a possible lordosis, and ofttimes a poorly nourished body. These pupils are frequently absent from school resting their outdone nervous system, as they are easily exhausted. They are subject to severe attacks of headaches. In all children suffering with nerve signs, a thorough physical examination should be made to find a possible underlying cause, such as eye strain or nasopharyngeal obstruction. Severe nervousness is sometimes found to be due to a reflex irritation as from an adherent prepuce, intestinal parasites, etc. The habits and home conditions must be studied, as late hours, irregular meals, frequent use of coffee, sleeplessness, insufficient exercise, and too close application to reading or study. In those cases which present no apparent physical defect and even after the correction of these defects much can be gained by both parent and teacher giving to the overwrought child a continued quiet training. These are the cases that receive from teacher and parent scoldings and punishment for these uncontrollable outward signs of nerve unrest. It is a frequent occurrence when a parent's attention is called to the continuous twitchings of the muscles of the jaw, eyelids, or forehead, he answers: "Oh, that is nothing but a habit he has had all his life." And to go to a physician after much persuasion, and have the diagnosis confirmed with "the child will outgrow it," is an unpardonable mistake of the profession.

The three great senses, defects of which are the important factors in backward, subnormal, and mentally deficient children, are vision, hearing, and speech. To a child suffering with any of these defects everything is fatiguing, and fatigue of itself is a cause of deficiency. That errors of refraction exist to a great extent among school children needs no repetition. This has been investigated so often and accurate statistics furnished, that no additional investigation can materially alter the consensus of opinion on the subject. Various cities and various countries report proportions of defective vision ranging from 25 per cent. to 50 per cent. of the school population. The question is how many of these children with such defects untreated can be considered

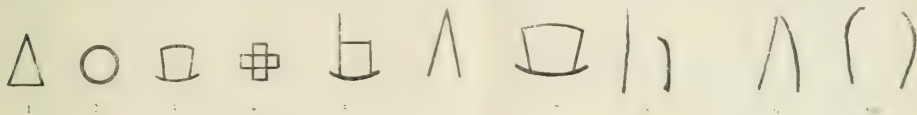
mentally deficient or subnormal? I should say all, for a child that cannot see correctly must get wrong impressions, and make wrong conclusions. He is usually deficient in writing, reading, and spelling. Again headaches, whether due to an error of refraction or muscular unbalance of the eyes, causes a languid, nervous, and inattentive pupil. Cases have been reported in which are found good vision, no strabismus, no great refractive error, and yet the investigation of the muscular status shows that a latent hyperphoria was sufficient to incapacitate the child. Here I would state that most of the statistics of investigation of the condition of the eyes of school children are based upon the common practice of allowing the pupils to merely read from a Snellen test card at a set distance. The child may see the smallest letters, and yet it is no sign that the child's vision is normal. The range of accommodation in children is great, and while one may discover the gross manifest errors, the important latent ones are overlooked. The duty of a physician in every child which is brought to him suffering from constant headaches, nervousness, indisposition, and dullness, should be thoroughly examined under a mydriatic, for both refractive and muscular errors, and these should be immediately corrected. It remains for the medical profession to overcome the widespread ignorance that children should not wear glasses because "by wearing them early the child will always have to wear them," or "we (the parents) never wore glasses." In later life they fall victims to the traveling salesman, or the fake optician, though even these do some good in some cases, in that they correct some of the errors, by supplying glasses. The medical profession stands idly by and encourages this fake oculist work by neglecting to diagnosticate cases of defective vision in children.

Realizing that the only true idea of the subject could be obtained by the use of a mydriatic, and desiring to obtain the worse cases with the most glaring defects, I requested the teachers to send to me those children whose work was subnormal due to a possible defective vision. The following statistics of two hundred and fifty pupils examined under a mydriatic may prove interesting. All of these cases were carefully refracted with the ophthalmoscope and retinoscope. Only twelve ever wore glasses before. All obtained the necessary glasses. Number of cases of strabismus, 27. Of 185 examined for muscle balance, there were 41 cases of hyperopia. Number of cases of hyperopia, 60; number of cases of myopia, 26; number of cases of astigmatism, 164; hyperopic astigmatism, 86; myopic astigmatism, 45; mixed astigmatism, 33; astigmatism with the rule, 80; astigmatism against the rule, 67.

To give a detailed description of the school life of each of the mental defectives, due to defective vision, would mean much repetition. However, I cite the following as an example, because it is one of the more recent cases, and the details are clearer:

Mary D., age eleven years; nationality, Italian; in this country two years; in first grade sixteen months. Sent to me by teacher with a note: "This child cannot talk; apparently dumb, as it makes signs and motions for everything it wants to say, and in answer to all questions." I asked the child: "What is your name?" "Mary," she answered in an indistinct whisper. "How old are you?" and several other questions, elicited nothing but nods of the head and shrugging of

the shoulders. The entire time while being questioned her face was set in a silly grin, and she nervously took hold of my coat, systematically played with each button, as though counting. As she had a very marked squint, I believed her eyes were one of the offending members. She seemed to know no letters, or figures, and unable to follow an illiterate test card. I held up two fingers a few feet from her, and asked how many fingers? She answered "four." To three fingers she answered "six." As this was as much as I could get her to answer, I was not prepared to say the child saw double. On being handed some objects as pencils, she made no effort to count. Thinking possibly the child was unacquainted with our language, I called an Italian boy, and had him speak to her in Italian, and asked her to answer in Italian. This did not succeed, as she answered one more question, the name of her father. I pointed to her teacher, and asked "Who is this?" She answered correctly and distinctly, but in a whisper. She accomplished the same in reference to the principal.



I wrote on the board the following, and with the child seated about fifteen feet away, I asked her to copy. A normal child seated near her was also asked to copy the same, which was done correctly:

The abnormal child made no effort to copy 1, 2, 3, or 4, which were drawn six inches high and wide. But figures 5, 6, and 7, which were drawn three feet high and wide, were copied as shown in figures 8, 9, and 10. The child seemed not to see or draw horizontal lines.

This case proved a marked mental deficient due to defective vision, but it remains to be watched for a few months to see how much the vision was at fault.

Normal hearing is necessary to a normal education. Defective hearing may be due to some chronic condition as an old inflamed drumhead. It may be due to some occlusion of the external auditory canal, as impacted cerumen, or polyps, or boils, congenital atresia of the canal does occur. Perhaps the most frequent and most important is acute or chronic otitis media. That this serious condition does not receive the necessary treatment from the general practitioner is told by the great number of cases of undischarged ears found in the classrooms. Parents believe of themselves or are informed by a physician that the discharge will stop of itself, and it requires no treatment. Little is dreamed of the number of children thus hampered throughout life, and possibly the number of lives endangered. There were found in the public schools of Philadelphia by the most competent persons, in 1904, 780 cases of middle ear disease, and in 1905 there were found 825 cases, and in 1906 cases of defective hearing.

I venture to say that no small percentage of the cases reported and deaths from so called carbonic acid mania, are nothing more or less than cases of mania due to an excessive amount of an influence from an acid or carbonic acid gas. We send our forces, that this is the most average of the feelings and brain about the pathos purpose of the tropical zone, which is formed from the most of about twenty-five different causes, is easily subject to a local injury and

at one or more of these unions. This is readily proved by examining a number of skulls of children. Again, it is often found among temporal bones, that the layer of bone separating the middle ear from the meninges is as thin as paper. There are little deductions to be made to see that a discharging ear, filled with streptococci and other microorganisms, if blocked from the numerous causes, would find a least resistance to the meninges. As we know, the symptoms and signs would be those of cerebrosplinal meningitis.

It is needless to explain the relation of a defective hearing and a deficient mental condition. This condition oftentimes exists unbeknown to the teacher or parent. Defective hearing is frequently associated with nasopharyngeal obstruction, as adenoid growths. These pressing on or near the Eustachian tube may cause an extension of inflammation and stenosis of this tube, and improper aeration of the

middle ear. I recall the following case found in one of the schools:

A girl of fourteen years, two years in the second grade, and three or four years in the first grade, promoted to second grade only because the teacher was ashamed to keep her any longer. This child was found on examination to be almost entirely deaf, and also to have a defective speech. She deceived the teachers, as well as possibly the parents, by guessing at everything said to her, using the movements of the lips as a guide. This child on examination was found to have a bony growth as well as adenoids entirely covering and obliterating the Eustachian tubes. This was the cause of both defects, and proved so, as after operation the child greatly improved.

Normal speech, by which I mean speech devoid of marked defects, is necessary to mental and physical development. It also influences in later life one's social status, as it is the avenue of conveyance of thought. Speech is the product of the entire respiratory tract, and abnormalities along any part of this tract may cause a defect. The first act in proper speech is inspiration. This deep intake of air brings the thorax and its muscles into action, and the exhaling and moulding into shape by the various other organs set the vocal cords into action and produce the required speech. The speech may be defective due to the child not taking this inspiration or such an incomplete one that the words cannot be properly moulded. Malnutrition or anemia may cause a lack of strength, and the voice is weak and inaudible. The vocal cords may be at fault due to such factors as inflammation, congenital. Probably the most common and important is nasopharyngeal obstruction. Under this head may be included chronic catarrh of the nasopharynx, a chronic coryza with or without secretion, nasal polyps, spurs, deflections, or thickening of the mucous membrane of the superior meatus.

are naturally sensitive, and would possibly lose thereby their ambition to succeed in overcoming the defect. These special classes should not have more than ten or fifteen pupils, and a specially trained teacher, who would study each child's failings, and devise methods for training. She must be resourceful, patient, and practical. The child should receive individual instruction, and should be returned to its regular class as soon as improved sufficient to continue with its classmates.

I firmly believe that "in every child the good and normal health is responsible for the good he does, and disease and physical defects are responsible for the bad he does." Truancy, child labor, the juvenile criminal, and the moral and mental defective, in greater part have their origin in the unrecognized, unattended, physically defective pupil.

In a truly civilized country, the people as a whole should be protected against their own ignorance and superstitions, not only in contagious diseases, but in the handling of all disease.

I would suggest that a law be enacted which would compel every child before being enrolled into school to undergo a thorough physical examination, and accurate records furnished to the bureau of education, especially as to the condition of the eyes, ears, and nasopharynx. Any defect which would seriously interfere with the child obtaining a normal education should be corrected before the child is enrolled. This thorough examination could avoid frequent examination from year to year.

Most physicians would be amazed to watch the improvement in some of these cases found in our public schools. The work in Philadelphia has received an impetus in the past summer by the establishing of a Hospital School by Dr. Lightner Witmer, of the University of Pennsylvania, who has spent many years studying and treating mental defectives. There have been added to the public schools of Philadelphia, this month, two special classes for defectives.

This paper could be made many times as long, by detailing the methods of examination, and the various conditions found, as well as citing many studies of individual cases, but the time allotted allows only of an abstract. I tried to confine myself mainly to facts, to give an insight to the importance of the subject, and arouse some interest on the part of the medical profession. This subject of the mentally deficient, backward, subnormal child is one of vast importance to the future social and moral standing of our country. The physician has his duty to perform in the early recognition of defects, and proper treatment for their correction. Picture this friendless and dependent child, scolded and unkindly treated by a teacher, jeered at and ridiculed by its classmates, and then going home to parents for undeserved punishment. Finally rejected from school, driven out or possibly culled from treatment punishment, he seeks another school and repetition follows until the few years in early life allotted to schooling have vanished. Possibly then the child unattended, misunderstood, ends its career in an asylum, or prison, a public charge, because of the neglect of some one.

PROTECTION OF PATIENT DURING ROENTGEN EXPOSURE.*

By RUSSELL H. BOGGS, M. D.,
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The danger to the patient of prolonged Röntgen ray exposure has attracted considerable attention from the medical profession, and as it is apparent that conclusive data are obtainable upon this subject, the Executive Committee requested me to collect something definite for this meeting. Therefore, I will bring this very important subject before you for discussion rather than attempt to lay down any rules to be followed. Methods of protection and precaution in using the Röntgen rays vary but little among those who are familiar with this branch of medicine, but there are still some physicians who use the rays carelessly, and evidently do not realize that they are employing a powerful agent.

At the last meeting of the American Medical Association there was a physician who made the statement that "he employed the Röntgen rays without any of the necessary precautions and had never had any bad results." We all know that his experience was very limited, as good luck will not follow everyone who disregards the laws of physics and the physiological action of the rays on tissue. On the other hand, there are a few physicians who have seen one or two undesirable results from the rays, and from their limited knowledge they assume that the Röntgen rays are dangerous in the hands of everyone. Of course such assumption, based on such unreliable information, is not only worthless, but misleading.

As late as last winter a very severe x ray burn was produced by making a radiogram of the clavicle. The patient weighed less than one hundred and twenty-five pounds, and in five days something over three hours' exposure was given. On another patient who had been treated for tinea tonsurans, a permanent alopecia had been produced. In this hospital the resident physician did the x ray work, and as this was one of the first patients he had thus treated, and as he had never had any instruction, except shown how to turn the switch, tell the time and tube distance by a member of the staff (who also had never operated an x ray machine) and had no knowledge of the amount of current going through the tube or the degree of its vacuum, is it surprising that a permanent alopecia was produced? In the first case treated by another operator, after he had given about thirty treatments and no effects had been produced on the skin, he decided that this patient had an immunity to the rays, and the treatment should be discontinued. Many similar illustrations would show that everyone taking up Röntgenology should do as in any other specialty, prepare himself to do work up to the standard.

I sent a circular letter to forty Röntgenologists asking the following questions:

1. How do you limit the area irradiated in treating a patient?
2. Means of clinically measuring the dose employed?

3. What results have you obtained in the treatment of the skin and mucous membranes from the action of

* Read at the meeting of the American Association of Radiologists, October 1, 1907.

the skin with ten milliamperes of current passing through a Walter six tube or its equivalent?

Thirty-four answers were received. The answers showed that, while the methods varied considerably, all of these physicians were using about the same means of protection for their patients.

The following is a summary of the answers received:

1. The irradiated area in Röntgen treatment is limited by tube shields and diaphragm of various makes and descriptions. The metallic composition shield, the lead glass shield, and the rubber composition tube shield are the ones mostly in use, and, when further protection is necessary, lead or tin foil with holes cut to the shape of the lesion under treatment is used. Price's opaque cloth is in favor with many operators. Dr. Pfahler's answer to this question included: "I cover my tube with a lead glass shield, which cuts off, I believe, all of the soft rays that ordinarily effect the skin, and probably one half to two thirds of the total quantity of the rays given off from the tube."

2. Means of clinically measuring the dose employed? The answers included: (a) Length of exposure; (b) distance of anode from surface; (c) vacuum of tube, estimated by length of equivalent spark gap, Walter skiameter, Benoist penetrometer, etc.; (d) milliamperemeter; (e) judgment and clinical experience.

3. With the tube placed at twelve inches from the surface of the skin with ten milliamperes of current passing through the tube, and tube reading, Walter Six, or its equivalent, how long would you consider a safe exposure within twenty-four hours and how soon could this exposure be repeated?

This only pertains to radiography and must be modified with the urgency of the case. The average time for the same portion of the body, providing the tube reads Walter Six all the time during exposure, was between three and three and one half minutes without a filter and five minutes when a sheet of aluminum or leather was interposed between the patient and the tube, and if the skin showed no effect of the rays, one half the amount of exposure could be repeated in ten days.

The letters showed the necessity of this society adopting a standard penetrometer and also the advisability of appointing a committee for the purpose of comparing standards and reporting at each meeting. At present at least two standards should be used, the milliamperemeter and the penetrometer. While neither are accurate, and experience certainly exceeds any standards of measurement we have at present, the most scientific methods should be employed, not only because our results will be more uniform, but we will be in better position to study and compare technique. Many of the writers were not familiar with the reading of the Walter Six tube or its equivalent to the Benoist scale and quite a few had never used a milliamperemeter.

The value of x ray filters has been overlooked by many. In treating deep seated lesions the patient is not properly protected unless filters are used, nor can the same results be obtained. Dr. Pfahler presented a very interesting paper at the last two meetings of the society, and as it has been used so extensively everyone is familiar with the leather filter

aluminum filter. Other material can be used, but the leather and the aluminum seem to have the preference.

The importance of tube distance in order to protect the skin when treating deep lesions must not be overlooked. I described this in a paper at the meeting in 1905. In regard to the safety limit I will quote a paragraph from Dr. Williams's paper read before the society in 1906. By experience I have found that about ninety minutes is required to produce an erythema on the surface two inches from the anode of a tube of medium penetration, the milliamperemeter reading three quarters of a milliampere.

With this knowledge and the knowledge of inverse squares Dr. Williams constructed the following table:

Distance. Inches.	Relative intensity.	Safety limits. Minutes.
2	1.000	25.00
4	.250	6.25
6	.111	2.77
8	.062	1.56
10	.040	1.00
12	.027	.69
14	.020	.51
16	.015	.39
18	.012	.30
20	.010	.25

The safety limits are about 30 per cent. less than the number of minutes required to produce a decided erythema. The table also shows the relative intensities of different distances so that if a number of exposures are given at different distances they can be reduced to the equivalent of a common distance and the total number of minutes then added.

I believe, this is without a filter, if the soft rays are filtered out, it would require more energy to produce the same amount of reaction, but then it would be deeper.

Susceptibility of various tissues to the Röntgen rays must be borne in mind in protection of the patient, and as time will not permit a review of the work which has been done both in this country and abroad, I will only describe the physiological action of the rays in a general way. It is generally conceded what changes (both general and microscopic) tissues undergo, the effect seems to vary from stimulation to complete abolition of the vital principles.

When healthy structures are exposed to the action of the rays the primary changes of degeneration and destruction of epithelial cells have been found to precede proliferation of the connective tissue, the vascular changes being a late manifestation of irradiation.

Heinecke's experiments, showing the destruction of the Malpighian corpuscles and cellular elements of the spleen, has been confirmed by many, and illustrates the influence of the rays on organs built up of lymphoid tissue.

The stage of maturity to which the cells have attained has a decided influence upon the cellular reaction. Dead cells are unaffected, fully matured cells are resistant; the more embryonic forms of cells are very easily affected, a retardation in development preceding degenerative metamorphosis.

Lepine and Bold have shown that the glycogenic function of the liver, as well as the cells, is affected by irradiation. Tilden Brown, Albers-Schoenberg, and Friben, among others, have shown the specific influence of the x ray upon the reproductive organs.

From his experiment Schultz concludes the following: The Röntgen rays exercise their chief influence on the cellular elements of the skin. The cells are attacked first and undergo a slow process of degeneration, whilst the connective tissue, the elastic tissue, the muscles, and cartilage are but slightly affected, the change in these tissues being secondary to the cellular degeneration and to the inflammatory process of reaction. The degeneration primarily attacks the cells of the epidermis, afterwards, in less degree, the gland cells, and those of the muscle and connective tissue.

The phenomena of degeneration are variable, and extend to the muscles as well as the body of the cells.

When the process of degeneration has attained a certain degree, phenomena of inflammatory reaction set in. These are manifested by dilatation of the vessels, serous infiltration of the tissue, and a migration of the leucocytes, which often results in considerable infiltration.

Wherever a considerable degree of cellular degeneration occurs as a consequence of intense irradiation, the leucocytes flock thither en masse, and aid in the complete destruction of the injured tissue.

The lesions, both of the larger vessels and of those of smaller calibre, play a most important part in the production of the Röntgen ulcer, and explain the extremely slow course of its reparation.

From these statements it can readily be seen what changes take place and also the importance of protecting organs which are easily influenced by the Röntgen rays, among which are the reproductive organs, spleen, liver, kidneys, thyroid gland, and in fact any of the organs made up largely of epithelial cells.

Muscle, cartilage, and bone are not easily influenced by the rays, and for this reason the amount of radiation which cause destruction of a gland will not seriously injure muscle cells.

Strong exposure to the rays will produce more or less waste in the tissue depending on the susceptibility of the patient, also according to the part of body exposed and the quality and quantity of radiation. The Röntgenologist when treating large masses should be careful that more waste is not produced than can be eliminated by the natural processes. The condition of the patient as regard the eliminating organs should always be determined before and during a course of treatment.

The amount of surface exposed should be considered. Where large areas are exposed the same amount of reaction cannot be produced as where a small area is under treatment. While toxæmia has been produced when treating lupulous cases of carcinoma, it should be understood that this can be avoided by a slower process, and also that the urgency of the case may demand radical treatment just the same as in surgery.

That a ten or fifteen minute exposure of the hand with any apparatus we have at present will produce any systemic effect does not seem reasonable, nor is there sufficient clinical evidence that such can be part in a single case, although one or two cases of toxæmia have been reported. Many cases have had similar symptoms which have never been near an x ray machine.

The following letter of Dr. Boyce, which he has given me permission to publish, serves as a good illustration:

DEAR DR. BOGGS:

The case to which I referred in conversation with you the other day, was that of a man, aged fifty-four years, who on March 14th received a severe bruise, or rather, a crush of his left knee. When I saw him the swelling was very great and it was impossible to determine whether a fracture was present or not. The next day I telephoned to you, and in your absence tried to arrange with Dr. Bradford to take a radiogram of the knee. On account of the flood prevailing in Pittsburgh, the electric light current in your office and in the patient's hotel, was out of commission, and it was not convenient to remove the patient to a hospital. Subsequent progress of the case showed there was no fracture. On the 25th, ten days after I wanted the x ray examination, the patient had a rise of temperature which was due to pleurisy. On the 29th his condition was worse than the pleurisy warranted. The examination of the urine showed a moderate amount of albumin and a number of granular casts. He died of uræmia coma on the 31st.

The microscopical examination indicated that his kidney lesion had been of considerable duration. I had been his family physician for several years, but he had never consulted me for any personal symptoms. If I had succeeded in getting a radiograph the day I wanted it, I certainly should have attributed the subsequent uræmia to the action of the x ray, and would probably have reported this case as an illustration of the dangers of your branches.

Yours very sincerely,

Dr. J. W. Boyce.

315 EMPIRE BUILDING.

DIET IN TUBERCULOSIS.

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As our confidence in the therapeutic efficacy of drugs declines, we turn to those natural agents which throughout the history of the human race have maintained life and health, and probably none of these has come to occupy a more prominent position than diet. When there is derangement of the digestive organs, it is obvious that the question of food should be all important, but it is now believed that diet and its modification is of great importance in many other diseases in which the pathology is not to be found in the alimentary system. The prominence of diet in the treatment of this disease recommends itself to our judgment, and is supported by abundant clinical experience; it is not, therefore, unique that in the treatment of disease the question of food and nutrition should be of some importance. In fact, I believe, I only voice the prevailing sentiment of the profession when I say that food is the most important factor in the treatment of this disease. However, I must not be understood to mean that it is the only factor. There are a host of other factors in the therapeutics of tuberculosis for hygiene, climate, environment, medication, etc.

The food of tuberculosis patients has been treated by the profession three considerations, each of which has had an influence in determining the kind and quantity of food recommended. These I shall briefly discuss in turn. They are:

1. The certain stimulus of food have a specific effect

tion in destroying or antagonizing the *Bacillus tuberculosis*.

2. That nutrition should be improved and judiciously pushed to its utmost limitations.

3. That the diet should be such as would reduce autointoxication to a minimum, and that it should be free from the *Bacillus tuberculosis*.

For many years we believed that some hydrocarbon, especially codliver oil, was an antidote to this organism, but there has never been a shadow of a proof, either *a priori* or *a posteriori*, for this belief. The gain in weight in some cases is undoubtedly due to the general improvement in digestion and nutrition and not to any specific action of the oil. A certain amount of fat is necessary to the digestion of the starches, and consequently when it is below normal nutrition must be faulty. When such condition is found in a tuberculous patient codliver oil or some other easily emulsified fat is indicated. But this is not a specific action of codliver oil against the *Bacillus tuberculosis*. Upon the same kind of fallacy a specific action was asserted for the meat diet and later for vegetable juice. However, the therapeutics of tuberculosis is getting beyond these perfectly unsubstantiated ideas. Nevertheless, there is a view which is receiving considerable attention at the present time, and which I believe to be as fallacious as these and probably more pernicious. I refer to forced feeding. This dietetic measure is advocated under the very alluring descriptions—nutritious, liberal, increased feeding, and then the particulars of a daily dietary sufficient for two strong men at hard labor is subjoined. There is a sort of blind belief held by men, otherwise scientific, that in some unaccountable way, by the feeding of greatly increased amounts of highly nutritious food tuberculosis will be swamped. But we know that the digestive capacity of these patients cannot be ignored in this way. Even a perfectly healthy man cannot, with impunity, greatly increase his diet without suffering serious consequences. But as a matter of fact the digestive apparatus of every patient with incipient tuberculosis is defective. This is the view held by King, of London, and other recent authorities. It is therefore absurd to advocate a large and nutritious diet for these patients without investigating and considering their digestive possibilities.

Accordingly I may sum up the first consideration by saying that there is no article of diet or method of feeding which can be recommended as having a specific action in the treatment of tuberculosis.

Having abandoned any specific action of dietetic measures we come to the consideration of the second point. What can be done for the digestion and nutrition of these patients? This is, as I have already stated, a very important question. I wish to repeat the view that is held by many of the best authorities on the subject (that every patient with incipient tuberculosis has impaired digestion and malnutrition), not only a temporary disturbance in consequence of the fever and toxæmia, but a persistent and radical defect which must have continued for a length of time before the *Bacillus tuberculosis* could have gained a foothold in the system. In other words, faulty digestion and malnutrition form an ætiological factor in every case of tuberculosis. This is a problem that must not be ignored. In fact, if we are to do the best for these patients the malnutri-

tion must be studied and the faulty digestion overcome. Accordingly forced feeding is entirely inconsistent with the primary condition, and when it is attempted serious consequences are likely to result. Now the treatment of digestive disorders in phthisical patients differs from that in other patients only in the urgency of the case. But whatever the impairment is, it is perfectly clear that its diagnosis is necessary before a rational diet can be prescribed. In many of these patients, interrogation of the patient, a study of his history, and a careful physical examination, will enable the physician to determine the nature of the alimentary disturbance. However, in rare and obscure cases it may be necessary for him to make test meal analyses.

In the light of what has thus far been said, it is obvious that in the great majority of cases a restricted diet may be necessary for a short time in the beginning of the treatment. This procedure is confirmed by my observation of a large number of patients. The restricted diet furnishes rest for the digestive organs and at the same time facilitates the elimination from the system of toxins. The amount of fever, the muscular exercise, age, mental condition, and other factors have a bearing on the diet. For example, much physical labor necessitates a relatively large proportion of carbohydrates. When the temperature is high, salt should be diminished and water increased. According to Dujardin-Beaumetz an average man in sound health requires 124 grammes of proteid, 430 grammes of carbohydrates, and fifty-five grammes of fat. This is equivalent to twenty-eight ounces of bread and nine ounces of meat, and two ounces of fat. In addition to this a man requires from seventy to ninety ounces of water, or half an ounce, for each pound of the body weight, and about an ounce of salt. Now, when a phthisical patient has an exacerbation of fever, the salt in his diet should be immediately reduced to about ten grammes and the water increased to one hundred ounces or more.

In addition to these generalizations it must be repeated that each patient requires a diet specially adapted to his digestive capacity, and of such a character as will tend to correct the digestive disorder. For illustration, a patient with amylaceous dyspepsia requires a reduction in the amount of starch. An ordinary diet contains about 300 grammes of carbohydrates, and this may be reduced to a hundred grammes or less. Under such circumstances an attempt should be made to compensate for this reduction by an increase in some of the other classes of food. Now we know that one hundred grammes of starch is equivalent to 435,000 calories, and compensation for this can be secured by increasing the fats fifty grammes, or by an increase of twenty-five grammes of fat and fifty grammes of meat. On the other hand, if a patient has hypochlorhydria and inadequate proteid digestion analogous modifications must be made with careful estimation of the calorimetric equivalents. It is necessary to bear in mind that palatability is a very important factor and must not be ruthlessly disregarded. To many patients milk forms an agreeable diet, and it contains all the elements of a complete food. It furnishes 5,733 calories per gramme of the dried milk. In some patients it is found to be advantageous to use an exclusive milk diet. However, it requires not less than

eight quarts per day to give the necessary number of heat units.

In every case the details of the diet must be worked out with patient investigation of all the factors in the case.

Now in regard to the entrance into the system through the alimentary canal of toxins and bacteria laboratory authorities have blown hot and then cold and then hot again, but I believe that careful clinical observation will bear out the statement that auto-intoxication is a most pernicious factor in tuberculosis. It arises in these cases as it does in the non-tuberculous, and from precisely the same causes, but its consequences in the former are vastly more pernicious. However, the most important question in this connection is tuberculous infection through the alimentary canal. Ever since Koch expressed a doubt of the identity of bovine and human tuberculosis, there has been a decided weakening in the precautions against tuberculous food. But these proofs are largely negative and are by no means conclusive. In addition to this the investigation of a number of recent authorities seem to show that tuberculous infection through the alimentary canal is of very frequent occurrence. *Bulletin 86 of the Bureau of Agriculture* contains a report of experiments conducted by Schroeder and Cotton, which should go a long way towards convincing the profession that food is probably the most common source of tuberculous infection in man. In their conclusions they seem to look upon aerial infection as uncommon. "Respired infectious material," they say, "comes to rest in the mucous surface of the bronchial tubes, and is still located in what may be regarded as one of the exterior surfaces of the body. In this location, because of the irritation produced by the material with which it gains entrance—dust, etc.—it has an excellent chance to become enveloped with mucous secretions and to be coughed up and either swallowed or expectorated." This consideration seems to show that tuberculosis due to the bacillus that enters the lung with breathed air is an uncommon affection. It is maintained by many good authorities that infantile tuberculous disease of the mesenteric and bronchial glands is the constant result of infection from the digestive tract. When pulmonary lesions occur in calves fed upon tuberculous milk, they have been shown to have been secondary to glandular infection.

Valle, in a contribution to the Congress de la tuberculose, even declared that the preponderance of pulmonary lesions in a subject also having lesions in the digestive apparatus, did not at all warrant the conclusion that the infection had not been contracted by way of the digestive tract. Valle also found that penetration of the intestinal wall could be accomplished by the *Bacillus tuberculosis* without producing any appreciable lesion of the mesenteric mucosa or of the mesenteric glands. These conclusions lead to two lines of action: 1. The need is to keep the digestive system in as healthy a condition as possible. When the digestive fluids are normal and the vital arguments are disposed of, as to bequeathed that life is to be feared from them. The second is to the same conclusion as we have already reached in a former part of this paper, viz. that in tuberculosis the diet first consideration must be given to tuberculin and to the avoidance of a condition

condition of the digestive apparatus. 2. Then the greatest vigilance should be directed to avoid the ingestion of the *Bacillus tuberculosis* with the food. The best way to do this is to investigate the source of the food. To this end much is being done in the inspection of cows. Cows, the milk of which shows the slightest suspicion of tuberculosis, should be excluded from the herd. When we consider the number of babies and children fed upon an exclusive milk diet, and when we recall the fact that the bacillus that keeps up the great white plague is most commonly introduced into the system in this way, and when we further recall the fact that these germs may remain in the system for years before they begin their deadly operations, we are compelled to regard the milk of tuberculous cows with the greatest apprehension. On occasion of some trifling ailment these germs break their fetters, and like dogs of war attack the very citadels of life. The pale and vanquished victims ascribe it to some cold or exposure, but the physician knows that the primary cause was introduced in babyhood or later, very probably in the form of tuberculous milk.

57 FORT STREET WEST.

THE TREATMENT OF ANÆMIA.*

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Let us briefly consider the well known facts concerning this symptomatic state. There may be present a diminution of the entire quantity of blood, or in the number of red blood corpuscles, or a lessening of hæmoglobin, or a change in it. The cellular constituents themselves may be affected or the entire series of changes here enumerated may appear in varying degrees or combinations. When the anæmia is local it is *ischæmia*; when general, *oligæmia*.

Causes.—Among the causes it may be stated that any disease that depletes the general health or interferes with bodily functions tends to produce it. Heredity and female sex, pregnancy, the menopause, hæmorrhage, malaria, syphilis, carcinoma, Bright's disease, are all well known. Probably the most frequent cause is chronic gastrointestinal and hepatic disease with its accompanying imperfect nutrition. Deficient food, overwork, mental worry, and anxiety are frequent causes in themselves, as well as corollary ones. I have seen quite a number of cases of a peculiar type, the result of absence, in my opinion, of daylight and sunlight. These cases occur mostly in the winter time and in people who labor by artificial light or who perform night work. The most marked change presented is a reduction of hæmoglobin without apparent alteration of the corpuscles. Gardenghi¹ has called attention to the fact that possibly the absorption of iron from the liver is brought about through the presence of light, especially sunlight, and that in cases of deficient illumination it is shown that a percentage of the iron is excreted from the system. At the same time, in severely exposed, and in chronic, tuberculous cases, a connection between hæmoglobin and chlorophyll of plants which we all know to depend upon sunlight for its formation, and the absence of sunlight from the system, may be a

*Read before the Kentucky Medical Society at Louisville, Ky., 11th Annual Session, 1906.

orless growth. This has, in my experience, been borne out by the fact that these cases almost immediately improve by measures directed toward the stimulation of the absorption of hæmoglobin, and of which I shall have something to say a little later.

Classical Symptoms.—They are supposed to be pallor of the skin and mucous membranes; muscular weakness and loss of strength; irritable heart with full or small rapid pulse; pulsating bloodvessels and possibly a bruit; poor appetite and digestion, together with a general neurasthenoid state. The presence of other diseases so frequently overshadows the anæmic state that it becomes essential and necessary to carefully search for it.

Blood State.—This is important for the diagnosis. For eighteen years it has been my habit to carefully examine the blood of all patients, who come before me, for hæmoglobin (Fleischl's method); and where deemed necessary a corpuscle count is made. A fresh specimen is examined under the microscope immediately after being taken from the body. Those who have followed this line of work soon learn their patients' blood state from the fresh specimen alone. In anæmia we find, as a rule, a marked reduction in the hæmoglobin and the number of red cells, but what is far more important in my opinion we find changes in the size of the red cell. In any marked anæmia we will find a great number of microcytes, a fair number of poikilocytes, and at times a few macrocytes. Some degree of the intensity of the anæmia may be foreshadowed by a glimpse at the blood and a rough estimate from the slide of the number of these elements. Another interesting feature is a marked tendency of corpuscles in thin blood to a flat distribution over the slide, and a failure to form rouleaux. In bad cases we frequently find granular material, probably a degenerative product, for it has been my personal observation that where this is present it is a sign of slow recovery. As a matter of technique it may be stated that both slide and cover glass must be scrupulously cleansed with special cleansing solution and finally washed in sterile distilled water in order to be able to secure the best results. It may be noted here that chlorosis is a rare disease when the blood is examined, for in this disease we find the red cells normal or increased in number, the hæmoglobin reduced, and leucocytosis present.

The diagnosis must take into consideration all the facts in the case, ætiological, correlative, as well as the hæmatological findings. For my part I have long since accepted Cabot's simple classification into two important types. To the first, which he calls "the small cell type" belong the secondary anæmias, the results of the factors and conditions spoken of under the heading of causes, the microscopic picture and blood findings being those described before. The second type is the "large celled type" recognized by the blood picture alone and typified by pernicious anæmia, and of which he says that if the data of blood examination are combined with those obtained by a careful history and physical examination the diagnosis is one of the clearest and surest in medicine. The most important single fact in the blood examination is the great reduction in red corpuscles with a relative increase in the amount of hæmoglobin per corpuscle. Chlorosis is identified with the first type and is distinguished by the ab-

sence of causative factors by the age and sex of the patient.

With the parasitic anæmias we have rarely to deal, but it becomes easy if the eggs of the parasite can be found. From a long series of examinations in which I have compared the blood pressure and pulse pressure with blood findings I am able to state that the mere finding of a low blood pressure (so commonly found in this disease) must not always be laid to the anæmia, but must be considered in relation to any existing disease as well as the anæmia. My personal observations have shown me that both the systolic and diastolic pressures are low, that they as a rule improve with the improvement of general conditions and do not increase *where there is a gain in blood without a gain in general health and nutrition*. This is especially true where the neuro-cardiac apparatus has become involved by the anæmia. In fact, I believe that in so far as the anæmia itself is concerned, blood pressure findings are of comparatively little value in directing the treatment of the case.

Treatment.—Treatment should not be solely directed toward the anæmia save in exceptional cases because of the frequent complication with other diseases that removes the patient from the plain and simple category of the anæmic. Certain hygienic methods are indicated, no matter what the careful and exhaustive examination has shown, and these are fresh air and sunlight with very moderate exercise, especially at the start. Deep inhalations are of unquestioned value, increasing as they do the lung capacity, oxygen absorption, and carbon dioxide elimination. The diet should be based on the gastrointestinal condition, and in this particular an analysis of the gastric contents gives very valuable assistance. In general, it may be stated that the maximum amount of a nutritious mixed diet should be administered, the endeavor being to increase nutrition as well as blood richness. So frequently in these cases do we find constipation that it goes without saying that its correction is a *sine qua non* to success. In many cases we find the sulphates and indican much increased in the urine, showing a putrefactive autointoxication which can, in my experience, be best corrected by feeding sour milk. This milk is first sterilized and then soured by means of the so called Bulgarian lactic acid bacillus, as recently suggested by Metchnikoff.² It combines the advantages of a highly nutritious, easily digested food with the best of natural antiseptics, and is rapidly gaining favor with me over any of the so called medicinal ones which are in reality notorious failures.³ Rest has its value in these conditions, but it must be rest alternated with moderate exercise and the nonmedicinal remedies to be hereafter suggested. This is of particular value in bad neurasthenoid cases. The presence of digestive disorders being so frequent, and care in diet being so necessary under ordinary circumstances, I wish to here emphasize the fact that where physiotherapy is employed we may allow without fear of disaster a diet that would under ordinary circumstances be ruinous, and this has its advantage in a quicker and more certain upbuilding of the individual.

My experience with drug therapy has been most

¹The New Dispensary, 1907.
²See Stubb, *Journal of the American Medical Association*, 1907.

disappointing. A number of cases carefully "tried out" with iron, others with arsenic, others with iron and arsenic in varying forms and dosage have led me to become somewhat of a pessimist with regard to these drugs save when employed merely as subsidiary or useful adjuncts. The anæmic neurasthenic is too frequently given iron, quinine, and strychnine without a careful study of his needs. Where I employ iron I have practically given up the use of any other than a properly prepared Bland's mass, the peptonate, or Basham's mixture. It is too well known now to more than reiterate that the body commands a large reserve of iron over and above that needed for its immediate requirement, this reserve being stored in the spleen, liver, bone marrow, etc., where it is deposited as an organic compound for future use. Iron absorbed from the intestinal tract has to pass first into the reserve storage and from there into the blood, for it is never directly utilized by the body in reconstructing the hæmoglobin loss. Some of the best results that I have ever obtained in practice in anæmia have been gotten without the prescription of a single grain of iron, but were achieved by certain physiotherapeutic methods by means of which the corpuscles, white and red, lying dormant in the body were thrown into the circulation and made the carriers of this reserve fund of iron. In hydrotherapy, for example, the increased oxygenization that follows its tonic use increases general oxidation and in this respect the hæmoglobin carrying power of the individual cell and, therefore, carries to the tissues the particular ingredients most needed in reconstruction as well as absorbing into the blood the constituents needed for its own repair. It is thus in emergencies that we may call upon the storage iron which will in due course of time be replaced by iron obtained from the ordinary food products. Arsenic, I am satisfied, has some power in increasing the number of corpuscles and may be employed, provided it is administered hypodermically. One of the greatest troubles of drug administration by mouth is the fact that the already weakened and faulty digestion does not prepare it for absorption, but allows it to pass from the economy practically unutilized. Again, it might be noted here that often times the destruction of tissue toxins and the antisepticising of the intestine will relieve the anæmia and with it a host of secondary symptoms dependent upon the mixed condition, if I may so express it.

Manual massage, mechanical massage, and vibration exert their influence, as has been shown by Mitchell⁴ also, that massage increases the flow of blood and lymph from the periphery to the centre, and that there is a marked increase in the corpuscular richness of the blood, but a comparatively small increase in caloric content. The greater value of these methods lies in the general tonic, refreshing action that they possess, their power to increase venous return, to increase digestion and assimilation and relieve the attendant constipation. The ordinary small vibrator is worse than useless. I note this after years of experience, that where results are desired, large vibrations of deep and powerful flexing and vibration are required. There is every difference between the mere vibration

of the modern hand vibrator and the deep kneading of the larger machines. Electrotherapy has practically no direct effect whatsoever upon the anæmia itself, but becomes a valuable auxiliary in its tonic influence in building up the central nervous system and overcoming digestive disturbances, increasing assimilation, relieving constipation, and curing pelvic lesions. In this respect the galvanic and static currents are particularly available. Bedridden patients are much benefited by general faradization and sinusoidalization, their action being in this respect practically identical with the results obtained from massage. This I have demonstrated by careful observation and blood estimation in a number of cases, the details of which are too extensive to be published in this brief article.

Hydrotherapy, tonic in its nature, has been reserved for final consideration because it is more nearly a panacea for the correction of anæmia and its allied and correlative conditions than any other measure known to the profession. I shall call attention to this fact elsewhere.⁵ The first point in hydrotherapy is to insist upon the internal use of water. By this method we secure a diluent of the blood which possesses active oxidative and metabolic power. I shall also show⁶ that where the amount of food, etc., remains the same the simple addition of an increased quantity of water results in an augmenting of corpuscular and hæmoglobin richness, as well as increasing sometimes the flesh gain. Water increases the elimination of waste materials from the body, not as is generally supposed by "washing out" the tissues and eliminating waste material "through the kidneys," but by raising blood pressure and thus increasing renal activity. While it is true that uneliminated urea lying in the tissues is dissolved and eliminated, still the general statement made holds true. For the reasons enumerated, it should be drunk every hour or two, as by this means the blood pressure is raised. Hydrotherapy acts in no uncertain manner upon the circulation; it slows the heart, and increases the effectiveness of its contraction; tonically it dilates the superficial blood-vessels and raises blood pressure. It deepens the respiration, enhances the gaseous exchange of oxygen and carbon dioxide, thus favoring all oxidative and metabolic processes in the body. It directly stimulates and increases secretion, absorption, and excretion; improves the appetite, betters the digestion, increases the absorption of food, overcomes atony of the intestine and its associated constipation. The muscular system is strengthened, its power, both in the skeletal and visceral forms, being greatly enhanced, as has been demonstrated repeatedly by several experimenters.⁷ Upon the blood directly, Thayer⁸ has shown that tonic hydrotherapy produces a marked increase in the leucocytes, followed by a rapid fall in the erythrocytes, the same in typhoid fever the phagocytic process is much enhanced, while Alcock⁹ has shown that with the increased leucocytes there is a corresponding rise in the specific gravity of the blood, due to a

⁴ Mitchell, *Physiotherapy*, 1898.
⁵ *Hydrotherapy*, 1907.
⁶ *Hydrotherapy*, 1907.
⁷ *Hydrotherapy*, 1907.
⁸ *Hydrotherapy*, 1907.
⁹ *Hydrotherapy*, 1907.

masterly series of experiments and observations that tonic hydrotherapy in its many forms not only increases the alkalinity of the blood by diminishing the acid phosphate, but lessens its density, at the same time increasing the number of red cells. It stands to reason that with a more fluid blood, of greater alkalinity, with increased cells to take up the storage iron, with better elimination and a blood free from toxins, tissue repair takes place and every function and every cell bathed in this necessary fluid rejuvenates, thus confirming the adage of Holy Writ that "The blood is the life." In addition it tones, sustains, and invigorates the central nervous and sympathetic systems, enabling them to send forth normal and proper impulses, and thus arouse, control, and regulate every living cell of the human organism. Granting its great power in this direction it becomes essential to carefully study the methods by means of which these much to be desired results can be obtained.

We may consider two classes of cases, bedridden and ambulatory. Commence in the first class with the daily use of a dry blanket pack, enveloping the patient tightly in same for twenty to forty minutes in order to collect heat upon the surface, this to be followed by the cold sponge or ablation at 70° to 50° F., followed by good reaction and general body friction. When the patient's reactive power has been well developed by this method we may substitute for the pack and sponge the following: While the patient stands in a very hot foot bath, the "dripping or sheet bath" is given with vigorous friction, duration three minutes, commencing with a temperature of 70° F., reducing 2° daily to 60°. It should be given in the early morning as an opening procedure for the day. The German clinicians, and I agree fully with them, find the full wet pack at 65° F. for one hour a most excellent measure in these cases. My plan is frequently arranged as follows: All the hygienic, dietetic, and other measures are arranged for, and just as soon as possible the patient is given the dripping sheet in the morning and the full wet pack in the evening. Where this is done it will be found that the accompanying nervous symptoms and insomnia rapidly disappear.

As soon as the patient is ambulatory we may commence with the administration of the incandescent electric light bath until commencing perspiration, or dry hot air to the same point, although the electric light bath is by far the best. As soon as the patient warms up thoroughly give the circular, needle, or rain bath at 102° F. for one to one and a half minutes, reduced to 60° F. for a quarter of a minute, pressure 20 to 30 pounds. Good reaction must be obtained. In women this will be as strong a treatment as they can usually stand with comfort. With men, however, we may use the electric light bath to point of perspiration, followed by a circular, needle, or rain bath at 102° to 104° F. for one minute, this in its turn to be followed by the jet douche to the spine at 60° F. for one quarter of a minute, followed by the jet to the head, then to the entire body, especially the abdomen, for a quarter of a minute, 20 to 30 pounds pressure. It is sometimes found that the jet to the head is up and down the posterior aspects of the lower limbs and gently over the surface of the tibia, for this often times very materially stimulates the marrow of the long

bones to the formation of blood cells or drives the cells into the circulation.

I am satisfied from long clinical experience that the electric light bath followed by tonic percutant cold measures to promote a reaction, is almost a panacea in the treatment of secondary anæmia and chlorosis. These measures "stimulate the nerve centres," giving them increased tone; rouses the temporarily dormant vital powers; deepens respiration, increasing oxygen absorption and carbon dioxide elimination; stimulates appetite and digestion, increases assimilation and absorption, overcomes digestive disorders, relieves constipation; improves and increases the blood and lymph circulation; betters muscular tone all over the body, enhances tissue change and increases excretion. It is therefore no wonder then that it soon overcomes anæmia and restores the body to vibrant health.¹¹

113 WEST CHESTNUT STREET.

ON THE MAKING OF A PHYSICIAN.*

By S. A. MERENESS, M. D.,
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You all have doubtless been told and many may believe that a good physician is born, not made. Indeed, the qualities necessary to make a physician successful in his profession and esteemed by the laity are various, and it is difficult to say precisely what they are. Moreover, since all men possess similar qualities, only varying in degree, it follows that the factors of success are quantitative rather than qualitative. Appearance, manners, ability to secure the attention of others, and the power to convince, in short, individuality, certainly plays a predominant part in the making of a successful physician. But as to this natural fitness, the influence of which is great, and the now almost exploded belief, even among the laity, of the born natural fitness, son of a seventh son of some other son and what not, this brief paper has nothing to do.

Certainly one who lacks the desirable qualities of mind and manner, may do much to cultivate them, and repress the undesirable ones. But the one whom Nature has endowed with more than average ambition to succeed, a retentive memory, an inexhaustible fund of patience, and finally a full measure of human sympathy, has the solid foundation on which an intellectual structure is sure to stand secure. We may not choose our natural fitness for a profession, but we can choose a profession for which we are adapted.

The study of medicine is fascinating; few students who are of a scientific turn of mind, but enjoy it. The pleasure of learning fact after fact, regarding our physical structure, and the laws controlling the functions of body and mind, is certainly alluring. The practice of medicine, however, as we are all well aware, has many drawbacks, and many things in it are tiresome and disagreeable to the extreme.

All this the student knows not unless he has been much in contact with the work of a practising physician. For this reason alone, if not for the acquiring of technical knowledge, the practice formerly in vogue of a prospective student choosing a preceptor with whom he could talk freely and see much

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to his advantage, was a good one, especially to determine whether he was adapted to the work before him. Many a good artisan has been spoiled in the making of an indifferently successful or unsuccessful professional man, whether in medicine, law, or theology. In this day of commercial advantages it is well that every student of medicine weighs carefully the advantages and disadvantages of entering the medical profession; and unless he feels very much "called" with a voice of no uncertain sound, he would do well to keep his ear to the ground a little longer. A successful physician, aside from doing good, is rewarded with many pleasant experiences, often in lieu of money, it is true. Still, we all remember what the good Book says about the camel and the eye of the needle, apropos of the rich man, and under these conditions, who would desire to be rich? Certainly none of our fraternity.

However, we cannot always choose our material in making a professional man; many who would make excellent physicians, turn to other callings, and not a few who are not well adapted, persist in spite of any advice to the contrary, often believing it to be an easy way of making a livelihood, only to be disappointed after the expenditure of much time and money. He then has no liking for his work, but still stays on, just because he has spent time and money and having complied with the law, has not the courage to abandon the profession and find more congenial work. With such we may commiserate, but cannot help.

After this rather long and vague preamble as to the making of a physician, what the writer really desires to dwell on, is not the choosing of fit or unfit students, since they usually choose whether we will or not; but the proper and orderly developing of those resources which he will need and which must be done largely in our public schools, the college, and university. Every competent physician should be a doctor of medicine. The reverse of this, I am afraid, does not always hold true, but it cannot be refuted, that other things being equal, the professional man with the best intellectual training is the most successful one. And the best intellectual training can be secured only through long and orderly development of the mental faculties. The preliminary education of the medical student is surely most important, and, I believe, is not keeping pace with that in many other departments of intellectual endeavor. This is true both as to the amount of time given to the study of natural and physical science in our high schools and to the sequence of these scientific studies. Many, doubtless most of us, realize how much our early training was at fault when we come to comprehend physiological processes thoroughly. And, who has not had to learn his physiology anew in the preparatory school and again in the medical college, just because he was taught physiology first, followed by chemistry, and then physics. It may not always be true, but when pupils in their natural sequence, of physics, chemistry, and then biology, it seems to be by a safer route than by the reverse. Why a student should not be allowed to study chemistry, much less physiology, before physics, is certainly not plain to me, but I am aware that it is being done in many of our "liberal" "collegiate" schools, with no thought of inpropriety.

One course of physics should certainly precede any course in chemistry, much better a course

year. And the course of physics in the high schools is much too short. It certainly would not be too much to ask that one scientific study should be taken during the whole of each of the four years of high school study, and especially should this be demanded of students who later are to study medicine. A year of Nature study, botany, and zoology, followed by two of physics and chemistry with perhaps the outlines of geology, and the fourth to general biology and psychology, seems to me would cover the ground fairly well, and in a manner so well ordered that later in his technical medical studies what has been done in the high school will not only not have to be undone, but will suffice as a basis for future study.

At the present time when so much of our therapy is physiological, i. e., trying to adapt the individual to the conditions imposed by Nature, rather than the administration of drugs, founded on practice, it seems especially desirable that the medical student should have a very thorough knowledge of physiology, that means chemistry, and this means physics.

Largely as physicians, we are, I trust, outgrowing the old empiricism. The empiricism of blind, unthinking routine; just because some one advised something which in turn had been advised by some one else and so on: couldn't give any reason for doing it, just knew it was the best thing to do, some one had tried the method, and the patient lived, and having tried yourself and being convinced, *de visu*, that another lived, that was all there was to it, no need of a reason, experience taught.

I am not inveighing against empiricism, it has its place in ascertaining natural phenomena in the first instance. Neither should we discard practical experience, but we should ever use inductive and deductive methods, side by side. If a theory seems reasonable, what do we know of its practical use, and if we know that certain conditions produce certain results, what is the reason for it? In no other way can we keep our judgments within bounds. And just in proportion as we use one of these methods to control the other, our conclusions become valuable. A conclusion, based on reason to which our experience assents, surely is the only safe and infallible guide. Just because the laws governing natural phenomena were obtained in the first instance by observation, rather than by reason, there has grown up, it seems to me, a tendency to rely unduly on inductive teaching in our medical schools as well as in the preparatory work. Of course in the earlier period of intellectual development, as in childhood, learning by observation must predominate, but the beginning medical student should be able to reason correctly and reach precise conclusions. At the present time, even in our medical studies, often too many facts are required rather than the reasons for them. If of trivial importance facts are soon forgotten, but a reason once well developed, is usually tenaciously retained, even when its identity is lost in its application.

Of what general use is learning all the minutiae of anatomy, for instance. We all realize how proud we should be to be able to state some small, we know about this or that feature in the skull, and how often when the physician has come to his full time, as to these small items, many things up to the cricoid arch and the formation of the tracheal plate, atrophy.

Another discussion of knowledge about the smallest

school imparts reluctantly or not at all, is psychology. When one considers the constant use of applied psychology in our work, whether it be a chain of reasoning as to material facts or in its application as in suggestion, and influencing our patients for their good, we can only wonder why our medical colleges often scarcely teach even the rudiments, although the high school student has had little or no instruction in it. Few things require a better ordered and systematized psychological process than the arriving at a different diagnosis by exclusion, where even the neglect of one factor, or the over preponderance of another, leads to a false conclusion with all its consequences. Worse still, the student is taught pathological psychology briefly, if at all, and then is sent out to pass judgment on the mental competency of his fellows, and often to be ridiculed in courts of law because he appears to know so little. Somewhere in the course of every medical student's training, should come at least a year of normal and pathological psychology, in addition to the rudiments, learned in the high school.

In one more subject the teaching in our colleges to my mind is grossly neglected, that is, the history of medicine, and particularly of medical doctrines. No advanced student in applied or theoretical science thinks of proceeding very far, especially in original inquiry, without a knowledge, in general at least, of what has been attempted before; any more than would a student in economics or of sociology think of advancing new ideas without knowing if it had not been already tried. Of what use to the medical practitioner to work along certain new or untried lines, without first knowing in general what had been the result of previous inquiry and experience. Much of this lack of knowledge concerning medical history is due to the fact that there are so few concise and readable histories of medicine in the English language. Why this should be so, I do not know.

In German and French medical literature there is no lack of textbooks on this important subject, and to some considerable extent it is made a part of the regular medical instruction in European schools. Certainly, a course of medical history during the last year or two of study should be included. Even a score of well prepared lectures, together with a textbook, would aid greatly in paving the way for future study and investigation, when once the student enters in his practical work.

And right here it may not be amiss to call attention to the fact that when a student of medicine completes his study in the college and begins his life work, he then more than at any other time should realize that he is only beginning the study of applied medicine, and that by perseverance he should learn as much in the first few years after completing his studies as he did in those preceding.

To be sure, there is no *cum magna laude* parchment to crown his continued labors, be it ever so persistent and well ordered, but I think I state a truth when I say that the medical student who stops short with his State examination, stops at the middle rather than at the end of his student career. Too many harbor the illusion that after a rest of a few years they will study again, only to find other duties more pressing, other fields more immediately profitable, and thus fail to reap the reward that continued study and observation alone bring.

HYOSCINE HYPODERMIC ANÆSTHESIA.

By FRANK B. KIRBY, M. D.,
Philadelphia.

It was a tremendous advance from muscular relaxation by tartar emetic and magnesium sulphate in large doses to ether and chloroform anæsthesia, and chiefly by virtue of the loss of pain sense with the employment of the latter. It is in the line of progress and equally beneficial to produce hypodermic anæsthesia, for reasons to be shown later.

Veterinary surgeons have been for a long time using morphine to anæsthetize, but only recently have advances been made in the use of the same methods for the human family.

With the introduction of any new remedy methods must be perfected, doses regulated, and clinical notes compared to produce a final, finished product that can be depended upon to produce within reasonable limits always the same results. Conditions demand exactness in therapeutics, and the results so far produced by hyoscine and morphine in combination by hypodermic use justify the statement that hypodermic anæsthesia has come to stay. Just when our technique of ether and chloroform administration has about reached perfection we yet find ourselves looking for something better, hence ethyl bromide with its advantages, ethyl chloride, and nitrous oxide.

Now in the hyoscine-morphine combination we have a dependable mixture of drugs with which we are all familiar, a case of old friends with new faces.

In the first place it must be insisted upon that we have as near as possible chemically pure drugs. A trace of atropine may vitiate results. The morphine must be free from thebaine, and apatropine is debarred. Scopolamine in the work of Gauss must not be confounded with hyoscine, as the former alkaloid is not identical with hyoscine nor with scopolamine as produced in this country.

The great advantage of hyoscine-morphine hypodermic anæsthesia over ether is the freedom from shock. Most patients object to vapor anæsthetics, and many of us have seen full blooded, muscular men whom it took four or five to hold during the second stage. All this is eliminated, and the patient passes into a quiet sleep after the first dose. The second dose may produce a deep snoring, but absolutely no excitement. The patient may not be completely anæsthetized after the second dose and a few drops of chloroform will now produce loss of pain sense. It is well to remark that fewer drops of chloroform will be needed to prolong the anæsthetic state than when chloroform is given alone. In all, possibly not more than two drachms, often less, will be sufficient and never enough to produce the post-operative nausea and emesis. In fact, the second advantage is this freedom from nausea especially seen in abdominal work. Not the least of the advantages is its cost. Even the anticipated reduction in the cost of ether due to its manufacture from denatured alcohol will make hyoscine-morphine more economical. Surgical work may be done by this method without the help of an etherizer, and thus expense is saved.

However, there are some disadvantages which are at best minor. Delicate surgery as in an opera-

tion on the eye cannot be performed because of lack of complete muscular relaxation; this latter being an advantage in flap making in amputations. Best results are obtained in a perfectly quiet room, hence a clinic is badly adapted for hyoscine-morphine anaesthesia.

The technique is as follows, but may be varied as in the Gauss clinics. The patient is given a hypodermic injection of hyoscine hydrobromide, $\frac{1}{100}$ grain; morphine hydrochloride, $\frac{1}{4}$ grain; cactin, $\frac{1}{67}$ grain. The room is preferably darkened and the patient encouraged to go to sleep. One hour later a second dose is administered, and a half hour later the operation may be begun, but if not completely "under," a few drops of chloroform will suffice. This hour and a half may be a disadvantage.

In obstetrical work its use is most beneficial. Here half the dose is often sufficient, with the omission of the morphine in the second dose. The first is given at the time of the onset of severe pains and the second at the beginning of the second stage. This produces a mild degree of anaesthesia.

In those cases susceptible to hyoscine we may get a low delirium and in others a marked redness of the skin and face from the dilated capillaries. These are byeffects and transient.

The writer's experience is mostly in obstetrical work in which the patient usually sleeps between the pains which always awaken her to active help in aiding expulsion. In some few cases the child has been cyanotic for awhile, but always revived in a short time. This effect on the child is avoided by omitting morphine from the second dose. In no case have any untoward results been observed. It is doubtful whether labor is prolonged, but rather to the contrary, as the mother's strength is conserved to be used *with* the pains and not lost *between* them.

This anaesthesia is too profound for minor surgery, and should be used with care at the extremes of life. The patient is in a state of slumber, or *Dämmer Schlaf* (twilight sleep), as the Germans put it, and will as readily respond to a sharp command as when asleep. In fact, immediately after an operation the patient will change his position without more than a command.

When we consider the advantages and disadvantages we see that hyoscine-morphine anaesthesia bids fair to outrival vapor anaesthesia and become as general in practice as has ether and chloroform. In railway and other accidents where many are suffering pain it will be of inestimable value. Here twenty-five or fifty people could receive preliminary pain relieving treatment while one was being cared for with ether anaesthesia and in the hour and a half necessary could be transferred to a suitable place for care.

JOSEPH WILSON, JR., ASSISTANT.

A CASE OF PROFUSE RENAL HÆMATURIA.

Hæmaturia from Left Kidney, Operation, Recovery, to Right Kidney, Operation.

By J. E. LANE, M. D.,

First Surgeon, Chicago.

The following case is one belonging to the class of profuse hæmaturia of renal origin in which the kidneys show no gross structural change and it does not resemble a renal neoplasm.

Cases of this description, until quite recently, have been rather infrequently reported, and have been classified under names such as "idiopathic hæmaturia," "renal hæmophilia," "angeioneurotic hæmaturia," etc. Within the last few years a larger number of these cases have been reported, in which histological examinations of the affected kidneys have been made, with the result that in many cases some pathological change, most frequently that of some form of chronic nephritis, has been found, though it is rarely adequate to furnish a plausible explanation of the bleeding. The aetiology of this class of affections is, therefore, still uncertain.

This subject has recently been treated at some length by Casper (1), Schüller (2), Stick (3), Eshner (4), and others, and I shall briefly report a case in which both kidneys were affected at different times, and subjected to operation:

CASE.—Mrs. W. C., age thirty-nine years, was a native of Ireland, married twelve years, mother of two children, ten and five years. She gave no history of sickness of any description previous to April, 1905. At this time she had profuse urinary hæmorrhage, lasting three or four days, with no other symptoms. The hæmaturia ceased spontaneously and there was no further trouble until July, when there was a recurrence. This time the hæmorrhage was constant, though with varying degree of severity, until December, when a diagnosis of stone in the left kidney was made by the attending physician after ureteral catheterization which showed that the blood came from that side. Dr. Leonard W. Bacon, Jr., was called to operate upon her, and a nephrotomy was done by the lumbar route on December 5th. No stone was found and the kidney was apparently normal. The hæmaturia stopped a few days after the operation, from which there was a prompt recovery, and did not reappear until the following April (1906), when there was a recurrence. After continuing for about a month, it stopped on the 5th of May after a spontaneous abortion at the second month of pregnancy. In August it again reappeared continuing about two weeks. No physician was seen at this time.

I first saw the patient on February 19, 1907, in the absence of Dr. Leonard W. Bacon, Jr., whose patient she was. At this time she had been "passing clear blood" for two weeks. She had no other symptoms, felt well, and had been working about the house as usual. She was not visibly anæmic, and I was unable to discover anything else abnormal after a careful examination. The urine was thick and contained a large amount of blood was precipitated, specific gravity, 1.016, albumin in abundance, no sugar. The microscope showed a large number of red blood cells and a few leucocytes.

In order to insure cessation of the hæmorrhage, an exploratory incision was made in the lumbar region to find the source of blood passing into the urine, and also making the urethral examination, that the hæmorrhage was from the left kidney, was made by Dr. Leonard W. Bacon, Jr., who found a large stone in the left kidney. On account of the uncertainty of the diagnosis, the stone was removed, and the hæmaturia ceased. The stone was found at the outer border of the pelvis. A nephrectomy was done by removing the kidney from the lumbar region, and the stone was removed from the cortex for histological examination.

The patient recovered from the operation, and the hæmaturia did not recur. The stone was found to be a large, smooth, rounded, and the hæmaturia was the result of the hæmaturia.

Histological examination of the stone showed that

the kidney showed the changes of chronic parenchymatous nephritis of a mild grade. The chief changes were in the epithelial cells of the tubules which cells were in places swollen and degenerated, the nuclei remaining intact. In a few small areas there was desquamation of these cells. The glomeruli were not affected. There were no casts in the tubules. There were some small hæmorrhagic areas in a few places, especially under the capsule. The urine, some time after the operation (July 15th), was neutral, slightly cloudy, contained a trace of albumin, no sugar. Microscopically it showed numerous leucocytes, a few large flat epithelial cells, and triple phosphate crystals.

At the present time, four months after the last operation, the patient feels perfectly well, with the exception of a slight burning sensation on urination which appears from time to time. There has been no recurrence of the hæmaturia.

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3. Stick. Ueber Massenblutungen aus gesunden und kranken Nieren. *Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie*, xiii, 781, 1904.
4. Eshner. Unilateral Renal Hæmaturia. *American Journal of the Medical Sciences*, new series, cxcv, p. 636, 1903.

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Therapeutical Notes.

Treatment of Furuncles.—Pouchet uses the following as an abortive treatment for a boil:

- R Pulverized salicylic acid,.....2 parts;
Soap plaster,.....2 parts;
Diachylen plaster,.....4 parts.
- M. S.: Spread on soft material and apply to the surface.

Tincture of Tannin for Toothache.—Kner (*Allgemeine Central-Zeitung*, July 27, 1907) uses a twenty per cent. solution of tannin in rectified alcohol in all cases of toothache, and especially those which are neuralgic or rheumatismal. It is applied on compresses, and is also useful in pyorrhœa alveolaris and in numerous other conditions.

Mouth Wash for Adenitis.—Robin uses the following antiseptic mouth wash in the treatment of enlarged tonsils in the neck:

- R Betanaphthol,.....0.20 gramme;
Sodium perborate,.....15.0 grammes;
Mint water,.....200.0 grammes;
Boiled water, to make,.....1,000 grammes.
- M. S.: This should be warmed on a water bath before use.

Gazette médicale de Paris, September 5, 1907.

Mercury Bromide in the Treatment of Syphilis.—Dalimier, in a communication to the Société médicale de l'Élysée, reported his experience with mercury bibromide, by intramuscular injections for the treatment of syphilis. Patazer, of Châlons, was the first who recommended the hypodermic use of mercury bromide, which he gave in solution made with sodium chloride. It was found that these solutions, when injected, gave rise to pain, so that Dalimier was led to make the following modification: He asserts that it has the advantages of being at the same time efficacious, free

from pain, and capable of exercising an elective effect upon the nervous lesions of syphilis:

- R Mercuric bromide,.....1.80 grammes;
Sodium bromide (crystals),.....1.40 grammes;
Distilled water, q. s. ad,.....100.0 grammes.

M.

Revue de thérapeutique médico-chirurgicale, September 15, 1907.

Toxic Effects of Naphthaline.—Lefevre reports the case of a man, fifty-five years of age, who slept in a room in which a quantity of naphthaline in balls had been placed in a table drawer and in a bureau or clothes press. He observed a strong odor of naphthalin, but disregarding it, he retired at ten o'clock, and at once fell asleep. Towards midnight he woke up with a suffocating sensation, and covered with cold sweat. He had a violent epigastric pain, chills, noises in his ears, vertigo, general numbness, and torpor. With difficulty, being only half conscious, he got up and opened the window. He soon became relieved in a measure, but a headache remained, with prostration, feebleness, colic with diarrhœa. These symptoms continued the following day, with faintness and loss of appetite, from which he soon recovered. Lame and Pourchet have reported the same results following the inhalation, and the ingestion of naphthalin, and a case of suicide by swallowing this agent has been placed on record.

Chemical Analysis of the Tomato.—J. M. Albalary (*Comptes rendus de l'Académie des sciences*, July 8, 1907) has made a careful study of the composition of the *Sycopersicum esculentum*, and contrary to the opinion of a great number of physicians, he recommends the use of this vegetable in subjects of arthritism, gout, and lithæmia, because it contains a soluble inorganic salt of iron. He furnishes the following analysis:

Water,.....	93.5 grammes;
Nitrogenized matters,.....	0.95 gramme;
Nonnitrogenized matters,.....	0.50 gramme;
Fat,.....	0.20 gramme;
Carbohydrates,.....	3.60 grammes;
Insoluble organic matters,.....	1.60 grammes;
Insoluble inorganic matters,.....	0.11 gramme;
Ash, total (of which 0.12 was calcium phosphate),.....	0.74 gramme.

The free acids in one hundred parts of the fresh fruit are as follows:

Malic acid,.....	0.48;
Citric acid,.....	0.69;
Oxalic acid,.....	0.001;
Tartaric acid,.....	present;
Succinic acid,.....	present.

The tomato also contains traces of acids in combination with bases, under the form of salts which are insoluble, both in alcohol and in water. There is also a certain quantity of iron, of which a part exists in the form of organic combination, which is soluble.

Gelatin in Diarrhœal Disorder in Infants.—Péhu (*Archives de médecine des enfants*, September, 1907) affirms that gelatin is a therapeutical agent of the first rank in infantile diarrhœas; but in order to obtain the best results, it is necessary to observe certain precautions. He recommends the following: Make a solution of gelatin (10 per cent.) of either white or yellow variety, with boiling water, and sterilize at 120° C. in the autoclave.

Then after carefully filtering it, the solution is placed in test tubes, the tops of which are closed with cotton wool, or in flasks which are to be hermetically sealed. The latter have been preserved for a year without undergoing any change, even during hot weather. In order to make use of one of these flasks, it is first to be warmed in a water bath, and after liquefaction is completed the contents are poured into the nursing bottle. Gelatin should be employed in large doses, of 10, 25, or even 50 grammes. It is necessary to give in the twenty-four hours at least 10 grammes in order to get an useful result. Being tasteless and odorless, its administration is very easy. Its only inconvenience is that it cannot be given at the same time as cold solutions. The author gives gelatin in summer complaint, simple gastric dyspepsia, in gastroenteritis, caused by improper food, and in dysenteriform enterocolitis with mucobloody stools, etc. Soon the stools diminish in frequency, they change color, lose their green tint, the bad odor diminishes, and the reaction changes from acid to alkaline. At the same time the general symptoms improve. Gelatin may be added to the enemata used in dysentery. The treatment, however, will not be as effective in cases of digestive disorder due to bacterial infection, with parenchymatous degenerations. But even in these cases it affords relief and can compare frequently with the results obtained from bismuth, lactic acid, or tannin.

Treatment of Malignant Pustule.—Although the statistics of Pagliani have demonstrated the efficiency of the special serum prepared by Marchoux and Sclavo, nevertheless, as the cure cannot always be assured by this method, it would be, in the opinion of Picand, imprudent to rely exclusively upon serotherapy, and to neglect the other excellent methods at our command. The distinction of the lesion by the thermocautery, the application of caustic potash, or surgical extirpation, is approved, but is sometimes impossible or very difficult. To-day the method of parenchymatous injection is largely employed. Davaine, who discovered the bacterial character of the disease, inaugurated the iodine treatment:

R	Potassium iodine,	0.20 gramme;
M	Distilled water,	10.0 grammes

Night and morning, this solution is to be injected, with a hypodermic needle, around the pustule, in four or five places, using about twenty drops altogether. These injections are to be daily continued as long as the pustule persists. This treatment is effective, but very painful, and Picand and Chauffard have substituted the one per cent. solution of phenol. Chauffard makes ten injections, each of fifteen minims, around the border of the carbuncle. The general strength should be maintained by tonics. The tincture of iodine may be given also internally, in the dose of ten drops a day, after meals. *La Clin. thérapeut.*, September 10, 1907.

Removal of a Mass of Stearine from the Bladder by Injections of Benzene.—A young man, twenty-three years of age, who had suffered for twenty years with cystitis, during some months was treated with the acid of the cystoscope, and a lithotomy was done, which was better than water.

Upon questioning the patient, he said that he had introduced a cylindrical mass of stearine into the urethra, to relieve irritation. The reporter injected 15 c.c. of benzene, which was allowed to remain for three quarters of an hour in the bladder; he then gave another injection of 25 c.c. The patient showed slight signs of intoxication. Upon evaporation of the benzene subsequently a quantity of stearine was obtained, which weighed almost 5 grammes. On the following day, another cystoscopic examination was made and the mucous membrane was then found to be only slightly hyperæmic. The urine was now clear and micturition caused no pain.—*Journal de médecine de Paris*.

Lupus of the Face and Phototherapy.—Mally (*Revue de chirurgie*, August 10th), in discussing the effect of light or what he aptly terms "Finsen therapy," in lupus of the face, declares that its favorable influence must be due to other causes than to its distinctive effect upon bacteria, for the following reasons: 1. It has not been demonstrated that the bactericidal effect of the light can be utilized beneath the surface of the skin. 2. A certain number of methods, which are not at all bactericidal (scarifications, cauterizations, electrolysis, etc.), have also given curative results in lupus. 3. Certain agents employed to increase the bactericidal effects of light upon the lesions, have not been at all successful. 4. The Röntgen rays have been shown to be effective against lupus; but no one has ventured to suggest that their merit was to be attributed to their bactericidal action. 5. If the therapeutical action of light was especially bactericidal, this would not explain why certain forms of lupus are more or less susceptible to the curative action of the light. But the results of experience of Finsen showed that the most virulent, such as the ulcerating tuberculous lupus, or vegetating lupus, really was cured the more easily, and the more torpid forms, which contain very few bacilli, required a prolonged treatment, almost discouraging by the slowness of improvement. 6. After an ordinary application of the light, the skin is not more aseptic than before, and tubercle bacilli, if placed upon the surface of the skin, and afterwards sown in cultures, regained their ordinary virulence and vitality. According to Mally, the action of the light is explained by a common irritation of the skin, analogous to a chemical irritation, or that of a hot iron, or from scarifications, and of almost the same intensity, and this irritation causes sclerosis. By exposing the diseased surface to the rays of an arc light, we obtain simply a superficial irritation of the skin; and this can be repeated as often as deemed necessary. From it there are no local bad results, and no pain, which cannot be said of the irritation produced by chemical caustics. This point of view greatly simplifies phototherapy, and enables us to dispense with many details of instrumentation, which are usually not in the hands of the physician. A simple form of electric light, applied daily, until it produces some degree of redness, accompanied by softness of the skin and slight infiltration of the diseased tissue, will, in all cases, cause the removal of the epithelium, will be sufficient. The treatment may be continued for periods of two or three months, separated by periods of rest of several months.—*Therapeutisch. Monatsschrift*, September 10, 1907.

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NEW YORK, SATURDAY, NOVEMBER 2, 1907.

INSANITY IN NEW YORK STATE.

The last annual report of the State Commission in Lunacy, for the year ending September 30, 1906, has just been received. It shows a number of features which are entitled to more recognition than the appalling array of figures which usually goes to make up these 1,200 page volumes has heretofore received. The work with the insane is sufficiently unified at this time to permit of some actual progress, and such advance is evident from the general elevation in standards throughout the State. The creation of the Central Laboratory, now under the able management of Dr. Adolf Meyer, was a long step forward not only in the scientific study of the insane, but in the raising of the demands for trained clinicians to work in our State institutions.

Among the innovations in the present report we find a series of eight graphic charts representing the ratio of the insane of the different counties to the population, the heredity of the insane, the increase in insanity, the occupation of the insane, the mortality, the nativity of patients admitted, the foreign born insane, and the relations of immigration and insanity.

At the close of 1906, New York State had 26,357 insane patients in its public hospitals, or a proportion of one to about 300 of the population. These show a very uneven distribution. About seven of the counties show a proportion of less than one in 500, but these are counties in which the population is growing very rapidly, and the families moving in leave their insane relatives in the counties from which

they move. Counties like Washington, Essex, and Hamilton show very few insane, while Albany, Rensselaer, Dutchess, Putnam, Oneida, Ontario, Yates, Seneca, Schuyler, and Chemung show the greatest proportions of cases. From Monroe to Chemung there is a belt of high proportion counties, which in the graphic chart on heredity is very striking. This chart is somewhat misleading and is probably to be interpreted on the hypothesis that the movement of population in this middle area of the State has been more or less stable for a number of years, and hence capable of analysis, while in large cities the defective histories from recent immigrants cause this factor to be lost sight of. The histories are too defective.

As a rule the highest proportions of mental disturbances are found in the small urban populations. This is largely due to the fact, already noted, that the rapid influx into the large cities tends to keep the proportion down. The chart on the increase of insanity shows it to have been steadily going up since 1897, the annual percentage increase of the insane mounting above the percentage increase of population.

Concerning the factor of occupation, it is interesting to note that indoor mechanical workers show a low percentage of mental disease. The statement that the mentally diseased are apt to live as long as those of sound mind is disproved by a consideration of mortality among the insane in the State. Serious physical disease is prevalent among the insane, but deaths from dysentery, which have been common in many English institutions of late years, are absent with us, and the number of deaths from tuberculous disease in our institutions is not much above the proportion in the general population. This speaks well for the conditions under which the New York State insane live.

It is a very striking and significant fact that, while the percentage of the foreign born to the State population is twenty-six, the percentage of the foreign born insane is forty-six. Whence the higher prevalence of insanity among the foreign born it is hard to state. Economic conditions are undoubtedly largely creative of the disparity in numbers. A further study of our immigrant insane is also noteworthy. The mingling of races is so active at the present time that it is difficult to state just what the tendency is, further than to say that there is a very high percentage of mental disorders among the immigrant population. During the past ten years the percentage of patients of Irish and German birth has decreased, while a corresponding increase in the proportion of natives of Russia, Austria, Hungary, and Italy has taken place. That such a marked change in the composition of the foreign born in-

sane should follow so quickly the changes in the sources of immigration is significant and leads to the conclusion that new and important conditions are bound to arise in the population of our State hospitals.

These studies are full of interest and merit further extension. We congratulate the commissioners on their report, some of the more general features of which have been here referred to. There is much matter of importance hidden in the enveloping mass of data of these reports; in fact, more than has ever been presented before, and it is a sign of progress that some of it has been put in such shape that he who runs may read.

There is, however, another feature of these reports that merits notice. The tax payer may take comfort in the fact that such formation as "four dirt carts were painted" occupies some hundreds of pages of the report. We have no doubt that they and the "seventy telephone poles" and "new wheelbarrows" and "ten ice boxes were well painted," and that "the house on the bluff had four rooms and hall painted and one room papered," were well attended to, or that the "eighty yards of duck dipped in oil" was better duck for its ducking; yet it seems a waste of space to put this sort of information into a report of this kind. We are well aware of the poor showing that the reformer makes in interfering with old institutions of no matter what character, but we hope to find in the newly appointed president of the commission, Dr. A. W. Ferris, a mind to keep such details reduced to a minimum.

"EUTHANASIA" IN FICTION. A DANGEROUS MISCONCEPTION.

As we took occasion to point out a short time ago, certain careless writers, and some indeed who have not generally been regarded as careless, have so used the word euthanasia as to impart to it a meaning for which there is no warrant either of etymology or of authoritative precedent, namely, as implying that a physician knowingly administers a narcotic in a poisonous dose so as to hasten the unavoidable end. Such a proceeding is wholly without the bounds of probability, as it as surely constitutes murder as if the patient were a person in robust health. It would in fact be murder in its most heinous form, for the physician would be taking advantage of the peculiar position of trust in which his professional relations have placed him.

The subject presents an ever new fascination for the nonmedical mind. For physicians the question is settled, but it continues a debatable topic for the layman. An intelligence trained to regard as crime the shortening of life, whether at its beginning or near its close, would smother every cry and every

to hear from the laity an impassioned justification of human interference. The same type of mentality that excuses infanticide for reasons of policy, poverty, or thinly veiled caprice finds in the pain of hopeless illness a warrant for what is mistakenly termed euthanasia.

The doctrine that this form of murder is excusable receives its latest statement in Edith Wharton's novel *The Fruit of the Tree*, which for several reasons demands notice. The well known literary power of the gifted author of *The House of Mirth*, her electric illumination of human motive, her keen summary of experience, and the vivid beauty of her diction give her teaching special force and acceptance. The tones ring so clear that the lay reader especially needs sharp ears to detect the rift in the lute.

Medical interest centres in one incident of the story. The heroine, Justine Brent, a trained nurse, has charge of Mrs. Amherst, who has been thrown from a horse, sustaining a fracture and dislocation of "the fourth vertebra" and consequent paraplegia. Justine is overworked, deeply attached to her patient, and unduly affected by her sufferings. Despairing of her recovery and to end her pain, she injects intentionally a fatal overdose of morphine. "In her hospital experience she has encountered cases where the useless agonies of death were mercifully shortened by the physician; why was not this a case for such treatment?"

The author does not frankly defend this act. Indeed she punishes Justine through the rest of the book. But it is significant of Mrs. Wharton's own view of the matter that the heroine never suffers from consciousness of wrongdoing; throughout she defends and justifies herself. "The fruit of the tree" is administered by society, whose conventions she has rashly transgressed. So the impression remains of a strong, emancipated spirit beaten down by the reaction of an iron social order against a novel but meritorious deed.

The immorality of a story which sets such an act before the reader in the light of an excusable blunder must be apparent to all. But if the author takes refuge in the shibboleth that "art has nothing to do with morals," we still find adequate cause for censure on the ground of improbability. With a character as strong, as sane, and as well poised as that of Justine it is hardly conceivable that a woman could have deliberately and solely for the purpose of relieving the suffering have administered a poison to her patient. We recall a clever short story in which the half-witted niece put an invalid out of pain by means of chloroform, as she had seen them with morphia. In that case the lack of moral and mental development of the person brought the story within the realm of probability. Mrs. Wharton's

offender is, on the contrary, a woman of unusual mental breadth and of lofty character. In making such a woman commit such a crime and in then seeking to extenuate it the author has, we think, sinned against both art and morals, and her high standing in the world of letters makes her offense all the more serious.

The astonishing thing about all this is that a writer of Mrs. Wharton's cleverness and experience should, without due knowledge, venture to treat so delicate a medical theme. We may overlook her persistently terming anodynes anæsthetics and her loose use of "hallucination" on one page for illusion and on another for delusion; though in a style singular for its precision these slips alone betray her unpreparedness. But we challenge her imputations. It is incredible that any tumult of sentiment should sweep a trained nurse of Justine's character and discernment from the anchorage of the discipline and traditions of her order, and cause her to commit murder in order to shorten suffering. Doubtless the noble class of women whom Justine represents will resent the situation as insulting. The grievance, however, that the medical man will have because of the book rests mainly on the sentence above quoted: "In her hospital experience she had encountered cases where the useless agonies of death were mercifully shortened by the physician," and the facile inference that such a course is sanctioned by our profession. We ask Mrs. Wharton to give one instance in which a physician, for the purpose of ending pain, intentionally shortened a human life by one fraction of a second. As for the implication that such an act would be regarded by medical sentiment as anything but criminal, we advise Mrs. Wharton to make some inquiry before *The Fruit of the Tree* reaches its next edition.

FATTY DEGENERATION OF THE BLOOD.

Histologists and pathologists are in accord at the present time in regarding the blood as a tissue. Since the blood is a tissue, it is natural to suppose that it can suffer from the same degenerative changes, and possibly from the same inflammatory changes, that affect the other tissues of the body. It is not unreasonable to look upon a polymorphonuclear leucocytosis as an inflammation of the blood. By an ingenious method of formalin fixation followed by staining with scharlach, Shattuck and Dudgeon (*Proceedings of the Royal Society*, lxxix, B 534) have studied the blood in seventy-nine cases of various anemias, toxemias, and inflammatory diseases. In chlorosis, influenza, pleurisy, pericarditis, the toxemia of pregnancy, pneumonia, purpura, diabetes, lipremia, myelæmia, lymphadenoma, cerebrospinal meningitis, and chloroanæmia secondary to nephritis and carcinoma, fat was found in

the leucocytes as indicated by transparent points, or droplets, colored red with scharlach. The polymorphonuclear neutrophile leucocytes are the ones which show the fatty change. Fatty change has never been observed in the lymphocytes. The authors ascribe the fatty degeneration of the leucocytes to a reduction of the oxygen carrying power of the blood.

In diphtheria and pernicious anæmia fatty degeneration was not found, but in both these conditions the leucocytes were found laden with fine granules of a deep brown color, but not presenting the transparency and proper red color of ordinary fat. The authors call this granulation "scharlach granulation." They found it in cases of subphrenic abscess, exophthalmic goitre, pneumonia with empyema, appendicular inflammation, pericarditis, and acute meningitis, in addition to the two diseases already mentioned. After discussing the various possibilities in explanation of the granules, the authors are inclined to believe that the granulation is indicative of a degeneration which is allied to that known as fatty, but not absolutely identical with it. For the present they leave the true nature of the scharlach granulation undetermined.

THE MILLINER'S FEATHER DUSTER.

It dusts the air. The woman who wears it bears about with her a drag net operating at a height of a little more than five feet above the pavement, a very promising altitude at which to gather in microbes. The feathers are so many tentacles for use in the chase. When she gesticulates with her head she distributes her "catch" upon the just and the unjust impartially, in church, in the theatre, and elsewhere. On her return to her home she is very apt to wave the plumage over her sleeping child, only to wonder, a few days later, from whom little Johnnie got the scarlet fever.

Obituary.

FRANK HEUEL, M. D.

Dr. Heuel, son of the late Dr. Franz Heuel, died on Monday evening, October 28, 1907, at his late residence, 200 West Eighty-sixth Street, New York. He was born in the city of New York on April 11, 1855, was a graduate of the public schools and the College of the City of New York. He received his medical education, and was graduated with the highest honors from the Medical Department of the University of the City of New York. He was among the first ten honor men, also receiving the Budd prize on obstetrics, and the Piffard prize on dermatology. During his professional career he held many positions of trust. For years he was associated with the Health Department of the City of New York, and was an attending surgeon at the Demilt Dispensary and at the Eastern Dispensary. He held the chair of clinical professor of surgery and

was prosecutor to the chair of general surgery in the Medical Department of the University of the City of New York. For many years he was consulting surgeon to the various hospitals and institutions on Randall's Island.

ALBERT BENEDICT LYMAN, M. D., O. B. M.

Dr. Lyman died at Baltimore, Md., August 29, 1907. He was born on April 24, 1846, as the son of the Right Reverend Theodore Benedict Lyman, D. D., Bishop of North Carolina, and was a graduate of Wadham College, Oxford, England. He studied medicine at the University College Hospital, London, and at the Rotunda Hospital, Dublin, Ireland, and at Heidelberg and other German universities. He was assistant surgeon in the German army during the Franco-Prussian war, for which he received the service medal. He was vice-provost of the Brothers of Mercy, 1889 to 1902, and provost since 1903. He was a beloved and devoted member of the Anglican lay order of the Brothers of Mercy.

News Items.

The Presbyterian Hospital of Allegheny, Pa., it is reported, is in need of \$200,000 to complete its buildings.

Removal.—The *Texas Medical News* announces the removal of its business office from Austin to Dallas, Texas.

The New Jersey State Tuberculosis Sanitarium, located at Glen Gardner, was dedicated on Friday, October 25th.

The Bucks County Medical Society is about to engage in the course of postgraduate study outlined by the American Medical Association to cover a period of three years.

A Memorial Statue to Dr. Joseph Leidy was unveiled on the west plaza of City Hall, Philadelphia, on Thursday afternoon, October 30th. Dr. Henry C. Chapman delivered an address.

The Psychological Clinic for Backward Children, which is conducted at the University of Pennsylvania, on Tuesday, Thursday, and Saturday mornings by Professor Lightner Witmer and Dr. Ludlum, is meeting with marked success.

Philadelphia Change of Address.—Dr. William Frederic Moore, to Llandaff and Bewley Roads, Llanerch, Delaware County, Pa.

Dr. F. S. Ferris, to 501 South Forty-fifth Street.

The Ohio Valley Medical Association will hold its annual meeting at Evansville, Ind., on November 13-14, 1907, under the presidency of Dr. Brooks F. Beebe, of Cincinnati.

The Buffalo Academy of Medicine.—On Tuesday, October 29th, the *Société de Médecine* held an adjourned meeting, the programme for which included a paper on Complications of Typhoid, by Dr. Delaney Rochester.

The Brooklyn Medical Society's Annual Dinner will take place at the Bushwick Club, on the evening of Wednesday, November 20, 1907, as a result of the announcement of the president, Dr. Hugh E. Rogers.

The New Jersey State Hospital for the Insane, located at Trenton, N. J., will have a new medical director in the person of Dr. Henry A. C. Brown, of the Massachusetts Insane Asylum, located at Danvers, Mass.

The Pittsburgh Hospital for the Treatment of Indigent Consumptives, it is understood, will be started in the near future. The hospital is a charitable enterprise, with an fifteen-manor, with the intention of the city having been secured.

The Medicolegal Society of Philadelphia. As a result of the meeting of the Medical Society of Philadelphia, held on the 21st of October, 1907, Dr. J. H. McManus read a paper entitled "An Address on the Study of the Dead," which was well received.

The Pennsylvania Society for the Prevention of Tuberculosis has completed its first year's work, during which

year there were 3,627 deaths from tuberculosis in Philadelphia. The society estimates that there are about 11,000 tuberculous patients in Philadelphia.

The Medical Jurisprudence Society of Philadelphia.—This society held a special meeting on Monday evening, October 21st. Adolph Eicholz, Esq., delivered an address on Expert Testimony from the Lawyer's Standpoint, which was followed by a general discussion.

The Idaho State Medical Society.—At the annual meeting of this society, held at Boise, on October 4, 1907, the election of officers resulted as follows: President, Dr. Erwin W. Kleinman, of Shoshone; vice-president, Dr. J. C. Woodward, of Payette; secretary and treasurer, Dr. E. E. Maxey, of Boise.

The Hampden District, Massachusetts, Medical Society.—The quarterly meeting of this society was held at Springfield, on October 15, 1907, under the presidency of Dr. C. A. Allen, of Holyoke. Dr. George W. Gay, of Boston, president of the Massachusetts Medical Society read a paper on Doctors' Mistakes.

The Sixth District, Georgia, Medical Association will hold a meeting at Macon, on November 13, 1907, under the presidency of Dr. M. A. Clark, of Macon. The association has a membership of 242 physicians, practising in the Sixth Congressional District, and was the first permanent organization of the kind perfected in the State of Georgia.

The New York Skin and Cancer Hospital.—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkeley will give a ninth series of clinical lectures on Diseases of the Skin, in the Out-Patient Hall of the hospital, on Wednesday afternoons, from November 6 to December 18, 1907, at 4:15 o'clock. The course will be free to the medical profession.

The Graduate Nurses' Association of Pennsylvania, at its annual meeting, held in Pittsburgh, on October 18th, elected the following officers: President, Miss Roberta West, of Philadelphia; vice-presidents, Miss E. Reed, of Philadelphia; Miss Garbison, of Philadelphia; secretary, Miss Anna Nedwill, of Philadelphia; treasurer, William McNaughton, of the West Penn Hospital, Pittsburgh.

The Second Councilor District Society of the State Medical Society of Wisconsin, comprising Kenosha, Racine, and Walworth counties, held a meeting at Racine, on October 17, 1907, and elected the following officers: President, Dr. Henry J. Stalker, of Kenosha; secretary, Dr. Milton V. De Wire, of Sharon. The next meeting of this society will be held at Elkhorn.

The Medical Society of the County of Wyoming, N. Y.—The annual meeting of this society was held at Warsaw, on October 22, 1907. Officers for the ensuing year were elected as follows: President, Dr. Mary Theresa Greene, of Castile; vice-president, Dr. J. S. Wright, of Perry; secretary and treasurer, Dr. L. H. Humphrey, of Silver Springs. Castile was selected for the next place of meeting, in January, 1908.

Charitable Bequests.—The Woman's Hospital of Philadelphia has been awarded \$10,000, by the executors of the Dulles estate, for the purpose of the erection of a children's ward, in memory of Mary Cheves Dulles. In addition, the institution has just received \$5,000 and the deeds to a piece of real estate in Philadelphia, from the estate of Rebecca White, for the purpose of endowing a bed in memory of Miss White.

The Plague Situation in San Francisco.—A newspaper dispatch from Washington, dated October 29th, states that with regard to the plague in San Francisco, the health authorities are beginning to show good results. The poisons so far employed are parts of plaster-of-paris and flour.

The Third District Branch of the Medical Society of the State of New York has elected the following officers for the year 1907-1908:

President, Dr. J. H. McManus, of Philadelphia; vice-president, Dr. J. C. Woodward, of Payette; secretary and treasurer, Dr. E. E. Maxey, of Boise.

Philadelphia Personals.—Dr. S. Y. Ho, surgeon general of the Chinese army, visited the medical institutions of Philadelphia on October 23rd and 24th.

Dr. George P. A. Gunther, of Clifton, Pa.; Dr. C. E. Gardner, of Pawtucket, R. I.; Dr. W. G. Farwell, of the U. S. Navy; Dr. Albert Woerner, of Snyder, Pa.; Dr. J. A. Black, of Pueblo, Colo.; and Dr. Wilbur A. Foster, of Wilkes-Barre, Pa., are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

The Medical Society of the Woman's Hospital.—At the regular meeting of this society, held on Monday evening, October 21st, Dr. Marie K. Formad reported cases from the gynecological service; Dr. Charlotte Fairbanks reported a case of tetanus; Dr. Kate W. Baldwin read a paper on The Treatment of Tetanus; Dr. Sarah H. Lockrey reported a case of intestinal obstruction; and Dr. Eleanor C. Jones read a paper on Mucous Colitis. The discussion was opened by Dr. Frances Van Gasken.

The Philadelphia Neurological Society.—At the stated meeting of this society, held on Tuesday evening, October 22nd, Dr. Horace Carnross reported a case of cerebral monoplegia; Dr. Eugene Lindauer reported a case of progressive muscular atrophy of the distal type; Dr. Alfred Gordon reported a case of unilateral hemorrhage in the medulla followed by syringomyelic sensory disturbances; Dr. W. G. Spiller reported a case of epiconus lesion; Dr. C. S. Potts reported a case of astasia abasia; and Dr. J. W. McConnell reported a case of hemiplegia complicated with tabes dorsalis.

The Cincinnati City Medical Club.—A new medical society was organized in Cincinnati, on October 12, 1907, called the City Medical Club. Meetings will be held monthly and topics of general scientific interest discussed. All schools of medicine are represented in the organization, and it is expected that they will work in perfect harmony. A distinguishing feature in the new club is that a physician to become a member must be under thirty-five years of age. The officers elected were: President, Dr. Howard Schell; vice-president, Dr. Glenn Adams; secretary, Dr. Ralph Reed; treasurer, Dr. Charles Synder.

The Orange, N. J., Memorial Hospital.—The board of managers of this hospital has been reorganized. It formerly consisted of sixty women. This board has delegated all of its powers to a smaller board composed of men and women. The women are selected from the executive board of the women managers. Three men are chosen from the advisory board and three physicians from the attending staff. This smaller board is made entirely responsible for the management of the hospital. The outcome of this experiment is watched with great interest. Thus far it seems to be quite successful.

The Philadelphia Pathological Society.—At the meeting of this society, held on Thursday evening, October 24th, Dr. John M. Swan exhibited the contents of a branchial cyst. Dr. R. C. Rosenburger read a paper on the Actual Significance of Tubercle Bacilli in the Feces. Dr. W. T. Cummins read a paper on Metastasis of Squamous Epithelioma of the Oesophagus. Dr. Henry S. Wieder read a paper on Sarcoma of the Orbit. Dr. Joseph McFarland and Dr. E. M. L'Engle exhibited a specimen of Cysticercus Tenicoides. Dr. Frederick J. Katelyer read a paper entitled Observations on Urinary Tubercles. Dr. Katelyer also exhibited a new centrifuge tube.

Philadelphia County Medical Society.—At the regular semi-monthly meeting of this society, held on Wednesday evening, October 23rd, papers were read by Dr. G. Morton Illman and Dr. Harry A. Duncan on The Etiology and Treatment of Thrombosis, Based Upon Studies of the Coagulation Time of the Blood; by Dr. J. N. Henry, on Intraspinal Injection of Magnesium Sulphate in Tetanus, with Report of Four Cases; by Dr. John B. Roberts, on The Anesthesia Peril in American Hospitals; by Dr. George Erety Shoemaker, on Ruptured Ovarian Sac Suggesting Extruterine Pregnancy; and by Dr. George E. Price, on

Society. Tuesday, November 5th, Academy of Natural Sciences; Philadelphia Medical Examiners' Association. Wednesday, November 6th, College of Physicians; Association of Clinical Assistants of Wills Hospital. Thursday, November 7th, Obstetrical Society; Medical Society of the Southern Dispensary; Section Meeting, Franklin Institute; Northwest Branch, Philadelphia County Medical Society. Friday, November 8th, West Branch, Philadelphia County Medical Society.

The Kentucky State Medical Association.—At the annual meeting of this association, held at Louisville, on October 15-17, 1907, the president, Dr. D. M. Griffith, of Greensboro, was requested to retain the office for another year, when he will be succeeded by Dr. John G. Cecil, of Louisville, who was elected president. The other officers elected were: Dr. J. T. Wesley, of Middleburg, first vice-president; Dr. J. M. Peck, of Arlington, second vice-president; Dr. B. M. Taylor, of Greensburg, third vice-president; Dr. Dunning S. Wilson, of Louisville, orator in medicine; and Dr. J. Frank Boyd, of Paducah, orator in surgery. Dr. J. N. McCormack, of Bowling Green, was elected secretary for five years. Winchester was selected as the next place of meeting.

A Series of Lectures on Tuberculosis is to be given this winter in the Municipal Building, on the corner of Fourth and Dorchester streets, South Boston, Mass., under the auspices of the South Boston Antituberculosis Society. This organization held a meeting on October 16th, in the Municipal Building. Dr. Edward A. Tracy presided. The series of lectures is as follows: *October*, Tuberculosis in General, Dr. Herbert J. Keenan; *November*, Home Treatment for Tuberculosis, Dr. William H. Ruddick; *December*, Tuberculosis in Children, Dr. Marcellus Reeves; *January*, Prevention of Tuberculosis, Dr. James S. McDonald; *February*, Tuberculosis in Women (women only), Dr. Addie M. Dalrymple; *March*, Tuberculosis and Quackery, Dr. William J. Sheehan; *April*, Conquest of Tuberculosis, Dr. Edward A. Tracy.

The Sixty-first Anniversary of the Use of Ether as an Anesthetic was commemorated at the Massachusetts General Hospital, Boston, on Wednesday, October 16, 1907. The exercises took the form of a reception, which was largely attended by physicians and nurses from many hospitals and their friends, and the day marked also the formal opening of the new orthopaedic ward. The building is one story in height and similar in construction to the other newer wards. It is in Fruit Street, just west of the skin ward. Thirty beds have been set up in the new department, some in the open wards and others in private rooms. Dr. H. W. Marshall, formerly a house officer in the general wards, will be in charge of the new department, and the visiting physicians will be Dr. Joel E. Goldthwait and Dr. Robert B. Osgood.

The Mortality of Chicago.—According to the report of the department of health, for the week ending October 19, 1907, there were during the week 508 deaths from all causes, as compared with 539 for the corresponding week in 1906. The annual death rate in one thousand of population was 12.57. The principal causes of death were: Apoplexy, 15; Bright's disease, 52; bronchitis, 16; cancer, 23; consumption, 47; convulsions, 10; diphtheria, 10; heart diseases, 45; influenza, 1; intestinal diseases (acute), 51; measles, 2; nervous diseases, 14; pneumonia, 44; scarlet fever, 4; suicide, 2; typhoid fever, 7; violence, other than suicide, 37; whooping cough, 1; all other causes, 118. There were 114 deaths of children under one year of age; 41 between one and five years of age; 37 of persons between five and twenty years of age; 212 between twenty and sixty years of age; and 104 over sixty years of age.

New Hospitals for Philadelphia.—It is proposed to convert the house at 207 North Twenty-second Street, Philadelphia, into a hospital. The staff will include Dr. J. Thompson Schell, Dr. H. B. Mills, Dr. H. P. McMill, Dr. Carl Lee Felt, and Dr. Luther C. Peter.

The Chestnut Hill Hospital, located at Germantown Avenue, Chestnut Hill, Philadelphia, was opened on Saturday, October 10th. Dr. Radcliffe Chester is the chief surgeon and Miss Mary Jacobs is the head nurse.

The Federation of Italian Societies is planning to erect a hospital in Philadelphia for the use of people of that nationality. It is believed that \$200,000 will be necessary for the erection of the institution.

Meeting in Philadelphia for the Week Ending October 25, 1907.

Philadelphia Academy of Surgery; Biological and Microscopical Section, Academy of Natural Sciences; West

Pith of Current Literature.

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 24, 1907.

1. The Röntgen Ray in Pædiatrics, By THOMAS M. ROTCH.
2. Twenty-five Years' Experience in the Treatment of Stricture of the Urethra, By FRANCIS S. WATSON.
3. Prostatectomy in Two Stages of Special Technique, By FOLLEN CABOT.
4. The Question of Justifiable Homicide, By CHARLES GREENE CUMSTON.

2. **Twenty-five Years' Experience in the Treatment of Stricture of the Urethra.**—Watson states that electrolysis and division are methods of treatment which should both be abandoned. Internal urethrotomy is the only method of treatment by which an important number of cures can be obtained. It is an operation involving but little danger. Its application should be restricted to strictures within the first five inches of the canal unless external perineal urethrotomy is done in combination with it. For strictures of the deeper part of the canal gradual dilatation is the best form of treatment if constitutional disturbance does not rise in connection with its employment, and if the urethra for a reasonable length of time maintains the calibre to which it has been expanded by the instruments. For the cases in which the strictures of the deep urethra recontract rapidly after dilatation, or those in which constitutional disturbances arise in the course of its employment, also for the resistant or impassable strictures of the deep urethra, in all of which conditions gradual dilatation is useless, external perineal urethrotomy, or internal urethrotomy combined with the external incision in the perineum is the safest and most efficient method of treatment. External perineal urethrotomy is the only operation that should be applied in cases of stricture accompanied by urinary extravasation. Resection of the strictured part of the canal should be selected in cases of intractable, very dense strictures of the perineal part of the canal. The following rules should be observed in the performance of internal urethrotomy: 1. The urethra must be thoroughly irrigated immediately after the operation, after the first urination, and after the first passage of sounds subsequent to the operation. The bladder should also be emptied and irrigated at the end of the operation. 2. The meatus must be cut to a size of 4 mm. larger than the normal calibre of the urethra. 3. The strictured part of the canal must be cut to the full size of the normal calibre of the urethra in each individual case. 4. The normal calibre should in each case be determined beforehand in accordance with the standard of measurements laid down by Otis. 5. The operation will fail if the urethra is acutely or subacutely inflamed at the time of its performance, or if such inflammation arises during the healing of the incision subsequently. The tying of a catheter into the urethra after the operation is objectionable because of the inflammatory reaction which it so frequently excites. When this occurs a greater amount of connective tissue is formed in the cicatrix and recontraction results. 6. The normal calibre of the urethra must be maintained during the healing of the incision, and this is secured by the passage of a sound of the size of the normal calibre of the urethra every second day after the operation until the wound is healed. This requires on an average fourteen days. The absence of bleeding following the use of the sound is a reliable guide for determining when the incision has healed. Internal urethrotomy done under these conditions yielded, according to the author's experience, 50 to 60 per cent.

3. **Prostatectomy in Two Stages of Special Technique.**—Cabot draws the following conclusions: 1. In the event of any question of the patient's physical condition being equal to a complete prostatectomy, do a preliminary suprapubic cystostomy under local anesthesia. This will probably be the operation of choice in 50 per cent. of the cases. Drain the bladder while the patient is up and about, till the condition is better than before cystostomy. This will take from ten days to four weeks. 2. In all cases with severe cystitis, damaged kidneys in cases suffering with severe hemorrhages, in all so called emergency prostatectomies, and in diabetics, carry out this preliminary cystostomy and later, as the patient's condition warrants it, do an enucleation. 3. Its advantages are the quick relief afforded with slight shock from severe symptoms. The patient receives all the advantages of a prostatectomy, with none of the serious dangers. He gets good bladder drainage and consequent rest and comfort. 4. If the preliminary cystostomy kills, a prostatectomy would have been foolhardy. If the patient recovers from the little blow he usually rapidly gains strength; the prostate becomes less congested; the cystitis disappears, and a change has been produced which usually permits a successful enucleation later. 5. At the time of this second operation, well developed granulation tissue has appeared and prevents absorption. 6. At each operation there will be only one point of hemorrhage to look out for instead of two, as is the case in a complete operation at one time. This is of importance in feeble old men, and should not be overlooked. 7. The final operation should never be performed till the patient's condition is better than it was before the preliminary cystostomy. 8. The ease with which these feeble old men become bedridden is a danger, and therefore the fact that they can be gotten up so quickly after the preliminary and final operations adds much to their chances of recovery. Their proneness to contract pneumonia and other diseases while lying in bed is well known, and we diminish this danger by getting them on their feet in a few days. This is a much more difficult matter in the severe shock following a one stage operation.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

October 26, 1907.

1. The Place of Pharmacology in Medicine, By HORATIO C. WOOD, JR.
2. The Pharmacopœia versus the Proprietary Materia Medica, By JOSEPH P. REMINGTON.
3. Pharmacists and Physicians and the Food and Drugs Act, By C. S. N. HALLBERG.
4. Medical Treatment of Cholelithiasis, By GEORGE DOCK.
5. Scarletina and Duker's Disease, By A. C. COTTON.
6. Epidemic Acute Poliomyelitis in Norway in the Years 1903 to 1906. Results of Anatomic Investigation of Nineteen Cases of Acute Poliomyelitis and Kindred Conditions, By FRANCIS HARBITZ and OLAF SCHEEL.
7. Gastroscoy. Report of Additional Cases, By CHEVALIER JACKSON.
8. Congenital Squint, By WILLIAM CAMPBELL POSEY.
9. Voltaic Turbinal Puncture for the Relief of Intussuscent and Hypertrophic Rhinitis, By F. E. NERES.
4. **Medical Treatment of Cholelithiasis.**—Dock says that among drugs used in suspected infection of the biliary tract salicylates are probably of definite value as disinfectants and chologogues. Their effects must always be watched and undesirable results prevented by timely suspension of the remedy. The possibility of dissolving gallstones in the gallbladder or ducts is not yet abandoned; in fact, it is difficult to doubt the good faith of many observers who believe that such a thing is possible. The author has seen patients in whom others had tried practically all the remedies recommended for that purpose, but without any evidence of even partial solution or softening. The solution of stones in the bile tract by internal administration of olive oil is believed by very few. It is probably true that

some of the early use of olive oil was encouraged by finding soap concretions in the stools, and yet there are reasons for thinking that oil may nevertheless be useful in cases known as gallstone colic. In some of these it is probably useful because there is an error in diagnosis, and the supposed gallstone colic is a pain due to spasm of the pylorus from hyperchlorhydria or something else. It is well known that gallstones are sometimes associated with reflex disturbances of the stomach, either secretory or sensory. If hyperchlorhydria is associated with gallstones olive oil given before meals will lessen the secretion of hydrochloric acid, and in that way relieve some of the symptoms. In other cases there is little or no free hydrochloric acid, but this may be combined with a hypermotility of the stomach. Olive oil will lessen the hypermotility and, in some cases, by so doing, improve the intestinal digestion. From every point of view it seems important to look on the stone as less important than the infection in clinical cholelithiasis. The treatment, then, in any case will depend on the interpretation of the clinical features. The so called colic in by far the great majority of cases is not a mere colicky pain like that which occurs in ureteral calculus, but is usually an inflammatory pain, with the danger in all cases, of peritonitis, perforation, gangrene, and more or less distant or widespread infection. For the attack the indications are to relieve pain, to lessen inflammation, and to diminish the risk of stagnation of bile. For the first indication opium is indicated. A hypodermic injection should be given large enough to lessen the worst of the pain, but not so large as to entirely becloud the clinical picture. Atropine may be added with advantage and in full doses. For the rare agonizing pain a whiff or two of chloroform sometimes seems necessary. A hot water bag or compress, or any other hot application, is often useful in relieving the pain. The hot full bath can also be used with advantage, also copious washing of the stomach with hot water or hot Carlsbad water. This seems the most soothing way of using heat and, theoretically, should lessen congestion and swelling, and act as a general sedative to the affected tissues. The lavage is repeated every two or three hours, according to the indications, during the period of most severe pain, and once a day afterward. Rest should be enjoined so far as possible. Movements of the bowels should be encouraged by hot Carlsbad water or enemas. The after treatment depends on the suspected conditions in the biliary tract, and after the acute symptoms have subsided careful attention should be paid to the presence or absence of bile in the stools or urine, the temperature, the leucocytes, and the physical condition in the region of the bile tract. The treatment of obstructive jaundice does not need discussion here.

5. Scarlatina and Dukes's Disease.—Cotton describes the clinical features of Dukes's disease, the fourth of the exanthemata with morbilli, scarlatina, and rubella, as described by him at Irvine. The disease is apparently less contagious than measles, probably equal to that of scarlatina, with a period of transmissibility of from two to three weeks. The incubation period is from one to three weeks. Prodromata are often wanting, the first symptom not infrequently being the rash itself. Occasionally, however, febrile symptoms precede the eruption by from six to twenty-four hours. Initial vomiting is exceptional. Mild catarrhal symptoms with hyperemia of the fauces, and, in some instances, may be present but not usually. The eruption is almost invariably erupts first on the face, rarely on the neck, and spreads rapidly downward, involving the trunk and portions of the extremities in a few hours. It does not reach the face and is normally preceded by a few days' irritation by itching or desquamation. Occasionally fine points first appear which quickly blend in a general hyperemia, with rarely small patches of

normal skin sharply defined by irregular margins. The marked oronasal pallor of scarlet fever is not in evidence. The color of the rash is very suggestive of scarlatina, and fades rapidly after two or three days without stain, such as is observed in measles and often in rubella. Itching is absent, nor does the skin feel hot to the touch, as in scarlet fever. Desquamation usually, but not always, follows the disappearance of the exanthem. Its character is fine and branny, rather than in shreds and patches, as in scarlet fever. The febrile movement, usually marked, subsides rapidly with the eruption, rarely exceeding two or three days. The tongue, except for occasional coating, is negative, as also is the throat, save occasionally for a mild hyperæmia, the pulse shows no acceleration out of proportion to the febrile movement. Usually the postcervical and occipital lymph nodes are palpable early in the attack, but frequently show no swelling whatever. No massive enlargements nor softening have been observed in uncomplicated cases. As a rule, no sequelæ occur, and rarely complications, the course being usually mild and uneventful. It is distinguished from scarlet fever by: (1) Long period of incubation; (2) absence of initial vomiting; (3) moderate fever of brief duration; (4) normal ratio of pulse to temperature; (5) absence of characteristic scarlatinal tongue; (6) the absence of, or if present the fine character of, desquamation; (7) the freedom from sequelæ; (8) probably the absence of leucocytosis. When one or more cases of apparent mild scarlet fever occur in a family giving a clear history of former attacks of scarlet fever, Dukes's disease may be suspected.

6. Epidemic Acute Poliomyelitis in Norway in the Years 1903 to 1906.—Harbitz and Scheel's article, both of Christiania, Norway, is very timely. They think that poliomyelitis is due to a specific virus, and, further, that we are not dealing with the remote effect on the central nervous system, but that the organism is present in the nervous system itself, in the meninges, in the cerebrospinal fluid, and probably in the nervous substance, and that it is the direct cause of the extensive inflammation. As has been stated, many facts favor the assumption that the atrium of the infection is in the digestive tract and that the nervous system becomes infected either by the lymph stream, along vessels and nerve trunks (though no anatomical proof of this exists) or, what appears more likely to the authors, by way of the blood, which also appears to be probably the case in cerebrospinal meningitis. As to the aetiology, they state that there can be no doubt that acute poliomyelitis is an infectious disease dependent on a specific microorganism. This at least is true of the epidemic cases, even if the possibility must be admitted that the sporadic cases may be due to a different cause. In the fall of 1905 Geirsvold succeeded in demonstrating in the cerebrospinal fluid and in the throats of patients with acute poliomyelitis, in a whole series of cases, the same microorganism. It was a diplococcus, or tetrads, with certain morphological and cultural characteristics. It differed from Weichselbaum's meningococcus. This microorganism was found in three of the authors' cases in the cerebrospinal fluid, but was lacking in the majority of the cases. They also made one attempt to cultivate the organism in the spinal cord substance, but this was unsuccessful. They later succeeded in demonstrate organisms of any kind in sections from the piece of cord. They have tried all common methods of staining, and have not been able to stain them. They also tried to demonstrate the organism in the spinal fluid, but were unsuccessful. The frequent demonstrations of the same microbe is noteworthy, however, and further investigations are indicated. The future is uncertain, but it is probable that the microbe will be found in the spinal fluid in some cases.

against the presence of microorganisms in the inflamed areas. They think that we are justified in assuming that we are dealing with an organism which it is difficult to demonstrate. It seems to die rapidly; after from ten to fourteen days the cultures from the cerebrospinal fluid regularly became sterile. Experience also shows that microorganisms die rapidly in the nervous system, as, for instance, has been shown to be the case in epidemics of cerebrospinal meningitis. Here Weichselbaum's meningococcus is found in large numbers in the exudate and is easily cultivated, but it has been shown that this organism is difficult to find in sections, especially when the necropsy has not been performed immediately after death. It is possible that a similar condition may exist in the case of the organism of poliomyelitis.

7. **Gastroscopy.**—Jackson observes that, since it has long been held impossible to pass a straight rigid instrument into the stomach, it is perhaps not remarkable that the procedure is still assumed to be an exceedingly difficult one. There is a distinct disposition to regard gastroscopy as an exhibition of individual dexterity rather than the demonstration of a practical clinical method. If this error involved nothing more serious than an unmerited compliment it might be allowed to pass with bare denial. Since it involves, however, a limitation of the usefulness of a valuable method, more detailed statement may be given. There are many difficulties in gastroscopy, but wider experience fully confirms the author's previous opinion that they are not inherent, but due to faulty technique. Careful attention to two points eliminates nearly all of them. The first of these is that profound anaesthesia is essential. Pain is not great and would not demand general anaesthesia. Inspection of the oesophagus may well be preferred under cocaine, but when a tube enters the stomach, straining and retching are uncontrollable, annoying and dangerous. Convenience and safety alike demand that anaesthesia be complete. The difficulties of anaesthesia are considerable, as the anaesthetist works at a great disadvantage after the tube is once started. For this reason and also because relaxation rather than analgesia is our object, chloroform would be more advantageous than ether. A man who uses chloroform under any circumstance should choose it here. The author has, however, almost invariably chosen ether for the reason that he is most unwilling that the harmlessness of gastroscopy shall be obscured in this present stage by any death from anaesthesia. The second point is the position of the patient. In all work success demands that the mouth, pharynx, and oesophagus be brought into a straight line, not by a crowbar like action of the tube, but by holding the head steadily in extreme extension with the mouth widely open. Not only does lateral pressure add to the operator's difficulty, but it also entirely prevents any sense of what the point of the tube is touching. Trial with an unanesthetized patient will show that if the head is simply allowed to hang over the edge of the table not only is an unnecessary strain thrown on the ligaments of the neck, but full extension is not as well secured as by proper supports of the head. It is further to be remembered that no mouth gag is absolutely selfretaining and a slight slip while the tube is in position may have undesirable consequences. For this reason it is best to detail a second assistant to hold the head and steady the mouth gag, impressing him with the importance of the matter and his entire responsibility therein. To carry him out of the operator's way it is necessary that he shall hold the head at arm's length, and to hold it in this position for fifteen or twenty minutes a support is necessary.

MEDICAL RECORD.

October 26, 1907.

1. Experiences with the Bead Test for Ascertaining the Functions of the Digestive Apparatus, By MAX EINHORN.
2. Some Examples of Chemical Synthesis as Applied in the Production of Remedial Agents, By JOHN W. WAINWRIGHT.
3. Some Phases of Hospital Progress, By S. S. GOLDWATER.
4. Psychiatry and Its Importance, By ISHAM G. HARRIS.
5. Rupture of the Liver; Operation; Death, By H. A. HAUBOLD.

1. **Experiences with the Bead Test for Ascertaining the Functions of the Digestive Apparatus.**—Einhorn has made experiments with the bead test on one hundred and nine patients, during the period from October, 1906, to May, 1907. Sixty-eight such experiments were in diseases of the digestive tract and forty in diseases of other organs. The cases were: Twelve of achylia gastrica; fifteen of hyperchlorhydria; one of nervous gastralgia and colitis; one of atony of the stomach, with cardiac arrhythmia; three of chronic gastritis; six of chronic arthritis; five of chronic constipation; two of atony of the stomach, with migraine; two of chronic gastroenteritis; one of enteralgia; three of colitis; one of obesity and intestinal dyspepsia; two of ulcer of the stomach; three of splenomegaly; one of nervous gastralgia; one of flatulency; one each of sciatica, pneumonia, splachnoptosis, gallstones, syphilis of the liver, cancer of the liver and stomach, malignant tumor of the liver, aorta aneurysm, pleurisy, delirium tremens, and arteriosclerosis; three of grave malaria; six of typhoid fever; three of jaundice; and six of cirrhosis of the liver. The author states that the bead test gives a true picture of the digestion; thus at the height of the disease we frequently find a worse state of digestion than during convalescence. The results are not always the same in the same disease, as they are influenced by the individual peculiarities of the patient. Marked disturbance of the digestion (for nearly all nutritive substances) is found in barely half of the cases of achylia, in delirium tremens, in some grave cases of gastroenteritis, and sometimes in typhoid fever. A diminution in starch digestion is a very frequent occurrence and is often found; disturbances of proteid digestion alone, however, are very rare. In purely nervous affections, pure colitis, and constipation the digestive function is generally very good.

5. **Rupture of the Liver.**—Haubold reports such a case which was one of uncomplicated rupture of the liver, the lesion occurring in an exceedingly unfavorable portion of the organ as regards the application of methods of repair, and in consequence it had a fatal outcome. The case presented some unique features, concludes the author. There was at no time any evidence of shock, nor at any time the classic picture we generally regard as indicative of progressive internal hæmorrhage. Neither the rate nor the character of the pulse indicated it; the temperature was at no time subnormal, there was no thirst, no restlessness, and no air hunger. It is of course to be borne in mind that the wound in the liver substance was at a location where there are not many large bloodvessels, both the portal and arterial circulation entering farther forward, and being distributed by means of smaller branches toward the periphery, and more so is this true in respect to the particular portion of the organ involved in the trauma in this instance. What we may believe that happened is that the trauma which ruptured the liver was practically a blunt force which drove the ribs against the liver substance and ruptured it. The absence of the symptoms indicative of hæmorrhage may be ascribed to the theory that the oozing was gradual, and there was an accommodation of the body functions to the withdrawal of circulating fluid in this manner.

tions, on the infiltrated mucous membrane, produced either from folds which are normally present, or, more commonly, by the widening of the sulci, formed by the dilated gland ducts which results in a projecting loss of oedematous tissue bounded by the broadened sulci. 5. The increase of oedema in certain of the folds, formed in the manner described, combined later with a hyperplasia of the fibrous elements. This results in: 6. The formation of flat oedematous projections containing the essential constituents of the mucous membranes (broad based or sessile polypi), or the formation, through the influence of gravity and other physical causes, of oedematous projections, containing the same projections, but a greater amount of fluid, and perhaps of hyperplastic tissue, and each possessing a base which becomes relatively constricted or stretched until it constitutes a pedicle (pedunculated or gelatinous polypus). The pedicle connects the remainder of the structure, which has now become a globular swelling, with the mucous membrane from which it sprang.

13. **The Nasal Accessory Sinuses.**—Jackson thinks it is quite fair to assume that in the bulk of the cases in which complaint is made, or in which any discharge is found in the postnasal space or pharynx, or in which there is any condition approaching what is termed pharyngea sicca, caries, to a greater or lesser extent, will be found in the nasal cavities, and where there is any long standing or serious mischief the disease will be found to have extended to the ethmoidal cells. When this is the case, there will be associated with it middle ear disease, with vertigo and tinnitus.

15. **Chronic Middle Ear Suppuration.**—Milligan states that the points of special value in the treatment of chronic purulent disease of the middle ear, are: 1. The securing of free drainage from the infected middle ear cleft. 2. The treatment of any lesion of the upper respiratory or buccal tracts likely to interfere with the drainage or the ventilation of the middle ear cleft or likely to cause its reinfection. 3. The value of a cytological examination of discharge from the infected ear in assisting in the determination of operative versus nonoperative treatment. 4. The postauricular exposure of the posterior end of the middle ear cleft and the following up of the paths of septic infection thereby brought into view.

LANCET.

October 17, 1907.

1. Some Aspects of Appendicitis, Especially with Reference to Cutaneous Hyperæsthesia as an Aid to Diagnosis in Certain Complications, By Sir W. H. BENNETT.
2. On the Value of Preventive Medicine as a Factor in the Welfare of the State, By A. G. R. FOULERTON.
3. The Gag, By G. H. COLT.
4. On the Action of Venoms of Different Species of Poisonous Snakes on the Nervous System. VI. Venom of *Euhydryna Valakadieui*, By G. LAMB and W. K. HUNTER.
5. Education in Hygiene for Teachers, By D. SOMMERVILLE.
6. A Case of Vincent's Angina in which the Larynx and Trachea were Involved, By H. W. BRUCE.
7. "Hygiene" as a School Subject in Elementary Schools, By H. R. KENWOOD.
8. The Influence of Diet on the Liver, By C. WATSON.

1. **Cutaneous Hyperæsthesia in Appendicitis.**—Bennett reports three cases, in one of which a purely thoracic lesion led to a diagnosis of acute appendix disease; in the remaining two cases gangrene of the appendix was associated with thoracic symptoms. The cases show the importance of cutaneous hyperæsthesia in acute abdominal conditions. The areas of the hyperæsthesia may be said to roughly correspond to the anatomical division of abdominal walls, so far as the point of greatest intensity of the hyperæsthesia is concerned. These areas are: (1) A hyperæsthesia most intense about the situation of McBurney's point; (2) another

in which the point of intensity as at or about the level of the navel; and (3) another in which the intensity corresponds with the level of the ninth rib. On the right side the first of these is associated with certain acute cases of appendix disease, the second with inflammation or abscess about the lower surface of the diaphragm, and the third with implication of the pleura on the upper surface of the diaphragm. In the development of this hyperæsthesia it is essential that the peritoneum or pleura should be involved; it is never met with in abscess of the liver or lung in the absence of peritonitis or pleurisy, respectively. So far as appendicitis is concerned, the occurrence of acute hyperæsthesia of the abdominal wall may be generally regarded as indicative of surgical complications; for example, grave appendix disease, probably with impending gangrene, subphrenic abscess, or empyema. In cases of acute appendicitis a very rapid or sudden disappearance of any one prominent symptom—e. g., pain or high fever—without a corresponding change in all the other symptoms, is, as a rule, a sign of danger and not of improvement, and indicates that active interference should not be postponed.

4. **Snake Venom.**—Lamb and Hunter have studied the action of the venom of the sea snake or *Euhydryna valakadieui* on the nervous system, and find that it has a widespread action on the tissues of the whole nervous system, not only on ganglion cells, but also on nerve fibres. No definite conclusions can be drawn from the histological appearances of the tissues as to any specially selective action that the venom may have on any of the individual centres in the medulla. The more mesial cells of the reticular formation which include the cells of the respiratory centre, were uniformly most affected. But the lateral nucleus, the vagus nucleus, and other bulbar nuclei being also involved, one cannot claim these histological changes as evidence that the venom acts solely on the respiratory centre. As the symptoms with this venom closely resemble those produced by the venoms of cobra and the two kraits, so the histological appearances are much the same.

6. **Vincent's Angina.**—Bruce reports a fatal case of Vincent's angina occurring in a man, aged forty-seven years. Unusual features were the extensive area involved and the development of acute respiratory obstruction. The involvement of the tissues of the neck in a gangrenous process was also of great interest. The lesion seemed to resemble very closely that which is described as characteristic of the mild form of phagedæna or hospital gangrene. The relation between this disease and Vincent's angina was first pointed out by Vincent, who discovered similar microorganisms in both.

8. **Diet and the Liver.**—Watson's experiments on rats indicate that the livers of those animals which are fed on a diet containing much nitrogenous food have a considerably higher percentage weight than those of animals fed on a diet containing a smaller amount of nitrogen. Other factors which must be taken into consideration are muscular exercise and the admixture of food stuffs. But giving these their due weight, the important fact to which attention is directed is the evidence that the liver is modified by diet, and in particular, that a mixed diet which contains a large amount of nitrogenous food throws a greater strain on the liver than a diet, given in unrestricted amount, in which the nitrogenous elements are in smaller proportion.

LA PRESSE MEDICALE.

October 9, 1907.

1. Differentiation of Many of the Forms of Icterus, By F. WIDAL, P. ABRAMI, and M. BRULE.
 2. Ways of Entrance of Tuberculosis, By Professor CHALMETTE.
2. **Ways of Entrance of Tuberculosis.**—Chalmette, in a paper before the Sixth International Conference

on Tuberculosis, stated the following to be his conclusions: 1. While the contagion of tuberculosis is perhaps experimentally possible, it is difficult to get animals to inhale the products of tuberculosis of cultures in a condition of liquid spray and the inhalation of the same in dry powder produces infection very exceptionally. Hence dust infected by dry bacilli play no part in natural infection. 2. The ingestion of virulent tuberculous products or cultures in a state of emulsion gives rise to tuberculosis in all species of sensitive animals. The bacilli may pass through the intestinal mucous membrane without producing any lesions to mark their passage and be carried with the chyle to the mesenteric glands whence they are frequently transported by the microphagic leucocytes in the current of the lymph in the thoracic duct and pass with them into the general circulation. The capillaries in the lungs then form the place most exposed to become the primary seat of the tuberculosis. 3. The evolution of the tuberculous infection is the more rapid and serious, according as the number of virulent elements ingested and absorbed is greater, and as the absorptions are repeated at shorter intervals. 4. The tuberculous lesions which result from one infection are susceptible of cure, and such a cure confers a true immunity against a new infection by way of the digestive tract. The duration of this immunity has not yet been determined. 5. Hereditary tuberculosis is extremely rare. It is always the result of an infection in utero, and can hardly be considered a factor of importance in the contagion of tuberculosis. 6. The ideas of location and of a hereditary as predispositions should be abandoned because experiments show that tuberculous infection is always possible in sensitive animals in direct proportion to the number of virulent elements absorbed and the frequency of the infections.

October 12, 1907.

1. Potatoes in the Régime of Diabetics.

By MARCEL LABBE.

2. Technique of the Application of the Walking Apparatus in Fractures of the Leg.

By VIVIER.

3. Permethotherapy and Haemotherapy of Cancer.

By R. ROMME.

1. Potatoes in the Régime of Diabetics.—Labbe gives his reasons why he believes that potatoes should form a portion of the food furnished diabetics, and should not be proscribed as they have been by some writers. They should not be given in unlimited quantities, but only in quantities which, in combination with the other carbohydrates given will not exceed the tolerance of the patient for carbohydrates.

2. Technique of the Application of the Walking Apparatus in Fractures of the Leg.—Vivier depicts very clearly a method in which this apparatus is applied. The conditions in which it may be used are given as: (1) Fracture of the leg without great displacement of the fragments, fractures of the fibula, and bimalleolar fractures without subluxation of the foot; (2) oblique fractures of the tibia in which there is a retrolateral consolidation after the usual apparatus has been worn for two months.

LA REINA DE MEDICINA

October 9, 1907.

The 16 papers which follow are organized for Ulcer of the stomach and its treatment.

By E. PARNETTER and H. DRESDEN.

Dyspepsia Following Operation for Ulcer of the Stomach.—Parnetter and Dresden consider this subject very broadly, taking into account the pathology, the nature of the operation performed and other details, and so render their paper difficult to present in abstract. The general effect upon the reader is, however, to impress him that even though in many cases the ulcer has been cured by the operation, the patient has not in all cases been relieved of some of his most annoying

symptoms. In conclusion, the authors urged the collaboration of physicians and surgeons in the management of ulcers of the stomach.

BERLINER KL NISCHE WOCHENSCHRIFT

September 30, 1907.

1. An Anatomical Preparation of a Kyphotic Vertebral Column. By VIRCHOW.
2. Results of the Experimental Investigation of Cancer, By E. F. BASHFORD, J. A. MURRAY, and M. HAALAND.
3. Concerning the Excretion of Mercury in Syphilitics, By DIESELHORST.
4. Concerning the Question of the Condition of Sensitiveness of the Skin to Pain in Diseases of the Internal Organs, By B. J. WILAMOWSKI.
5. Concerning the Treatment of Angina Pectoris by Means of Strong Arc Light Baths, By K. A. HASSELBACH and H. JACOBÆUS.
6. Concerning Anuria, By J. VOGEL.

1. Anatomical Preparation of a Kyphotic Vertebral Column.—Virchow, not only describes with an illustration a reproduced kyphotic vertebral column without scoliosis, but gives similar illustrated descriptions of a senile vertebral column with kyphosis in its upper part, but no scoliosis, and the body skeleton of an old woman whose thorax was much deformed as the result of the maintenance of a vicious position of the body during life.

2. Results of the Experimental Investigation of Cancer.—Bashford, Murray, and Haaland in this article deal with the development of sarcoma during the carrying on of the experiments in transplantation of carcinoma.

3. Excretion of Mercury by Syphilitics.—Dieselhorst finds as the result of his investigations that the elimination of mercury through the urine is much greater after the subcutaneous injection of mercury than after its administration in the form of inunctions.

4. Sensitiveness of the Skin to Pain in Diseases of the Internal Organs.—Wilamowski asserts that both the hyperalgesias and analgesias in these cases are of reflex origin.

5. Treatment of Angina Pectoris by Arc Light Baths.—Hasselbach and Jacobæus describe the treatment as the exposure of the entire surface of the patient to as long continued and intense action of the electric rays as will produce as severe a dermatitis as the patient can bear. They report several cases of angina pectoris in which this form of treatment was attended with excellent results. The improvement was very noticeable in one case after the first bath, in another after the second, while in almost all it was very marked after the third.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT

October 1, 1907.

1. Anatomical and Physiological Observations on the First Thousand Cases of Spinal Anesthesia, By K. SCHLÖGL and G. GASS.
2. What Claims Are to be Attributed to a Certain Method of Inducing an Artificial Termination of Pregnancy? By HANNES.
3. Bacteriology of the Urinary Tract in Pregnancy, With Special Reference to the Pathogenesis of the Infection Under Rigid Protection, Particularly Under Gaudmann Treatment, By S. SIEBEL and S. GÄHN.
4. Strabismus (Exotropia) in Childhood, By W. MÜLLER.
5. Kriese's Experiments on the Effect of the Arc Light on the Skin, By K. A. HASSELBACH.
6. Experiments on the Use of the Arc Light in the Treatment of the Urinary Tract, By K. A. HASSELBACH.
7. Anomalous of the Liver Resulting from the Presence of a Parasite, By K. A. HASSELBACH.
8. Experimental Investigation of the Pathogenesis of the Infection of the Urinary Tract in Pregnancy, By K. A. HASSELBACH.
9. Abnormal Pathology of the Muscles in the Infected Urine, A Case of Bacteremia Caused by Urine, By K. A. HASSELBACH.
10. Removal of a Large Tumor from the Left Testis, By K. A. HASSELBACH.
11. The Anomalous of the Urinary Tract, By K. A. HASSELBACH.

12. *Technique of Obtaining a Cast of Flat Foot by Hoffa Lengfeller Method for the Correction of Flat Foot.* By LENGFELLNER.

1. **Anatomical and Physiological Observations on Spinal Anæsthesia.** Kröning and Gauss state the dangers of spinal anæsthesia, thus: 1. The danger that the anæsthetic injected into the subarachnoidal space shall be absorbed so quickly as to produce severe toxic general symptoms. 2. The danger that the injected anæsthetic may affect segments of the cord and areas of nerves in which even a transient suspension of function will result in the death of the individual, such as the segments of the spinal medulla which govern respiration, the exit of the phrenic nerve from the spinal cord, and the medulla oblongata. 3. The danger that the anæsthetic will not simply interfere transiently with the function of the affected nerves, but will create permanent disturbances and resultant paralyses, such as paraplegia of the lower extremities, with paralysis of the bladder and rectum. In order to determine whether the anæsthetic injected into the lumbar sac could be prevented from reaching the medulla the anatomical and physical conditions in the subarachnoidal space were studied, particularly the behavior of the spinal fluid in the subarachnoidal space in different positions of the body, the dependence of the spreading of the anæsthetic on the proportion of the specific weight of the injected solution to the specific weight of the spinal fluid, and the dependence of the spreading of the injected anæsthetic in the spinal fluid upon the diffusion and the currents of the spinal fluid in the subarachnoidal space. Their studies show that the spreading of the injected anæsthetic solution in the subarachnoidal fluid is dependent on the density of the two fluids, that the spreading of the anæsthetic solution which is specifically lighter than the spinal fluid when injected into the lumbar portion of the subarachnoidal space with the woman in a sitting position is limited above at first by the superjacent subarachnoidal fluid, though later extension by capillary attraction cannot be excluded, and that the spreading of the anæsthetic solution in the subarachnoidal space is really influenced by the elevated position of the pelvis.

3. **Bacteriological Investigations of Laparotomy Wounds Under Rigid Protection.**—Schenk and Scheib investigated the bacteriological conditions present from those of the skin before the commencement of the operation to those of the skin at the close of the operation, and decide that even with rigid precautions a germ free operation is impossible. The germs found were those of streptococci, staphylococci, other cocci, and bacilli. Comparison of the clinical courses of the cases with those followed by others in which the rigid precautions, as distinguished from the usual aseptic precautions, were not followed, showed that they had not been really influenced.

5. **Krause's Flaps in Ulcer of the Leg.**—Chaussy reports a case in which he obtained an excellent result by the complete excision of a chronic ulcer of the leg, followed by the application of flaps taken from the thigh, according to the method recommended by Krause. Important requirements for success are that the field of operation shall be as dry as possible, that absolute asepsis be observed, and that the flaps be properly pre-

6. **Synthetic Suprarenin.**—Hoffmann asserts that by a combination of suprarenin with novocaine good anæsthesia can be produced with a better degree of bloodlessness of the field of operation than can be ob-

7. **Angelioma of the Liver, Resulting in the Formation of a Fibroma.**—Kasai reports two cases of this nature. He alleges that the transformation takes place: (1) Through thickening of the walls of the cavernoma itself; (2) through organization of thrombi in the

cesses. From his cases he finds three indications of the process followed in the transformation: (1) Demonstration of elastin in characteristic arrangement which reproduced the outlines of the original cavernoma; (2) demonstration of fibrin in still fresh processes of transformation; (3) the appearance of hyaline degeneration with the organization of the thrombotic places.

10. **Removal of a Foreign Body from the Left Bronchus.**—Carlau reports a case in which the foreign body was located in the left bronchus by means of the x rays and later removed after tracheotomy by means of an instrument devised by Helferich.

October 7, 1907.

1. The Molecular and Ion Concentration and the Radioactivity of Mineral Water, By STRAUSS.
2. New Contributions to the Intravenous Strophanthin Therapy, By HEDINGER.
3. Concerning Nuclear Icterus of the Newly-Born, By BENEKE.
4. Concerning Motor, Sensory, and Vasomotor Symptoms Caused by Coronary Sclerosis and Other Diseases of the Left Side of the Heart, By SCHMOLL.
5. Morphology of the Urine and of the Bile, By VEIT and WEDERHAEKE.
6. Treatment of Iritis, Iridocyclitis, and of Blennorrhœa Neonatorum, By FUKALA.
7. The Use of Pure Ichthyol in Gonorrhœal Epididymitis, By PHILIP.
8. Collargol and Its Use in Diseases of the Ear, Nose, and Throat, By FRIEDMANN.
9. The Vermiform Appendix in an Umbilical Hernia, By FLÖRCKEN.
10. Isolated Subcutaneous Transverse Laceration of the Pancreas Cured by Operation, By HOHMEIER.
11. Two Cases of Dementia Paralytica with Pregnancy and Labor, By BAUER.
12. A Case of Repeated Cæsarian Section with Rupture of the Cicatrix in the Uterus, By SCHNEIDER.
13. Technique for Obtaining a Celluloid Cast of a Flat Foot, By LENGFELLNER.
14. Anatomical and Physiological Observations on the First Thousand Cases of Spinal Anæsthesia (Concluded), By KRÖNING and GAUSS.
15. Medicines of the Wasuaheli, By KRAUSS.

2. **Intravenous Strophanthin Therapy.**—Hedinger reports several cases and asserts that the action of strophanthin in cases of circulatory disturbances of cardiac origin is rapid and certain, that the associated disturbances, such as elevations of the temperature and chills, are dependent on bacterial contaminations of the solutions, and can be avoided by absolute sterilization of the preparation employed, that the therapeutic effect of the strophanthin injections does not decrease with frequently repeated injections, or only to such an extent as corresponds to the nature of a progressive lesion, that symptoms of cumulation are not induced by the doses at the intervals recommended by Fränkel and Schwartz, 1 milligramme, not oftener than every twenty-four hours, and that the intravenous administration of strophanthin may take the place of the administration of digitalis by the mouth.

3. **Nuclear Icterus of the Newly Born.**—Beneke describes a case of this disease, first described by Schmoll in 1904, with a full account of the pathological findings. The disease is characterized by a very intense bile staining of certain areas of nerve nuclei, together with an usually scarcely discernible diffuse staining of the rest of the nervous system. The histological basis of this nuclear icterus is this intense bile stain of numerous ganglion cells and of their processes in the affected regions, which also seem to be more or less necrotic. The histological study of Beneke's case is very thorough and an important contribution to our knowledge regarding this disease.

6. **Treatment of Iritis, Iridocyclitis, and of Blennorrhœa Neonatorum.**—Fukala gives as the indications in iritis and iridocyclitis to dilate the pupil ad maximum, and to apply a specific remedy to cure the inflamed iris and ciliary body. The first indication is

tissues immediately below the supraorbital ridge. A mucocoele containing much clear gelatinous fluid at once presented, the supraorbital ridge was much disintegrated and the finger was introduced into an enormously distended frontal sinus. The sinus was emptied of its contents, a tube inserted, and the wound closed. Uraemic symptoms developed, and the patient died. The case is reported because it raises the question on whom, the ophthalmologist, or the rhinologist, the duty of operating in cases of this nature devolves. The proper person, in the author's opinion, to treat such cases is one who combines both ophthalmology and rhinology in his practice. Otherwise the ophthalmologist and rhinologist should work hand in hand, and in cases where there are orbital complications, or where external incisions must be practised in the neighborhood of the orbit, the ophthalmologist should hold the knife, or at least superintend the work of the rhinologist. The ophthalmologist in turn should submit all cases in which he suspects sinus involvement to examination at the hands of the rhinologist, and when the condition is reported to be amenable to intranasal treatment to transfer the case. In a case like this the ophthalmologist could not have proceeded intelligently without rhinological aid, and the rhinologist would have been rash and out of his sphere, in view of the possibility of encountering an orbital neoplasm, who would have attempted the operation without the presence of an ophthalmologist.

5. **Epithelioma of the Lid Healed by Potassium Chlorate.**—Zentmayer reports a case in which a man, fifty-five years of age, presented a triangular ulcerated area that involved the outer part of the skin of the lower lid. Epithelioma was diagnosed. The surface was cleansed and powdered potassium chlorate was rubbed into the floor and edges of the ulcer at first every day, later every other day. After a week of this treatment the ulcer gradually diminished and finally healed.

SURGERY, GYNAECOLOGY, AND OBSTETRICS.

October, 1907.

1. **Bacterial Vaccine Therapy in Surgery.** A Report of a Series of Investigations Covering Work of the Last Eight Months, Made with a View to Determine the Value of Vaccine Therapy in the Treatment of Surgical Infections.
By L. L. McARTHUR, JOHN C. HOLLISTER, RUTH VAIL, MARY C. LINCOLN, GRACE HAGANS, JOSEPHINE LINE, and M. MALONEY.
2. **Hysterectomy for Hemorrhage.** Report of a Case of Vaginal Hysterectomy for Uncontrollable Uterine Hemorrhage Due to Pregnancy Changes at the Placenta Prae-Via. By GEORGE C. WAIS.
3. **A Case of Pugilist's Ear.** By G. FRANK LYSTON.
4. **Appendicitis Complicating the Puerperium, Including a Review of the Literature of Reported Cases.** By DAVID C. HILTON.

1. **Bacterial Vaccine Therapy in Surgery.**—McArthur remarks that when the human organism becomes invaded by an infective element, Nature's effort to resist or overcome the same is made in one or more of the following ways: By means of bacteriolysins; by means of bacteriocidins; by means of agglutinins; by means of antitoxines; by means of phagocytosis. If it be borne in mind that for the more common surgical infections, such as tuberculosis, staphylococcus, gonococcus, colon bacillus, streptococcus, etc., phagocytosis is the chief, if not the only, means by which such invasions are combated, it will be plain why the surgeon should be deeply interested in this subject, explain why we have devoted so much time, labor, and money in investigating its merits, as well as justify our efforts to present those results before this body. That we can so increase the phagocytic power is now beyond cavil, is capable any day of demonstration, and forms the means by which the therapeutical application of vaccine can be controlled, as well as offers another aid in

the diagnosis of the nature of the infective element. That diagnosis has scored a distinct advance through the aid of the opsonic index cannot yet be successfully gainsaid, although the many repeated and crucial experiments should convince us of their general accuracy. There is one unfortunate phase of the use of the opsonic index and vaccine therapy. It cannot from the very nature of the technique be determined by the busy practitioner. It not only requires a special training, much time, and a carefully conducted laboratory, but the number of cases controlled by any one expert is limited to the ten or fifteen to which he must give up his entire time. In spite of the fact that the busy practitioner cannot make these determinations for himself, it still remains true that he can utilize both the diagnostic and therapeutic values as they may appear, provided he is within a few hours' reach of a well equipped laboratory. For as soon as he sends his suspected typhoid blood or diphtheric culture to the laboratory and receives his diagnosis by telephone, wire, or mail, so can he send his patient's blood in also.—Hollister observes that vaccine therapy is of distinct value in the treatment of chronic localized tuberculosis of the bones, joints, glands, and urinary tract, acting not only as a general tonic, but as a local stimulant to repair of tissues; it is of marked value in the treatment of staphylococcus affections, such as acne, furunculosis, etc.; and it seems to be of definite value in the treatment of urinary tract infections by the colon bacillus. The author also states that he has observed about twenty-five cases of acute and chronic urethritis with and without complications, resulting from gonorrhoea. He concludes that, although the laboratory technique is difficult, very exact data may be obtained when carefully carried out.—Dr. Ruth Vail describes the technique used in determining the gonococco-opsonic index and the index itself, basing her paper on a preliminary report of the study of the indices in thirty cases of gonorrhoea. She states that in three hundred determinations, the gonococco-opsonic index in normal individuals ranged from 0.8 to 1.2, with only eighteen exceptions. In one determination each of fifty-one different normal individuals, the opsonic index ranged from 0.8 to 1.2, with only two exceptions, one being 0.7, another 1.4. In twenty-seven cases examined from two to ten times, the diagnosis was positive in 80 per cent. The phagocytic index runs closely parallel to the opsonic index in normal individuals. This is true in gonorrhoeal patients before vaccine treatment is begun. After thirty-six injections, the phagocytic and opsonic indices reached their highest points on the same day in 94.4 per cent. The average highest phagocytic index is higher than the average highest opsonic index. The phagocytic index tends to fall earlier than the opsonic index. Ten million gonococci is the average dose which has raised the opsonic index the most satisfactorily in adults, 4,000,000 to 8,000,000 in children. In a series of fifty-two gonococcus vaccine injections, only two were followed by a negative phase in the opsonic index. The author concludes that clinical conclusions cannot yet be drawn from the results of gonococcus vaccine.—Mary C. Lincoln speaks of vaccine therapy in tuberculosis. In three hundred and fifty examinations the normal tuberculo-opsonic index, with twenty exceptions, was found to range from 0.8 to 1.2, and in groups of 3 or 5 to average 1.0. Of the seventy-five cases examined for diagnosis, the clinical and the tuberculo-opsonic index diagnosis agreed in 95 per cent, and, therefore, the opsonic index is a valuable guide in the administration of the tubercle vaccine. At least two opsonic index examinations should be made between injections. In summing up the data obtained by her as to the reliability of the opsonic index determinations, there are three striking results that present themselves: 1. The comparatively small difference in the counts made by three different individuals of the same forty

slides. 2. The small range, e. g., 0.8 to 1.2, of the opsonic index of normals in over three hundred and fifty examinations. It would seem impossible to obtain such comparatively uniform indices with an unreliable technique. And 3. The generally consistent opsonic indices, e. g., such as one would expect to follow vaccine injections, in over 2,000 estimations.—Dr. Grace Hagans treats the opsonic index and vaccine therapy as applied to staphylococcus injections. Of eight hundred and forty blood examinations that have been made, three hundred and thirty-seven were of patients with known staphylococcus infection, twenty-six for diagnosis where the organism was suspected, but not obtained, and three hundred and seventy-seven from a series of five normal individuals and one hundred from the same number of persons considering themselves in good health, one examination each. These latter were noted for the purpose of ascertaining what a normal index is, and if we can consistently say it is 1.0. Staphylococcus shows the variation from 0.7 to 1.4, in one hundred different persons. Allowing for errors in technique and considering one examination is not conclusive, this variation is not remarkably wide, the average of the whole number being 1.0 for both the opsonic index and the phagocytic index. In chronic cases where a few days' delay is of small importance, it has been the custom to make three examinations before treatment was started, in order to compare the indices following and to confirm the theory that persons suffering from staphylococcus infections would have a low index. This, however, has not always been the case, though the range of variation is greater and more irregular than that of normal counts, even though the average of the three may not be consistently low. The index rises highest at the beginning of treatment, reaching the maximum point on the second and third days after inoculation, remaining so for one day only and gradually dropping; the dose must be gradually increased to produce a rise; injections are indicated according to the fall of index every seven to nine days, giving an injection preferably when it reaches 1.1 or 1.0; the number of doses in acute cases varies from 2 to 4 to effect a cure, while in chronic acne cases it requires five or six before the softening of the skin, lessened inflammation, etc., begin to be apparent.

Proceedings of Societies.

SEVENTH ANNUAL CONFERENCE OF THE SANITARY OFFICERS OF THE STATE OF NEW YORK.

Held in Buffalo, October 16, 17, and 18, 1907.

Dr. ERNEST WENDE, of Buffalo, in the Chair.

President's Address.—Commissioner EUGENE H. PORTER, M. D., delivered the customary address (see page 843).

The Dissemination and Control of Tuberculosis as Illustrated in the Bovine Species.—Professor V. A. MOORE, of the New York State Veterinary College at Ithaca, read this paper. Attention was drawn to the large number of tuberculous cattle scattered throughout New York State, and the need of adequate supervision and control over these infected animals was pointed out.

Early Diagnosis and Treatment of Tuberculosis.—Dr. JOHN H. PRYOR, trustee of the New York State Hospital for Incipient Pulmonary Tuberculosis, complimented the medical profession of the country for its policy to designate early the more cases of tuberculosis while they were in the incipient stage and were amenable to curative treatment.

Social Aspects of Tuberculosis.—The third paper of the symposium was by Dr. EDWARD DUNHAM, of New York city, secretary of the Charity Organization So-

ciety. His recommendations followed closely the lines laid down by the commissioner in his address, and called particularly for the establishment of hospitals for advanced and hopeless cases which should be under the case of the local overseers of the poor or other bodies administering the charities of the counties or municipalities.

Labor Legislation in Its Relation to Public Health.—ADNA F. WEBER, Ph. D., chief statistician of the State Department of Labor, opened the third session on Thursday morning, with this paper, in which he drew attention to the various sections of the labor laws of the State which dealt with the health of employees, making special reference to the child labor law.

Sewage Disposal for Institutions and Small Communities was discussed by THEODORE HORTON, the chief sanitary engineer of the State Department of Health. The principles governing the disposal of domestic sewage were outlined and the rough details of a satisfactory disposal plant were given as consisting of a screening chamber to remove the coarser matters; a septic tank through which the water would flow slowly and in which the anaerobic bacteria would attack the organic matters, resolving them into gases; contact beds or sprinkling filters to further remove the solids and sterilize by chlorine, ozone, etc., if effluent was to flow into a stream which a little lower down was to furnish potable water for a community.

Practical Points on Quarantine.—The Friday morning session opened with a most interesting talk by Dr. JOHN T. WHEELER, of Chatham, the director of the Division of Communicable Diseases, of the State Department of Health, in which he emphasized the need for prompt diagnosis of smallpox and a thorough vaccination of the community. He also urged the health officers to freely use antitoxine for abortive and preventive purposes in diphtheria.

Detection of Communicable Diseases.—Dr. H. E. SCHMID, president of the Board of Health of White Plains, dealt with this subject. He advocated placing in the hands of teachers circulars in which the early symptoms of the common communicable diseases were outlined, so that they could aid in the early recognition of cases occurring among their pupils.

Physical Defects in School Children.—This subject was discussed by Dr. HARLAN P. COLE, of New York city, consulting orthopedist of the State Department of Health, who referred to the need of examining children's teeth, of encouraging a development of the full lung capacity, and particularly of looking out for the minor departures from the normal so often seen in school children and which later, following an attack of acute disease when the power of accommodation has been lost, develop into marked deformities. Attention was drawn to the fact that these defects were in the majority of cases dependent upon physiological weakness of the weight bearing structures rather than upon anatomical defects.

Detection of Defects of the Eye, Ear, Nose, and Throat. Dr. HENRY D. SENTER, of Buffalo, consulting ophthalmologist of the State Department of Health, dealt with the detection of defects of the eye, ear, nose, and throat, making special reference to and giving the details of the examination about to be conducted in the schools throughout the State.

Symposium on Pure Milk.—The closing session of the conference, held on Friday evening, consisted of a symposium on pure milk, presented by health department officers of the State and the city. Dr. THOMAS DEXTER LINGRON, the health commissioner of New York city, closed what could be considered the important part of the conference. He pointed out that this was the only possible method of dealing with the problem for large cities whose milk supply was drawn from a very widely scattered area.

Address on Permit and License System.—Dr. ERNEST WENDE, of Buffalo, followed with this address; which idea was still further developed by Dr. HENRY R. HOPKINS, who spoke of the idea of control of the production and sale of milk by the "telltale" milk register, which enables a health department to trace the source of milk suspected as a means of conveying contagion.

Dr. GEORGE W. GOLER, health commissioner of Rochester, spoke of what he had done and what had been done by other health authorities in improving milk supplies by educational measures. His address was illustrated by some very interesting and remarkable stereopticon views.

The Use of the Score Card System.—The last paper of the evening was read by Dr. ELLIS W. SANTEE, dairy expert of the United States Department of Agriculture. This, too, was illustrated by stereopticon views.

The conference closed with resolutions of thanks to all those who had contributed to the success of the conference and to Commissioner Porter for the work that he was carrying on for the protection of the health of the people of New York State.

A report of the conference, however brief, would not be complete without mention of the fine exhibition which occupied one section of the Convention Hall. Here were to be found charts, maps, photographs, and mottoes dealing with various phases of the antituberculosis campaign problem. To the exhibition, all the principal institutions and organizations dealing with tuberculosis had contributed, so that there was a complete outline of what was being done for the tuberculosis in various parts of the State. The State Hygienic Laboratory also had an exhibit showing models of water filtration systems and sewage disposal plants, maps of the watersheds of New York city and other interesting illustrations of the various features of the work carried out by the different divisions of the State Department of Health.

NEW YORK ACADEMY OF MEDICINE.

Meeting of October 3, 1907 (Under the Auspices of the Section in Orthopaedic Surgery).

The President, Dr. JOHN A. WYETH, in the Chair.

The Joint Cartilage and Its Place in Joint Pathology.—Dr. P. W. NATHAN said in this paper that, of the parts which made up the joints as organs, the synovial membrane and the cartilage had been considered the most important to the pathologist. From one or the other all joint diseases were supposed to have their origin, and when both were diseased coincidentally, the one was supposed to have led to the disease of the other. The joint cartilage was considered to be the primary seat of a number of joint diseases, particularly of a group variously known as rheumatoid arthritis, arthritis deformans, etc. Most diseases, whether infectious or degenerative, were supposed to be transmitted to it either from the capsule or from the interior of the joint, and thence to the bones beneath. The conditions within the joint bore out the physical properties of the cartilage and indicated that the function of the cartilage was not weight bearing, but was to facilitate motion by overcoming friction. It had long since been disproved that it was covered by a membrane. Both the physical properties and morphology indicated clearly what functions the cartilage was likely to serve. Its polished surface, its ability to reduce friction, and its resistance to friction under pressure and sheering showed that it was most useful as an agent to facilitate motion. Because of the absence of vessels and nerves, it was, of all the tissues, the least susceptible to irritation, and thus was still better adapted to its function. Most surgeons who had opened many joints no doubt

extensive disease, the cartilage appeared quite normal. Bacteria left the cartilage unaffected in spite of violent joint reaction even when this continued a long time (a month or more). Bacteria did not grow upon it; they did not invade it, neither did they cause proliferation of the cartilage cells, no matter how great was the irritation. It became evident that the cartilage was decidedly resistant to pathological changes going on within the joint.

The joint cartilage was never primarily the seat of joint disease; it never transmitted disease from the interior of the joint to the bone; its only reaction was that of degeneration. Whenever the cartilage was found degenerate, it was always due to primary bone disease; when both the cartilage and the capsule were diseased, the capsular disease was secondary and not primary, as had formerly been believed. All joint diseases might be divided into two great classes, those which were primarily bone disease—in which the bones were always affected (osteoarthritis)—and those in which the disease was primary in the capsule and the bones were never affected (arthritis). Contrary to the usually accepted description, none of the joint diseases had their origin in the cartilage, so that the pathology of the diseases which masqueraded under the names of chronic rheumatism, rheumatoid arthritis, arthritis deformans, etc., was faulty in its inception. As all changes in the cartilage were due to changes in the bones, it must be admitted that the pathology of these joint diseases was entirely founded upon secondary conditions and the fundamental changes almost completely overlooked. It was not surprising, therefore, that the classification of joint diseases had seemed such a hopeless task to both pathologist and clinician.

Pathological Examination of the Blood, Fluids, and Tissues.—Dr. T. HALSTEAD MYERS said in this paper that, although lately a number of papers had appeared arguing that the aid of the laboratory was a necessity, still the clinical history and the examination of the case were indispensable for making a correct diagnosis. Examinations of the blood were of value to the orthopaedic surgeon in three directions: Making the diagnosis, determining the general condition of the patient, and following the course of the disease. The number and character of the red cells and the amount of hemoglobin indicated the character and degree of the secondary anemia constantly seen in bone and joint diseases due to tuberculosis or any of the other general infections. If marked, this was an index of the loss of the power of resistance to the infection and the ability to regain the normal condition. A series of such examinations would pretty generally indicate the course of the disease, and whether an operation, if demanded, should be done at once or deferred to a more favorable time. An increase in the total number of white cells without any disorder of the blood making tissues, and aside from the physiological leucocytosis following ingestion of food, exercise, and so forth, seemed from a clinical standpoint to indicate a favorable reaction against infection. He referred to the method of examination at St. Luke's Hospital in cases in which patients had evidence of suppuration or a high temperature, and stated that he had held the belief for a long time that a tuberculous abscess should not be opened unless it became infected or was painful or inconvenient on account of its size. The differential count was a help, after an operation, to determining whether the wound had become infected or not, and the variety of the infecting bacteria could be ascertained only by direct examination or more readily by culture methods.

The diagnosis had occasionally to be made between tuberculous and typhoid osteitis. In these cases the presence of either of the characteristic bacilli should be most carefully looked for in the pus, if there was any, in the walls of the sinus or abscess, in the urine, or in

any other locality when they might be expected to be present, judging from the history of the case. Where sarcoma was suspected, the Bence-Jones albumose reaction of the urine was of value in determining its presence before the bone tumors had become palpable. These cases were, however, very rare indeed.

Examinations of the blood showed nothing characteristic in scurvy or rickets, there being a secondary anemia in both. In syphilis there was sometimes a lymphocytosis. The *Spirochæta pallida* had been found in a very few instances in the blood of syphilitics, but it only occurred in the primary and secondary stages. It had been found in congenital syphilis by several observers, but never in the tertiary lesions.

The Opsonic Index in Relation to Orthopædic Surgery.—Dr. CHARLES OGLIVY said in this paper that the successful treatment of bacterial infections had been shown to be most marked when the process was localized, and that Wright had treated a number of patients, who had localized tuberculous infections, with inoculations of Koch's new tuberculin, with such good results that this substance had been used by many others. The tuberculoopsonic index had been shown to be below normal in most cases of localized tuberculosis, though it might fluctuate if the tuberculous process was active, and there was autoinoculation. To Koch had fallen the greatest honors in the pioneer work on tuberculosis. To Wright was due the credit of proving the efficiency of very small doses of tuberculin and the definite estimation of its influence on what he had termed the "opsonic index." Wright considered that rest in bed should be regarded as a therapeutic measure in general tuberculosis to end the autoinoculation which followed exertion, and that if to this could be added the belief that the cure of bacterial infections depended neither upon the storage of fats nor upon the bronzing of the skin, nor yet upon the breathing of pure air, but upon the destruction of the invading bacteria by the antibacterial substances in the blood, we should come close to the truth. He enumerated the principles underlying the treatment of localized tuberculous infections as given by Wright. It was too often forgotten that the localized infection had been inoculated previously from the blood stream of the general circulation, which had, therefore, at some time been the host of tubercle bacilli. Local infection was in the large majority of cases a secondary infection, the primary being in the lungs, the bronchial glands, the mesentery, or the kidney. The primary focus, which remained dormant, might be recognized only at the autopsy. Sometimes the primary focus might disappear altogether.

He gave a brief outline of the histories of three patients who had tuberculosis of the hip and spine. These patients had been under observation during the past six months, and all had received injections of tuberculin, the result being that in each case the opsonic index had risen and the general and local conditions had improved. In a second series of three cases the patients had received tuberculin injections with the result that in the case of two of the patients the opsonic index had risen and the improvement had been good, but in the case of the third patient the opsonic index had fallen and the improvement had not been perceptible. In a third group of six cases the patients had had the advantages of country air and the best of hygienic and dietetic care. In all these cases the opsonic index had been marked, and, with one exception, their opsonic indices were comparatively high. The exception being a patient who had two discharging sinuses. This case was accompanied by a patient with a discharging sinus, and the opsonic index had fallen, but with the exception of these two patients, all the others had high opsonic indices, and their general condition was good.

He drew the following conclusions:

1. Tuberculosis is a well-defined process, and it is

of undoubted value in the treatment of selected cases of tuberculous bone and joint infections.

2. The rise of the opsonic index was accompanied by an improvement in the local and general conditions of the patient, if no secondary infection existed.

3. The opsonic index should prove of value in determining the advisability of discontinuing mechanical treatment.

4. The opsonic index was of value in determining the prognosis in tuberculous bone and joint disease.

5. Where there were discharging sinuses and mixed infections, the opsonic index might be raised by the use of tuberculin, without an accompanying improvement of the general or local conditions (specificity).

Skiagraphy in Orthopædic Surgery.—Dr. F. H. ALBEE said in this paper that the introduction of the Röntgen ray as a diagnostic aid in surgery had led to the establishment of a special branch of study—an art—which might be termed skiagraphic anatomy and pathology. There were certain rudimentary conditions which must be complied with if our interpretations were to be of a sufficiently trustworthy character.

First, it was very desirable, whenever possible, that the plate itself should be inspected rather than a print. Second, care should be taken that the plate was held at a proper distance from the light and that the light was evenly diffused over it. Both the distance and intensity of light should vary with the depth of development of the plate.

Tuberculosis was the most common bone disease and the one with which the orthopædic surgeon was most concerned. It was thought by many of our best pathologists to be nearly always primary in the bone. This belief, however, was not, in a large percentage of cases, confirmed by the skiagraphic findings. Although it was not unusual to find a distinct bone focus, it was more common to discover first the thickened capsule with a blurring of the outlines of the bony elements of the joints; later erosion of the articular surfaces, and finally a real destruction of bone. Another very strong evidence of bone tuberculosis, which was often earlier than any of the above mentioned more striking features, was bone atrophy, not only locally, but in the neighboring bones. This change could often be detected in the x ray plate, even before atrophy of the soft parts took place. This bone atrophy presented itself not only as a rarefaction of the bone by a diminution of its salts, but by a lessening of the diameter of the shaft. Tuberculosis in bone as in other tissues was healed by changes having their initial greatest activity in the periphery of the lesion. Much could be discovered as to the progress of the disease by a repetition of exposures at intervals. Some had found these skiagraphic warnings very reliable, and that they occurred many times before the advent of disquieting clinical symptoms.

A frequent situation for tuberculosis was the phalanges of the fingers, in the so called dactylitis. This condition was frequently confounded with a similar syphilitic affection, and the skiagraph was of extreme importance in making a diagnosis. In contrasting osteomyelitis with tuberculosis it should be said that, while the latter commonly affected the epiphyses and articular surfaces, the former rarely did so.

The bone lesions were numerous and varied in their manifestations. The late type of bone tuberculosis occurred early and the late types; the former occurred in the early stages of the disease, and the latter in the late stages. The late type of bone tuberculosis was characterized by a thickening of the bone beneath the periosteum and at the epiphyseal line, with the resulting x ray picture of a thickened bone. The early type of bone tuberculosis was characterized by a rarefaction of the bone, and the resulting x ray picture of a rarefied bone. The late type of bone tuberculosis was characterized by a thickening of the bone beneath the periosteum and at the epiphyseal line, with the resulting x ray picture of a thickened bone. The early type of bone tuberculosis was characterized by a rarefaction of the bone, and the resulting x ray picture of a rarefied bone.

After the paper was read a number of very interesting skiagraphs were shown by means of the stereopticon.

Dr. V. P. GIBNEY said that the general practitioner had to rely largely on the laboratory in helping him in his work. He referred to the fact that the surgeon often cut into a joint and found no disease present, but later on a skiagraph showed he had not cut deep enough. The Continental mind seemed to think the correction of deformities was the correct thing, but the teaching in this country was the prevention of deformities.

Dr. REGINALD H. SAYRE said the more accurately we could distinguish between diseased joints, the more accurate would be the treatment. He acknowledged the immense aid given to the profession by skiagraphs. He was of opinion that at present we were simply experimenting with the opsonic index.

Dr. CHARLES N. DOWD said perhaps we attached too much importance to laboratory aid and too little to clinical agency, and that many errors came from blood examinations. The newer methods of diagnosis must be made subsidiary to the old time methods. He had been called in consultation by a brother practitioner in a supposed case of intussusception which turned out to be pneumonia. In this case the doctor had relied on the blood count. In the opsonic index the variations had been very wide, and he was of opinion that its use was still in the experimental stage.

Dr. SAMUEL LLOYD thought there would be no old fashioned diagnosticians in the next generation. Clear judgment must be brought to bear in all cases. Skiagraphy was not exact in inexperienced hands. In diagnosis, clinical data should be brought in as well as laboratory aids.

Dr. ABRAHAM JACOBI was of opinion that very little practical use was made of the new aids of science. He thought Bier's treatment was very useful. He advised that papers be read which gave practical uses of scientific discoveries.

Dr. H. L. TAYLOR said that laboratory aids were indispensable. The clinician must always hold the key to the situation, and patients should be examined before the skiagraph was taken. He had seen a skiagraph which showed bony ankylosis, but on examining the patient he found free motion of ten degrees, which proved that the skiagraph was not reliable.

MEDICAL JURISPRUDENCE SOCIETY OF PHILADELPHIA.

Meeting of October 21, 1907.

Dr. WILLIAM M. L. COPLIN in the Chair.

Expert Testimony from the Lawyer's Standpoint.—

ADOLPH EICHHOLZ, Esq., of the Philadelphia Bar, read a paper with this title. He gave a brief analysis of the functions performed by the lawyer and by the expert in the administration of justice. It was admitted, he said, that human reason and ingenuity had not yet been able to devise any system by which actual justice was insured in every litigated case. In cases where there were disputes as to facts, one side or the other might be untruthful in its allegations, or it might be that the two sides had honest differences, and the disagreements could be accounted for by differences in perception. Examples of rules intended to hold the scales of justice evenly balanced were cited. The method of trial of causes was indicated in a general way and the position of the expert witness portrayed. The expert, though sworn as a witness, was in reality not a witness. He did not in general testify as to facts, but was supposed to aid the jury in drawing its conclusions by giving his opinion upon certain facts already testified to. He in a measure stood in the same position as the judge who gave his opinion upon the law, but with the vital difference that the court's conclusions upon the law had to be accepted, while the expert's conclusions were not

binding. In the case of the expert scientist there was not only the element of honesty and truthfulness which applied to every witness, but there were also to be considered questions as to whether the theory upon which the witness based his conclusions would stand the test of later scientific research, and whether the witness had used proper care in his investigations in the case under consideration. The danger of the expert becoming an advocate for the side employing him was referred to. Most of the remedies proposed for the improvement of the position of expert testimony were said to relate to what might be called scientific judges who were not employed by either side, on the supposition that some degree of impartiality might be obtained. The suggestion was made, however, that, since so much of so called science was empirical, it was doubtful whether an expert should be given such authority as to make his judgment theoretically or practically conclusive.

WILLIAM W. SMITHERS, Esq., emphasized the statement that the expert should not be considered a witness, describing his position rather as a supporter of the mentality of those engaged in the determination of the issue, an assistant merely, and the force of his assistance was only secondary to the cause or issue at stake. He thought the tendency prevailed in many causes to magnify the position of the expert, as did the expert as a rule magnify the importance of his particular part of the trial.

Dr. WILLIAM S. WADSWORTH strongly urged that the medical expert should have the same recognition and treatment as a legal judge, and that there should not be the effort made on the stand to discredit him. The work of the expert in observing facts and in drawing right conclusions was declared to be a necessity. The conditions, therefore, under which the courts worked should be improved.

Dr. HENRY BEATES, JR., thought the interest in the question on the part of the expert centred around knowledge and honesty, and these two properties too often became the subjects of attack and perversion. The system also of employing expert testimony was regarded as often so defective that persons totally unfit were allowed to qualify as experts. He questioned whether it was not a faulty method that permitted expert testimony to be given by a physician who was interested in the case. Regarding the point made that an expert, though sworn as a witness, was not in reality a witness, but one whose function was merely to give an opinion, he believed the sooner such rule was dispensed with the better, since opinions were influenced by environment.

JOHN H. CLARK, Esq., believed that ultimately some method would be devised by which expert testimony would be more satisfactorily made use of. One difficulty in the subject was the kind of men usually found in the jury box.

PASCHAL H. COGGINS, Esq., thought that experts were falsely regarded as impartial witnesses. This impartial position he believed impossible in matters of opinion, the result of special study and long training. The expert should occupy rather the position of counsel, and, having reached a conclusion, should be at liberty to support it by all his reason and knowledge, and to meet the opinions of the expert on the other side.

Dr. HENRY LEFFMAN pointed out that there were two sides to the question and that the expert was largely influenced by the opinion of the individual he represented and the aspect in which he viewed the case. An illustrative case, and one in which it would seem that experts might have taken either side, was that concerning the taxing of an electrical company upon the ground that it was a manufacturing corporation. In this case the question arose as to whether or not electricity was a manufactured product. He believed, on the whole, that the present system of expert testimony was the

best, and that in the friction of the opposing experts the sparks of truth were ultimately brought out.

Dr. WILFORD W. HAWKE referred to a commission in the city of St. Louis composed of physicians who had banded together to give expert testimony free of charge to the city. He cited a case in which two physicians appeared in court as experts, and when their qualifications were questioned, were obliged to say that they had never seen a case of insanity. He spoke of his experience in a recent murder trial in which the court would not allow him to qualify his statements, which in print might not convey his meaning, upon the ground that he could not give a "medical lecture" in court. The term psychic epilepsy had been used, and although both sides agreed as to the mental status of the man, the jury paid no attention to the medical testimony and convicted the prisoner.

HAINES D. ALBRIGHT, Esq., outlined the plan by which experts were obtained for the opposing sides, and thought that with the evidence brought out on direct and cross examination the system in the long run proved its value.

Dr. JOHN B. ROBERTS deprecated the present tendency for the fee of the medical man to depend upon the result of the case.

JOHN H. CLARK, Esq., thought that a lawyer who took a contingent fee, paid a fee to a man bringing him a case, or paid a physician for proving his case could not be an honest man, and ought to be sent to jail.

Mr. ALBRIGHT spoke in favor of a contingent fee under certain circumstances, for example, where the party was too poor to pay an attorney and the lawyer assumed the risk of not being paid at all.

Mr. EICHHOLZ admitted that it was sometimes difficult for a professional man to express a professional opinion in other than technical words, but urged that the medical man in his expert testimony should remember that he was expected to explain certain things of which others were supposed to know nothing and that, so far as possible, technical terms should be eliminated. An objection to the suggestion that the expert should occupy the position of counsel was the difficulty of having a deciding authority upon the point at issue between the opposing experts. While the present system of expert testimony might not be ideal, Mr. Eichholz believed it the best that so far it had been possible to devise. It was a means of getting at the truth and of deciding disputes. With some method of raising professional standards there would come the possibility of raising the standard of expert testimony.

Book Notices.

A Manual of Surgery for Students and Physicians. By LEONARD L. STEWART, M. D., Professor of Surgery, Philadelphia Polyclinic, etc. With 504 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 778. (Price, \$3.50.)

We possess many valuable textbooks on surgery, but few good compendia. Among these Dr. Stewart's manual will take a foremost rank. It gives in one handy volume general and operative surgery, with plenty of good illustrations, especially schematic, which really represent something. The author does not intend his book to take the place of a textbook, but he wishes it to be a manual for the student and for the general practitioner. It contains only those up to the modern interest, trends and the reader's expectations. There is no breadth of medicine which can be studied from books or lectures only. The practical demonstrations are the main point; but to review the observed facts, to impress upon one's mind the data, to refresh the memory, such a manual as Dr. Stewart places before the profession is of great help.

Transactions of the American Paediatric Society, Eighteenth Session, Held at Hotel Traymore, Atlantic City, N. J., May 30 and 31 and June 1, 1906. Edited by LINNÆUS EDFOED LA FÉTRA, M. D. Volume XVIII. Reprinted from *Archives of Pediatrics*, 1906-1907. New York: E. B. Treat & Co., 1907. Pp. 307.

The eighteenth volume of these excellent transactions well maintains the standard of previous years. The work of the American Paediatric Society has always been of a high order, and the yearly volume is an excellent index of paediatric progress. The present volume covers a broad range of subjects, and it cannot be said that a drift is seen in any particular direction. The number of papers on feeding of infants and children is as large as usual. One of the most notable papers is the presidential address, by Dr. A. Jacobi, upon the tonsils as a portal of microbic and toxic infection.

Dr. Jessner's Dermatologische Vorträge für Praktiker. Heft 10. Bartflechten und Flechten im Barte. Zweite Auflage. Würzburg: A. Stuber, 1907. Pp. 39.

This small pamphlet belongs to a collection of dermatological lectures for general practitioners. The title *Bartflechten und Flechten im Barte* is explained by the author as not intended to be a pun, but to indicate that he understands under *Bartflechten* especially sycosis, in contradistinction to *Flechten im Barte*, diseases of the skin that appear on such parts of the body as are covered with hair. The essay contains many valuable prescriptions and hints as to prophylaxis and hygiene.

The Microscopy of Technical Products. By T. F. HANAUSEK. Revised by the Author and Translated by ANDREW L. WINTON, Ph. D., Chief of the Chicago Food and Drug Laboratory, with the Collaboration of KATE G. BARBER, Ph. D. New York: John Wiley & Sons.

The inauguration of our pure food and drug laws has necessitated the education of a number of expert analysts, but one of the important branches of investigation is in the microscopy of foods and drugs. Apart from certain courses given in a few of the more advanced pharmaceutical schools of the country, the subject has been neglected and the literature extremely scanty. It is to remedy in part this lack that the work of Hanausek, a classic in its field, has been translated by Winton, one of our foremost experts in this important subject. The work will prove invaluable.

The Climatic Treatment of Children. By FREDERICK L. WACHENHEIM, M. D., Chief of Clinic, Children's Department, Mount Sinai Hospital Dispensary, New York. New York: Rehman Company, 1907. Pp. viii+400. (Price, \$2.50.)

This book will certainly fill a vacant place in medical literature. Very little has been published on the climatotherapeutics of childhood, and nothing comprehensive has appeared in the English literature so far. The author of this book pays special attention to the climatology of temperate North America, although he does not neglect climates of foreign countries. He speaks in Chapter I of general principles, such as the physiology of climate, temperature, humidity, atmospheric pressure, climatic zones, climates, winds and diseases, and their application to the treatment of children. Chapter II gives the climatology of temperate North America. In Chapter III he treats of the health resorts of North America and foreign countries. Chapter IV goes into more detail on the climatic treatment of the normal child, while Chapters V, VI and VII have to do with climatic influences on the sick child.

The book contains a great amount of statistical material, with good charts. The illustrations given in

Fahrenheit, the elevation in feet. In an addition will be found a complete index of individual localities under the head of their countries, which are spoken of in the book.

Dr. Wachenheim's book will certainly be appreciated by every general practitioner and pædiatrist, as it is of great value to both.

Talks to First Year Nurses. By ALFRED T. HAWES, M. D. Boston: Whitcomb & Barrows, 1907. Pp. 191.

It is the intention of the author to give the nurse, as she enters upon her course of hospital training, enough information to enable her to understand the general condition of her patients and to carry out intelligently the details of her work. These details are to be filled out by subsequent studies and courses of lectures. The "talks" are therefore practical and cover such subjects as observation of symptoms, the skeleton and its coverings, the organs of the body, the circulation and respiration, the nervous system, materia medica, bacteria and inflammation, anesthetics, laparotomy and after care, and obstetrics. It is a very handy little work with a good index. But we only can again ask the question, Is all this knowledge necessary for the nurse? And these "talks" are only an introduction.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Clinical Therapeutics. A Handbook on the Special Treatment of Internal Disease. By Alfred C. Croftan, author of *Clinical Urology*. Second Edition, Revised. Chicago: Cleveland Press, 1907. Pp. 626.

Diet in Typhoid Fever. By John Benjamin Nichols, M. D., Washington, D. C. Providence, R. I.: Snow & Farnum Company, Printers, 1907. Pp. 92.

Elements of Physics for Medical Students. By Frederic James M. Page, B. Sc., F. I. C., Associate of the Royal School of Mines, Lecturer on Physics and Chemistry in the London Hospital Medical College, etc. With a Colored Frontispiece and Two Hundred and Thirty Figures in the Text. Chicago: W. T. Keener & Co., 1907. Pp. xvi-288. (Price, £1.25).

The Diagnosis and Treatment of Diseases of Women. By Harry Sturgeon Crossen, M. D., Clinical Professor of Gynecology, Washington University; Gynecologist to Washington University Hospital and Chief of the Gynecological Clinic, etc. With Seven Hundred Illustrations. St. Louis: C. V. Mosby Medical Book and Publishing Company, 1907. Pp. xiii-799.

Transactions of the Mississippi State Medical Association. Roll of Members, Constitution and By-Laws. Fortieth Annual Session, held at Gulfport, April 9 to 12, 1907. Pp. 341.

Annual Report of the Board of Health of the Department of Health of the City of New York for the Year Ending December 31, 1905. Volumes I and II. Pp. 911.

Miscellany,

The Medical Department of the Army.—We understand that for the examination held July 29th to fill vacancies existing in the medical department of the army there were only twenty-six applicants. Of these, twelve withdrew after they had made themselves acquainted with the professional and physical qualifications required; fourteen completed the examination, and of these only three were successful. At the previous examination, held April 29th, there were seven successful applicants, thus making a total of ten who passed the preliminary examination and will enter the Army Medical School in October for special instruction required before they receive their commissions in the corps. It thus appears that the experience of last year and the preceding years is only repeated. The number of vacancies occurring each year is greater than can be filled from the list of candidates who present themselves. There is no prospect that this condition of af-

fairs will improve until Congress passes legislation, which has so often been urged, to increase the inducements to young medical men to enter the army medical service. It is hoped that Speaker Cannon, who is responsible for the defeat of the medical department reorganization bill, will at the next session of Congress see the grave injustice he has done and allow the bill to pass.—*The Journal of the American Medical Association*, September 7, 1907.

The United States Pharmacopœia a Textbook.—At the recent annual meeting of the American Pharmaceutical Association the following resolutions were adopted:

Whereas, The American Medical Association, the American Pharmaceutical Association, and the National Association of Retail Druggists, together with many State and local organizations and journals in both professions, have been for some years endeavoring to bring about a return to the practice of medicine based on the Pharmacopœia, and

Whereas, The medical colleges are represented on the Committee of Revision of the United States Pharmacopœia, and

Whereas, It is manifest to the thoughtful men both in medicine and pharmacy that a very large number of medical men might be better informed regarding the Pharmacopœia as a book of reference and standards. Be it therefore

Resolved, That it is the sense of the American Pharmaceutical Association, in convention assembled, that a great advance in the ethical practice of medicine and pharmacy will be made when the medical colleges make the Pharmacopœia a prescribed textbook or book of reference and require a familiarity with it in their examinations.

Resolved, That we request the governing authorities of all medical colleges in the United States to put into force such a ruling in their respective institutions as will insure in future classes a well grounded knowledge of materia medica and pharmacognosy, as set forth in the Pharmacopœia.

Resolved, That the General Secretary be directed to transmit a copy of these resolutions to each medical college in the United States and to the medical and pharmaceutical press.

The Twenty-fifth Anniversary of the Charity Organization Society of New York City.—The celebration will be held in New York on November 19, 20, and 21, 1907, and will be an event of national importance in charitable work. The society is the largest charity organization society in the United States, and from its establishment by the New York State Board of Charities in 1892, it has been closely identified with almost all social movements in the metropolis. The opening session of the anniversary will be held at Carnegie Hall on the evening of November 19th. During the two succeeding days, three conferences each day will be held in the Charities Building. At one conference the contrast between the New York of to-day and that of a quarter of a century ago will be presented. Another topic of vital interest will be the social education of the community, and the methods of increasing the general knowledge of sound principles and good methods in social work. There will be excursions to various points of civic interest, and one session of the conference will probably be held at the immigration station at Ellis Island. Not only are charity organizations invited to send representatives to this conference, but all others who are interested in the welfare of the poor are invited to attend and participate in the discussion. This society is one of the oldest in the United States and was founded in 1882 "to be the centre of intercommunication between the various churches and charitable agencies of the city, to foster harmonious coopera-

tion between them, and to check the evils of the overlapping of relief." Charitable aid to individual families was from the first one of its fundamental activities. It sought to procure suitable and adequate relief and employment for deserving cases of need. The "promotion of the general welfare of the poor by social and sanitary reforms, and by the inculcation of habits of providence and self dependence" has from the first been a leading aim of the society. Since 1893, its central offices have been in the United Charities Building at Twenty-second Street and Fourth Avenue. Ten district offices have been a necessary development, coinciding with the growth of Manhattan and the Bronx. In latter years, apart from the continued attention of the society to thousands of cases of destitution annually, it has been closely identified with the establishment of the Tenement House Commission, the National Child Labor Committee, the National Association for the Study and Prevention of Tuberculosis, and the Charity Organization Committee on the Prevention of Tuberculosis.

Fractures of Long Bones of the Lower Extremity.

Paul reports a series of 281 fractures of the femur, 136 of the tibia and 333 of both tibia and fibula. All fractures which did not unite within the normal limits were regarded as cases of delayed union, no distinction being made between delayed union and nonunion. The 281 fractures of the femur occurred in 276 patients, 217 of whom were males and 59 females. Five patients had both femurs broken. The right femur was broken in 150 cases, and the left in 131. Eighty-three per cent. of all the cases were solidly united within nine weeks, 4 per cent. left the hospital in less than nine weeks and before the fractures were solid; 1 per cent. of the patients died shortly after entrance, 1 per cent. were operated upon for delay in union, and 11 per cent. required ten weeks or more for solid union to take place. Forty-four per cent. of the fractures which were solidly united within nine weeks were in patients under ten years of age, while of the cases requiring more than ten weeks for solid union only 6 per cent. were under ten years; but there were seven patients over seventy years of age, and in each one of these the fracture was solidly united within nine weeks. Ninety-seven per cent. of the fractures in patients under ten years of age were solidly united within seven weeks. Apparently fractures of the femur in children unite readily, but old age does not prevent union within the normal limits. Among the 136 fractures of the tibia, 112 were males and 24 females; 66 of the right tibia and 70 of the left. Forty-three per cent. of the patients were under twenty years of age, 48 per cent. were between twenty and fifty years, and 9 per cent. were over fifty years. One hundred and twenty-three patients were under observation until solid union took place, nine were discharged within five weeks without having become solidly united, two fractures were under observation for sixteen weeks without uniting solidly, and two patients died a few days after entering the hospital, one of shock and the other of delirium tremens. In no case was an operation for delayed union made. Eighty-two per cent. of these fractures were solidly united within seven weeks, and 9 per cent. required from eight to thirteen weeks for solid union to take place. The remaining 9 per cent. included patients who were lost, eight of two who died, and two whose fractures were not solid at the end of nine and sixteen weeks, respectively. Twenty-eight per cent. of the fractures which united solidly within seven weeks were in patients under ten years of age. In fact, all those in patients under ten years old were solid in five weeks or less. Of the fractures requiring from eight to thirteen weeks for solid union to take place all but one were over twenty years of age. There were five pa-

tients over sixty years of age, and in four of these the bones were solidly united within seven weeks. One fracture in a patient of eighty-two years was solid in five weeks. There were 333 fractures of the tibia and fibula together, 82 per cent. of which were in males and 18 per cent. in females. Fifty-five per cent. of these fractures were of the right leg and 45 per cent. were of the left. The fractures occurred at all ages, but were comparatively rare in children, 7 per cent. occurring in the first and second decades, respectively. Seventy-one per cent. of the fractures were in patients between twenty and fifty years of age and 15 per cent. of the patients were over sixty years of age. Two hundred and ninety-two fractures were under observation until solid union took place, the time required varying from three to thirty-eight weeks. Twenty-three patients were discharged within four weeks of the time of fracture and lost sight of. Twelve fractures were observed for more than nine weeks, without uniting solidly, two were operated upon for delayed union, and four patients died, all of delirium tremens, within eleven days of the time of fracture. Seventy-eight per cent. of the cases which were observed until solid union took place united solidly within nine weeks, while 12 per cent. required over eleven weeks to become solidly united. There were twenty-three patients under ten years of age, all of whose fractures were solid within eight weeks. There were 237 fractures in patients from twenty to fifty years of age, and sixty-six per cent. of these were solidly united within nine weeks. There were seven patients over seventy years of age. Five of these fractures were solid within nine weeks, one patient died eleven days after his accident and in one the union was delayed.—*Boston Medical and Surgical Journal*, August 2, 1907.

Official News.

Public Health and Marine Hospital Service
Health Reports:

States.	Date.	Cases.	Deaths.
California—San Francisco.	Sept. 1-20.	8	1
Indiana—Indianapolis.	Oct. 7-13.	8	0
Kentucky—Louisville.	Oct. 4-10.	8	0
Illinois—Chicago.	Oct. 13-19.	8	0
Louisiana—New Orleans.	Oct. 6-12.	8	0
Michigan—Saginaw.	Oct. 6-12.	8	1 case
Massachusetts—St. Louis.	Oct. 6-12.	8	0
Minnesota—St. Paul.	Oct. 1-11.	8	0
New Jersey—Newark.	Oct. 6-12.	8	0
Washington—Tacoma.	Sept. 20-Oct. 5.	1	0

States.	Date.	Cases.	Deaths.
Idaho—Idaho.	Sept. 22-28.	6	0
North Carolina—Charlotte.	Aug. 7-13.	6	0
North Carolina—Raleigh.	Aug. 20-Sept. 1.	6	0
Ohio—Shreveport.	Aug. 20-Sept. 8.	7	0
Ohio—Cincinnati.	Oct. 4-10.	7	0
Illinois—Chicago.	Sept. 2-9.	1	0
Illinois—M.	Sept. 2-9.	1	0
Illinois—P.	Sept. 2-9.	1	0
Illinois—B.	Sept. 2-9.	1	0
Illinois—C.	Sept. 2-9.	1	0
Illinois—R.	Sept. 2-9.	1	0
Illinois—Bismarck.	Sept. 2-9.	1	0
Mexico—Aguas Calientes.	Sept. 2-9.	1	0
Minnesota—Fergus.	Sept. 2-9.	1	0
Illinois—M.	Sept. 15-21.	1	0
Illinois—A.	Sept. 15-21.	1	0
Illinois—B.	Sept. 15-21.	1	0
Illinois—C.	Sept. 15-21.	1	0
Illinois—D.	Sept. 15-21.	1	0
Illinois—E.	Sept. 15-21.	1	0
Illinois—F.	Sept. 15-21.	1	0
Illinois—G.	Sept. 15-21.	1	0
Illinois—H.	Sept. 15-21.	1	0
Illinois—I.	Sept. 15-21.	1	0
Illinois—J.	Sept. 15-21.	1	0
Illinois—K.	Sept. 15-21.	1	0
Illinois—L.	Sept. 15-21.	1	0
Illinois—M.	Sept. 15-21.	1	0
Illinois—N.	Sept. 15-21.	1	0
Illinois—O.	Sept. 15-21.	1	0
Illinois—P.	Sept. 15-21.	1	0
Illinois—Q.	Sept. 15-21.	1	0
Illinois—R.	Sept. 15-21.	1	0
Illinois—S.	Sept. 15-21.	1	0
Illinois—T.	Sept. 15-21.	1	0
Illinois—U.	Sept. 15-21.	1	0
Illinois—V.	Sept. 15-21.	1	0
Illinois—W.	Sept. 15-21.	1	0
Illinois—X.	Sept. 15-21.	1	0
Illinois—Y.	Sept. 15-21.	1	0
Illinois—Z.	Sept. 15-21.	1	0

Formosa	Sept. 7-11	1	1
Japan—In Northern ports	Sept. 23	67	Epidemic.
Japan—Kobe	Sept. 7-14	26	26
Japan—Osaka	Sept. 7-14	4	Present.
Japan—Yokohama	Sept. 17-23	17	17
India—Bombay	Sept. 18-24	13	13
India—Calcutta	Sept. 1-7	3	3
India—Cochin	Aug. 2-9	2	2
India—Rangoon	Sept. 1-7	2	2
Korea—In Northern ports	Sept. 1-7	11	Present.
Korea—Nakanoishima Island	Sept. 5-11	2	2
Manchuria—Dahly	Sept. 15-21	4	4
Manchuria—Port Arthur	Sept. 15-21	3	3
Philippine Islands—Manila	Aug. 31-Sept. 7	2	2
Philippine Islands—Province of			
Lyte, Carigara	To Aug. 31	2	cases daily.
Russia—St. Petersburg	Sept. 1-7	16	16
Straits Settlements—Singapore	Sept. 1-14	4	4

Yellow Fever—United States.

Florida—Fernandina	Oct. 17	1	from S. S.
			Alf from Santiago.

Yellow Fever—Foreign.

Brazil—Manaus	Sept. 15-21	4	3
Brazil—Para	Sept. 22-28	1	4
Cuba—Alcañices	Sept. 18	4	4
Cuba—Cienfuegos	Oct. 18	1	1
Cuba—Habana	Oct. 16	2	1
			Case from Cienfuegos.
Cuba—Jovenlanos	Sept. 24	1	1
Trinidad—Matanzas Province,			
near Unio de Reyes	Oct. 16	2	2
Trinidad—Santa Clara	Oct. 16	1	1
			Plague—United States.
California—San Francisco	Oct. 13-19	5	5
Washington—Seattle	Oct. 16-19	1	1

Plague—Foreign.

Brazil—Pernambuco	Oct. 6-15	1	1
Brazil—Rio de Janeiro	Aug. 26-Sept. 1	2	2
Brazil—Sao Paulo	Aug. 25	1	1
China—Hingchua	Aug. 24	1	Present.
China—Hongkong	Aug. 25-31	1	1
China—Nantai, suburb of Foo			
Choo	Aug. 24	Present, among natives.	
Egypt—Alexandria	Sept. 16-28	6	4
Egypt—Port Said	Aug. 19-26	1	1
Egypt—Dakahlieh Province	Sept. 16-18	2	1
Egypt—Minieh Province	Sept. 18-27	1	1
India—General	Aug. 24-31	6,953	4,627
India—Bombay	Sept. 18-24	30	30
India—Calcutta	Sept. 1-7	5	5
India—Rangoon	Sept. 1-14	2	2
Japan—Osaka	Sept. 7-14	1	1
Korea—Nakanoishima Island	Sept. 11	1	Imported.
Mauritius	Aug. 16-Sept. 19	21	18

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending October 26, 1907:

CHAMBERLAIN, WESTON P., Captain and Assistant Surgeon. Returned to duty at Jackson Barracks, La., from leave of absence.

CONNOR, CLARENCE H., Captain and Assistant Surgeon. Ordered to accompany troops from San Francisco, Cal., to Fort Leavenworth, Kas.

HEINZMANN, CHARLES L., Colonel and Assistant Surgeon General. Ordered to his home to await retirement from active service.

LEWIS, WILLIAM F., Captain and Assistant Surgeon. Relieved from duty at the Army General Hospital, Presidio of San Francisco, Cal., and ordered to Fort Sill, Okla., for duty.

MACY, FREDERICK S., First Lieutenant and Assistant Surgeon. Left Fort Williams, Me., for Philippine service.

PORTER, RALPH S., Captain and Assistant Surgeon. Arrived at Fort Huachuca, Ariz., for duty.

RICH, EDWIN W., Captain and Assistant Surgeon. Granted leave of absence to December 1st.

SMART, WILLIAM, Captain and Assistant Surgeon. Ordered to return from Jackson Barracks, La., to his proper station.

TORNEY, GEORGE H., Lieutenant Colonel and Deputy Surgeon General. Assigned to duty as Chief Surgeon of the Department of California, and as Medical Superintendent, Army Transport Service, in addition to present duties.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending October 26, 1907:

HATHAWAY, C. S., Assistant Surgeon. Detached from duty with marines in Cuba, and ordered to continue treatment at the Naval Medical School Hospital, Washington, D. C.

HIGGINS, M. E., Assistant Surgeon. Appointed an assistant surgeon, from October 4, 1907; ordered to the Naval Medical School, Washington, D. C.

SPEAR, D. A., Assistant Surgeon. Appointed an assistant surgeon, from October 4, 1907; ordered to the Naval Medical School, Washington, D. C.

Births, Marriages, and Deaths.*Married.*

ALLEN—CONRAD.—In Philadelphia, on Wednesday, October 16th, Dr. H. Crosby Allen and Miss Edith Longaker Conrad.

APPLEDORN—PENNYPACKER.—In Philadelphia, on Wednesday, October 16th, Dr. Ernest F. Appledorn and Miss Grace Pennypacker.

BENTON—LAMB.—In Canon City, Colorado, on Thursday, October 17th, Mr. Claude Benton and Miss Edna Lamb, daughter of Dr. George C. Lamb.

BICKSTEIN—UDITSKY.—In Philadelphia, on Wednesday, October 23rd, Dr. Albert Roy Bickstein and Miss Claire Rosalind Uditsky.

CRAFT—BLEYTHING.—In New York, on Thursday, October 24th, Lieutenant Ralph Payne Craft, United States Navy, and Miss Edith May Bleything, daughter of Dr. George Dacre Bleything.

DAVIS—BOWDOIN.—In Philadelphia, on Saturday, October 26th, Dr. John Staige Davis and Miss Kathleen Bowdoin.

DAVIS—MACALLISTER.—In Philadelphia, on Wednesday, October 16th, Dr. Allison B. Davis and Miss Alma B. MacAllister.

DAY—CALLAHAN.—In Somerville, Massachusetts, on Wednesday, October 23rd, Dr. Albert Cushman Day and Miss Estelle Maude Callahan.

GILLETTE—SAMPSON.—In New York, on Wednesday, October 23rd, Dr. Curtienus Gillette and Miss Annie P. Sampson.

GILLIS—MOSHER.—In Boston, on Wednesday, October 16th, Dr. John Ewen Gillis and Miss Sarah Alvada Mosher.

HOOKE—STOKES.—In Noroton, Connecticut, on Thursday, October 24th, Dr. Ransom S. Hooker, of New York, and Miss Mildred Phelps Stokes.

HUNT—SHAW.—In Boston, on Thursday, October 22nd, Dr. Wilson E. Hunt, of Malden, Massachusetts, and Mrs. Carrie M. Shaw.

MAYER—BRUMBACH.—In Cincinnati, Ohio, on Tuesday, October 15th, Dr. Daniel Mayer, of Charleston, West Virginia, and Mrs. Olive Brumbach.

O'HARA—O'BRIEN.—In Springfield, Massachusetts, on Thursday, October 17th, Dr. Francis J. O'Hara and Miss Agnes O'Brien.

POWELL—KERR.—In Philadelphia, on Wednesday, October 23rd, Dr. William Leven Powell and Miss Eleanor Lyn Kerr.

Died.

BABIN.—In Brooklyn, on Friday, October 25th, Dr. Hosea John Babin, medical director in the United States Navy, aged sixty-four years.

CHILES.—In Richmond, Virginia, on Saturday, October 19th, Dr. Luther R. Chiles.

DAY.—In Boston, on Saturday, October 26th, Dr. Albert Cushman Day, aged twenty-five years.

DURKEE.—In Brooklyn, on Sunday, October 27th, Dr. Jeanette Reid Durkee.

GRAY.—In New York, on Saturday, October 19th, Dr. Joseph F. Gray, aged forty-seven years.

PAYNE.—In Lancaster, Kentucky, on Thursday, October 17th, Dr. Stokely T. Payne, aged ninety-one years.

SQUIRE.—In Washington, D. C., on Monday, October 21st, Dr. Linus T. Squire, aged seventy-two years.

WARREN.—In Lancaster, Pennsylvania, on Wednesday, October 23rd, Dr. Lucius A. Warren, aged sixty-two years.

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Original Communications.

MODERN LITHOTRITY.

By J. W. S. GOULEY, M. D.,
New York.

1. The writer's previous essay,¹ devoted chiefly to the development of lithotripsy, to the evolution of the necessary instruments, and to the results of the operation, did not include any description of modern methods of proceeding; hence the following endeavor to fill this lacuna and to supply such information as may be of practical utility to beginners.

2. Before undertaking the operation of modern cystolithotripsy the surgeon endeavors to ascertain the nature of the existing stone and of the length of its vesical imprisonment and assures himself of its size, of the condition of the urethra, bladder, and kidneys, of the physical state of the patient, and of the particular operative method indicated, for the main requirements of the operation are that the patient be in a fair physical condition, that his urethra be ample, and that his bladder be tolerant of the needed instruments.

3. Having determined to operate and duly prepared the patient by general and local means, the prime object of the lithotrist is to strive to accomplish as much as deemed safe toward speedily ridding the bladder of its offender with no serious injury to the organ, a minimum of pain, and the least degree of shock to the sufferer. His next object is to cure any existing or consecutive cystitis and prevent a recurrence of the calculous affection.

4. The indications of the operation are that the stone be free, frangible, and of small or medium size; that is to say, from one to two centimetres in mean diameter. But under favorable circumstances stones of larger size may be crushed, and within certain limitations the plurality of stones is not a contraindication.

5. The existence of a urethral stricture is not a contraindication of lithotripsy provided the urethra can be freely dilated or even enlarged by internal incision. But a narrow resilient stricture in the perineal region, especially if it be of traumatic origin, contraindicates lithotripsy by the natural route and demands an external cutting operation.

6. Urethrovessical obstruction, unless very extensive, does not contraindicate lithotripsy. Simple spasmodic contraction of the vesical neck often subsides during the preparatory treatment and ceases soon after the operation and the expulsion of the detritus. But in cases of thick "bars" at the neck of the blad-

der or of tumors of the prostate, lithotripsy is not always practicable, and cutting operations are then required.

7. When the bladder walls are much thickened, when the viscus is permanently contracted, when its capacity is markedly diminished, or when it is so inordinately irritable as to be absolutely refractory to preparatory treatment, provided the kidneys be not diseased, perineal lithotomy is indicated and lithotripsy contraindicated; advanced disease of the bladder, ureters, and kidneys always contraindicating both lithotripsy and lithotomy.

8. To make proper choice among the operations of lithotripsy (1) in multiple short sittings, (2) in one or two sittings with extraction of the detritus by means of the spoon lithotrite, (3) in one prolonged sitting with aspiration of the detritus, requires mature experience, cool deliberation, sound judgment, and the careful consideration of the peculiarities of each case. Therefore, only general rules are formulable, and these rules must be varied to suit the exigencies of particular cases.

9. As a general rule, multiple short sittings of from one to three minutes' duration, are applicable in the case of patients whose bladders are only moderately tolerant and do not fully respond to preparatory treatment. Three or four such sittings, each with a single introduction of the lithotrite, three or four days apart, being ordinarily sufficient to cause the spontaneous expulsion of all the detritus of a friable and granular stone two centimetres in mean diameter.

10. One or two sittings of ten or twelve minutes each, with five or six introductions of the spoon lithotrite, as originally recommended by Heurteloup under the designation of lithocnosis, sometimes suffice to remove from a tolerant bladder the major part of a friable stone of two and a half centimetres in mean diameter; the remainder of the detritus being expelled spontaneously.

11. Cystolithotripsy in one long sitting with aspiration of the detritus is said to be indicated when the stone is large or when there coexists urethrovessical obstruction, but it is often performed in violation of both these indications. Witness the many reported operations of litholapaxy for stones which evidently were destructible at a single sitting of two minutes. Another notable fact is that some of these reported cases required two, three, and even four sittings with detritus aspiration. The operation was named "litholapaxy" as well as rapid lithotripsy, although it lasted twenty, thirty, sixty minutes, and in some cases, as long as two hours, whilst the sittings of simple lithotripsy average two minutes.

¹Read before the Section of Manual of Bellevue Hospital at the meeting of October 2, 1907.
Section of Urology, Annals p. 312.

When in this simple method four sittings are required, only eight minutes in all are consumed for the trituration of a stone of medium size. This is indeed a sufficiently rapid process, but prudence demands that there be intervals of three or four days between the sittings or, at most, twelve days, to effect a cure. However, many cases of stones two centimetres in diameter are removed at a single sitting of three minutes without the aid of aspiration or of general or local anaesthesia, and with scarcely any pain to the patient.

12. Much may be said against the single sitting with aspiration of the detritus when this sitting is prolonged one hour or longer as practised by some of the followers of Bigelow. The urethral and vesical irritation caused by the repeated passage of the too large and heavy lithotrite and by the introduction of the enormous tubes through which aspiration is made, the violence done to the bladder by the beak of the lithotrite in the many seizures of calculous fragments, the friction and even erosion of the vesical mucous membrane by large angular fragments during search for these, and the several aspirations with sudden and frequent, distention of the bladder, are serious objections to the one prolonged sitting. The process of aspiration is so much more painful than the crushing of the stone and of its fragments that in prolonged litholapaxy, anaesthesia is rendered necessary, and this is a grave objection considering the fact that this anaesthesia is continued sometimes one and even two hours, particularly when it is effected through the inhalation of strong ether whose deleterious action upon the kidneys is so much dreaded. Therefore, in cases of large or very hard stones, is it not wiser to substitute for litholapaxy suprapubic or perineal lithotomy and thus avoid the consequences of a bruised or otherwise injured bladder, such as general cystitis and pyelonephritis, besides the acute nephritis which is so frequently caused by the elimination of a large proportion of the ether consumed to maintain anaesthesia?

13. In our days, lithotritry at one prolonged sitting is not very much encouraged, for the reason that the vast majorities of cases of large stones are treated with greater safety to patients by other methods which leave behind no untoward vesical trouble. The early writers on litholapaxy, allured by some brilliant immediate results, hastily recommended it and had many followers who, however, were soon disappointed when they found how much the bladder was suffering from the inflicted violence, and when they realized that the new was of more difficult execution than the old method of proceeding. But there are surgeons who still perform the operation at one prolonged sitting, notwithstanding the fact that the effects of one or two hours' trituration of a stone and aspiration of its fragments are known to be so injurious and to be much more grave than the irritation caused by the fragments in simple lithotritry whose main object, however, is rather the granulation than the coarse fragmentation of the stone.

14. It is clear that the great expectations of litholapaxy's first zealous advocates have not been realized, for they soon discovered that the operation could not always be terminated at one sitting; that it was not suitable in many cases of large stones; that

it was not adaptable to certain cases complicated with prostatic obstruction; that it had been misapplied, by the over zealous, to cases of medium sized and of small stones amenable to simple lithotritry in one or two short sittings; that, in too many instances, the injury inflicted upon the bladder had led to chronic cystitis and to the formation of phosphatic stones; and that the necessarily prolonged anaesthesia was too dangerous to be generally employed. It is never safe nor wise to strive to generalize any mode in surgery.

15. With or without anaesthesia, litholapaxy, in short sittings, applied to a limited class of cases, is a fairly good operation in the hands of skilled and experienced lithotritrists, but is too difficult an undertaking for beginners or for those who are not constantly occupied with the surgery of the genitourinary organs.

16. A few words only need be said concerning the use of other anaesthetics in lithotritry. Nitrous oxide gas is often employed in preference to ether or chloroform. The writer resorted to this gas in 1879 for a lithotritry with aspiration in the case of an aged patient (see *Medical Record*, October 18, 1879), and since then has occasionally used it with very satisfactory effect. It is scarcely necessary to make more than casual mention of the fact that several other agents, some of them very unsafe, have been used for general anaesthesia, but none of them appears to possess any advantage over nitrous oxide. A few years ago spinal anaesthesia was proposed as an aid to lithotomy and lithotritry, but so far it has been little used in genitourinary surgery. Complete local anaesthesia is effected through vesical injection of a cocaine solution and also through rectal injection of antipyrine in strong solution. Cocaine solutions were employed in lithotritry by Weir, of New York; by Burns, of Tübingen; by Böckel, of Strasburg; and by Callionzis, of Athens, in and before the year 1885.² Since then these solutions have been in use by divers American and European lithotritrists, among them Chismore, of California; and Alexander,³ of New York, who used a combination of cocaine, morphine, glonoine, and antipyrine. Duchastelet⁴ resorted to antipyrine solution by the rectum for local anaesthesia in lithotritry.

17. Very exceptionally has the writer employed any form of anaesthesia in his lithotritries which, ordinarily, have been of very short duration even when aspiration of the detritus had become necessary.

18. The foregoing considerations, which, in part, relate to some of the principles of lithotritry, will be followed by a brief statement of the main features of its practice, besides a few remarks on lithotritry and litholapaxy in children.

19. The practice of modern lithotritry differs in several important particulars from that followed down to the beginning of the last quarter of the nineteenth century. New methods of diagnosis of stone in the bladder now have a strong influence on the choice of operation. Some of the needed instruments have undergone very decided modifications. The sittings are often so much longer than formerly as sometimes to require local or general anaesthesia. The new aspirators are more effective than the old.

² *Annales des maladies des organes urinaires*, iv, pp. 179, 231, 429, 609, 1886.

³ *New York Medical Journal*, January 30, 1907, p. 147.

⁴ *Annales des maladies des organes urinaires*, xvii, p. 508, 1869.

The after treatment is more completely carried out.

20. The necessary instruments for the performance of modern lithotripsy are: An irrigation apparatus; flat bladed, fenestrated, and spoon lithotrites; an apparatus for detritus aspiration; a special crusher and evacuating catheter combined; alligator jawed forceps; and such minor tools as the operator may choose to add.

21. The simplest irrigation apparatus answers well for cleansing the bladder and for leaving in an amount of fluid sufficient for the operator's purposes.

22. The lithotrites used by the writer are the plain bladed, the fenestrated, and occasionally the spoon, all very strong, of comparatively light weight and worked by screw power. The first consists of two blades projecting from their shafts, a fluted handle screwed to the female shaft, a sectional nut, a long screw near the end of the male shaft and a stout wheel at its extremity. The total length of the instrument is thirty-eight centimetres. Its weight is two hundred and seventy grammes. Its blades closed measure twenty-four millimetres in circumference. Its two shafts in position are nineteen millimetres in circumference. Its hollow fluted cylindric handle is two and one fifth centimetres in diameter and eight centimetres in length. The nearly rectangular beak, three centimetres in length, is made up of the two blades which, when open, are styled the jaws. One blade, designated the female, is hollowed to receive the somewhat narrower male blade which is crested and ridged obliquely from the sides to the central line looking toward the smooth surface at the bottom of the female blade. This blade's shaft is slotted longitudinally in its whole extent for the lodgment of the male blade's shaft, which is therein dovetailed, but slides freely to and fro. The handle, fastened securely to the end of the female shaft, contains the sectional nut, the two sections of which are to be closed upon the threads of the screw by a simple well known contrivance originally devised by Charrière and variously modified by Weiss and other cutlers. The screw is then brought in action by turning the wheel adjusted to the distal extremity of the male shaft. The lithotrite with fenestrated female blade is heavier and more powerful than the plain bladed instrument, and is intended for the fragmentation of hard stones; the hardest stones not being amenable to the crushing process, but only to lithotomy. The spoon lithotrite differs from the others only in its blades, both of which are deeply hollowed for picking up and enclosing very small but rough gravelly masses, and also for extracting the putty like substance of certain soft phosphatic stones.

23. Careful preparation of the patient for lithotripsy is essential to the success of the operation which may be marred by failure to observe the details of the preparatory process described in a previous essay. Indeed, there are but few cases which do not require this attention even as a preliminary step toward correct diagnosis. The most irritable bladder are often relieved during and subsequent to a few doses of atropine and daily soothing vesical irrigation so that in the course of a week, an originally unoperable case, bears the crushing operation with very little pain to the patient.

24. The position of the patient for the operation is horizontal upon a high firm table. His hips are raised by a narrow hair cushion, about six centimetres in thickness, placed transversely. In certain cases it is necessary to use a much thicker cushion. His knees are very slightly bent and kept wide apart, whilst his heels are in close proximity.

25. The bladder is cleansed immediately before the operation, and not more than one hundred and twenty grammes of fluid need be retained. A larger amount is seldom necessary for the conduct of the operative process.

26. The introduction of the lithotrite is not the least delicate of the several steps of the operation. Its right, deliberate execution is a fair index of the skill of the operator whose light masterly hand pilots the obedient instrument to its ultimate destination. Standing to the right of the recumbent patient, he grasps by the handle, with the right hand, the already well lubricated lithotrite, while with the left he retracts the prepuce, then seizes the penis side-wise back of the corona between the left middle and ring fingers, palm up, opens the meatus with his left thumb and index, gently drops in the beak of the lithotrite, which he holds horizontally, so that its long axis is at a right angle with the vertically held penis. The next movement he gives the lithotrite is that of a quarter circle from his right to his left hand, so as to bring it to the median line of the patient's body, then raises the instrument perpendicularly, carrying the beak onward to the perineal region, when he depresses slowly the handle between the thighs at the same time that the beak is pushed gently into the prostatic region and into the bladder, having taken care to avoid injury to the urethra at its bulbomembranous junction.

27. Seizure of the stone is effected by opening widely the jaws of the lithotrite and depressing the female blade in the median line of the lower vesical fundus when the stone will drop between and be caught in the grasp of the instrument's jaws, which are at once closed upon it and locked by pushing, with the right thumb, the button adjusted to the sliding ring designed to bring into position the sectional nut. This mode of seizure was originally employed by Sir Benjamin Brodie, who thus would make the stone go to the lithotrite, whilst Civiale's mode was to apply the lithotrite to the stone by turning the open jaws toward the stone and quickly grasping its body. When the bladder happens to be columnar, care is taken to avoid including the mucous membrane in the seizure. When the seizure is well executed, the stone remains firmly in position, but is certain to slip away from the lithotrite's grasp if it be caught too near either side. In such a case seizure is again and again undertaken until successful. A skilled operator seldom fails to seize the stone rightly.

28. The crushing begins as soon as the stone is properly seized and is accomplished by turning the wheel. Then the fragments are picked up and broken up rapidly successively with the beak of Brodie or that of Civiale. However, when the calculus is small, especially if rounded and firm, but a single turn of the wheel is sufficient to fragment it, and the operation is ended in a minute. In the case of a hard or bony stone the use of the fenestrated lithotrite is necessary. The attempt to crush

a stone which proves so hard as to resist the action of a strong lithotrite is wisely abandoned, and a cutting operation is imperative. The surgeon knows it to be his duty to let the patient clearly understand beforehand that, if the crushing operation could not be effected with safety, lithotomy would then be the proper mode of accomplishing the cure.

29. When impaction of detritus occurs between the jaws of the plain bladed lithotrite, this detritus is expelled therefrom by means of a manœuvre—first employed by Civiale—which is effected by grasping the handle of the lithotrite with the left hand, while with the right hand quick movements of semirotation, left and right, are given to the wheel; the effect being the alternate separation of the jaws which thus grind or pound the accumulated detritus, drive it away from the guttered beak and permit complete closure of the jaws. The liberated blades are then in condition for further action or may be kept closed, so that the instrument is easily withdrawn without injury to the urethral canal.

30. The spoon lithotrite devised by Heurteloup⁶ for "lithococcosis" is adaptable to cases of friable stones when it is desired to complete the operation at one or two sittings without resorting to anæsthesia or to aspiration. In any such case the lithotrite may be introduced five or six times during a twelve minute sitting; each time bringing out fifty centigrammes of detritus. This method differs from ordinary lithotritry only in the frequent introductions of the instrument, whose beak is so formed as completely to enclose the detritus to be extracted. The writer has used, with good effect, this excellent instrument slightly modified in beak capacity.

31. Aspiration of detritus comes into play in cases of some large stones and also in others complicated with urethrovaginal obstruction. It may be done with Bigelow's, with Chismore's, or with Walker's aspirator.⁷ The essential qualities of the first two aspirators are the thickness and elasticity of their strong India rubber walls. The adjustment, to the bag, of the evacuating catheter and of the glass vessel designed to receive the aspirated detritus is a question of mechanical ingenuity. The practical point is to effect aspiration of the detritus with promptitude and with the least possible injury to the bladder.

32. The evacuating catheter with crushing appliance combined, devised by Bryant, is used when a loitering fragment of difficult or tedious seizure, too large for passage in the largest evacuating catheter, is likely to prolong the sitting. This instrument may be used with Chismore's or with any other aspirator, so that when aspiration is made the fragment brought within its grasp is crushed and its detritus drawn out as in ordinary aspiration.

33. The last fragment has caused no little anxiety to beginners. But after a few successful operations they realize that the bugbear of leaving behind a fragment or fragments to become so many stones need no longer cause alarm, since when let alone for three or four days, the dreaded last fragments seldom fail to find their way between the jaws of the lithotrite skillfully employed for their capture.

34. Impaction of detritus in the urethra after simple lithotritry is not of frequent occurrence. When, however, it does occur, this detritus, or a part of it, is speedily removed by means of the alligator jawed forceps. The rest is passed out during the first act of urination. It happens, though very rarely, that an angular fragment is impacted in the prostatic region of the canal and that it requires to be broken up before extraction. This is effected by any of the urethral lithotrites.

35. Accidents such as fracture or distortion of the lithotrite's jaws during the operation are very seldom heard of in our days, partly owing to the better construction of the lithotrites, which are made of the best tempered steel and are strong enough to withstand the screw power applied to very hard stones. A break or derangement would be much more likely to occur in some interior part of the handle and be comparatively harmless, as it would delay the operation for but a few minutes, since the operator generally has at hand three or four lithotrites for immediate use in any case.

36. The after treatment of the patient, of his bladder, and of his urethra so essential to the ultimate result of any operation for stone, particularly lithotritry, is too often neglected or even omitted, owing either to carelessness or to error in judgment. The surgeon who assumes that his work is ended when the last fragment is expelled or extracted from the bladder, has surely failed to perform his full duty to the patient. The mere relief of the bladder from a stone is but the beginning of the end in view, which is not only to cure the actual disease, but to remedy the consequences of the operation and take such active measures as may be likely to prevent a recurrence of the calculous affection.

37. Although the question of results of stone operations was discussed in former essays, the subject seems worth further consideration in view of recent information. Therefore it may be profitable to examine an eminent surgeon's last report and estimate the relative merits of perineal lithotomy, suprapubic lithotomy, and litholapaxy, besides inquiring into the frequency of calculous disease in children.⁸

38. This valuable report, published in the *Medical Record* for July 6, 1907, bears the title Operations for Urinary Calculi, by Professor George E. Post, of Beirut, Syria. It comprises six analytical tables: I. Vesical Calculi Removed by Perineal Lithotomy. II. Vesical Calculi Removed by Suprapubic Lithotomy. III. Litholapaxy in the male. IV. Stones Extracted from Urethra in Male, Including Prostatic and Prostaticovesical Stones. V. Stones Extracted from the Female Bladder. VI. Stones in the Kidney and Ureter. A seventh entry describes a case of perineal and scrotal stones. The total number of cases in four hundred and fifty-five, with twenty-five deaths. Of these four hundred and fifty-five cases, three hundred and sixty-eight were in patients from one to sixteen years of age.

39. Table I. Vesical Calculi Removed by Perineal Lithotomy, records two hundred cases, of which one hundred and sixty were children of from one to ten years of age, one death; twenty of from twelve to fifteen years, one death; six from eighteen to nineteen, all recovered; five adults from twenty-three to

⁶ "Lithococcosis, les fragments d'un calcul de pierre provoqués de l'obstruction par suite de la palpation immédiate des calculs résiduels par les ciseaux lithotrits." 1846.

⁷ "The Bryant aspirator," as quoted in the *Journal of the American Medical Association*, August 2, 1907, p. 417.

⁸ "Calculous disease in children is known to be of very frequent occurrence in Syria, in Australia, and in some parts of North and South America."

lithotomy to those of lithotrity in the young had not shown how much more safe lithotomy is in infants than any of the modes of lithotrity. In children between six and ten years of age, provided the urethra be exceptionally ample, the bladder very docile, the stone granular and not over a centimetre in mean diameter, lithotrity may be undertaken, but to combine aspiration of the detritus with the operation does not seem advisable.

52. Lithotomy, lateral or median, is believed to be the better and safer operation in little children when the stone exceeds a diameter of one centimetre, but when it is too large for extraction, lithoclastic cystotomy or cystectomy is essential to success in the majority of instances.

53. Sir William Fergusson, who had such a vast experience in the treatment of calculous children, was not an advocate of lithotrity in these little people, neither was Dr. Keith nor Sir Henry Thompson, who published a table of cases in which it appears that of four hundred and seventy-three lithotomies performed upon children of from one to five years old, thirty-three died, or one in fourteen and one third; and of three hundred and seventy-seven operations upon children of from six to eleven years of age, sixteen died, or one in twenty-three and a half. Sir William computed the mortality of lithotomy in children as one in thirty.

54. Dr. Post has obtained much better results than have the British surgeons just cited, as shown by his record of one hundred and sixty perineal lithotomies in children from one to ten years of age, with but one death.

55. Of suprapubic lithotomy in children of from two to ten years of age, Dr. Post records four deaths out of thirty-one cases. In one patient, two years old, the stone weighed two grammes and forty centigrammes. In one, aged three years, the stone weighed four grammes; in one, aged four years, the stone weighed four grammes; and in the fourth patient, aged three years, the stone weighed twenty grammes.

56. Of Dr. Post's nine litholapaxies in children, five were ten years old, two were eight years old, one was four, and one three and a half years old. Of the ten year old patients the stone, in one case, weighed four grammes; in one, seven and a half grammes; in one, thirteen and a half grammes; and in one, thirteen grammes. In one of the eight year old patients the stone weighed two decigrammes, and in the other, six grammes. In the four year old child the stone weighed three and a half grammes, and in the three and a half year old child it weighed three decigrammes.

57. It is very significant that, from the year 1883 to 1907, in the "*Annales des maladies des organes genito-urinaires*," published in Paris, the birthplace of lithotrity, there should be so few references to lithotrity in children. The fifth volume, 1887, contains a notice of the paper on lithotrity in boys by Walsam, of London. In the volume for 1893, reference is made to a case of "rapid lithotrity," performed by Callionzis, of Athens, on a boy, six years old, and to a report by Wedenski on one hundred and two operations of lithotrity in children performed in the Moscow hospitals. A careful search in all the volumes of this excellent publication has

revealed no other reports or references to lithotrity in children.

58. From a study of the literature of this subject, covering a period of thirty years, it seems that the trend of thought and conviction is growing toward perineal lithotomy as the safer operation in children under ten years of age.

106 CENTRAL PARK WEST.

A MEDICAL CRAZY QUILT.*

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Dr. Willis P. King has set as a rubric to the preface of his racy book, *Stories of a Country Doctor*, this couplet from Eugene F. Ware:

"When a person knows a story that he thinks he ought to tell,
If he doesn't get to tell it, why, of course, he don't feel well."

Hawthorne once remarked when meditating a new work that a romance was growing in his brain. These sentiments reveal, perhaps, a law of human nature. Mental pregnancy not eventuating in timely *accouchement* constitutes a situation unsatisfactory and uncomfortable, to say the least. We all earnestly and anxiously desire the deliverance of our intellectual progeny; only let the child be born, and most of us are content to have it thereafter take its chances in the world.

The matrix of the mind is peculiar, however, in that it may, usually does, contain at the same time various products of generation, differing in form, value, and evolutionary advancement. The relatively larger brain children, though not necessarily the relatively more important, are inclined to crowd the smaller ones aside, and to monopolize the occasional periods of parturition. What, then, is to become of the little fellows, that, after all, may have as much worth and vitality as their more bulky brothers? It alone remains for them to combine forces, seize or create an opportunity, and get into the world by grace of a multiparous labor.

To further elucidate our thought concerning the odds and ends of material likely to accumulate in every mental workshop let us change our metaphor. Consider, if you please, these fragments to be the analogues of the silk patches of divers sizes, colors, and shapes found in the sewing equipment of the ordinary household. Their substance and texture may be not inferior; but they lack in extent. Good economy forbids their being wasted; but they are too small to be utilized in a homogeneous product of any pretension. The thrifty artist of the needle joins and preserves her patches in a crazy quilt; the thinker may do likewise with his fragments. Albeit not paramountly so, nevertheless in its way is the crazy quilt artistic. At any rate, better such heterogeneity in their combination than that an attempt should be made to stretch the patches individually to the size of a quilt. Better a miscellany than an attenuated unity. And emphatically better a crazy quilt than no quilt at all.

The Carpet in the Doctor's Office.—Full sized, permanently laid carpets are an abomination in the eyes of the sanitarian. This general proposition

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needs no discussion here—indeed to adduce arguments in its support would be to insult the intelligence of my hearers—its correctness in the abstract form will receive no challenge within a body of scientists. If an abomination even in private residences, what must be said of carpets in the doctor's office! Here, indeed, are they the very abomination of abominations. Again is no elaboration or substantiation of the statement necessary; again will no contradiction be offered. Floors laid in hard wood or cement, or covered with oilcloth or linoleum are indicated. Mats and rugs which are frequently well beaten and aired may be admissible. In this whole matter medicine's first and most sacred law imperatively applies—*do no harm*.

The Office Cuspidor.—The writer has never found any way of dispensing with the office cuspidor. An eye sore and a nuisance it most truly is; but, like other evils of this world of evil, it seems to be inevitable. Scrupulous care as to cleanliness and antiseptics may palliate the offense and disgrace of the thing; yet, at the best, it remains an outrage to refined sensibilities and tastes. Better, however, an open affront to the eyes and nerves than a hidden menace to life and health. To the credit of our race may it be said that the average person is fairly well informed, fairly well bred, fairly well disposed. But forever over against the best is the worst. Natural selection has not eliminated a certain depraved remnant of mankind. The human ass and the human swine endure. And they come into our offices—we could not prevent them doing so were we to try. They are preeminently spitters. A queer law seems to operate in this connection—the development of the salivary glands and that of the higher cerebrum appear to stand in inverse ratio to each other—the less a man knows the more he spits. They come—we could not teach them good manners in the space of minutes, even were we always there, which we are not, and had we the minutes to spare, which we have not—at any rate gentle folk are born; not made. A sole alternative is left to us, we can provide a receptacle; if we do that, these dunderpates will do the rest, indeed they will do the rest cuspidor or no cuspidor.

Head Washing.—I have a growing conviction that people as a rule do not wash their heads enough. Civilized man is a bather. The practice of bathing as to its motive is, however, in the main aesthetic and sensuous, rather than sanitary; so that therein manifest are not a few inconsistencies and crudities. As intimated one error of omission pertains to the hairy scalp. The hands and the face are scrubbed religiously every day and oftener; the head has its comb and brush, with periodic cleansings akin to housecleanings. And yet the head is especially exposed as concerning dirt and germs for which it constitutes a most favorable place of deposit. The lather and shampoo and dry shampoo may produce satisfactory results in the way of fashion and appearance, but what have bacteriology and hygiene to say about it? Indeed our methods of bathing in our civilization is a thousand miles away from the scalp and hair are looking at an essential point. In this they are like the little women's drawers of cleanliness and prevention, which fail to cover the very parts that most need covering. But obvious reasons this whole

argument applies with more force to the doctor than to the layman.

The Administration of Normal Salt Solution by Mouth.—In certain crises and conditions it is desirable to replenish or reinforce the circulation with the so called normal salt solution. This has been done chiefly by two avenues; the subcutaneous cellular tissue, and the lower bowel. The expedient of throwing the solution under the skin is at times the only eligible one; yet the method appears unnatural, complicated, and clumsy. The procedure utilizing the large bowel is simpler, more available, more comfortable—it is, likewise more rapidly effective, according to the statement of Dr. George B. Klump at our last meeting with reference to investigations of the subject at the University of Pennsylvania. The writer would submit as a tentative proposition that where it could be employed the stomach itself would be the most natural, the most direct, the most manageable medium of administration. Why not, if possible, simply have the patient drink the solution? Frequently imperious thirst is a feature of the situation; and normal salt solution is not unpalatable. Let us venture to formulate this rule as to the relative desirability of these three ways of accomplishing the identical result in view: First choice, drinking; second choice, enterocolysis; third choice, hypodermoclysis. If in continued cases, however, we are careful to replace the saline waste from the system by liberal seasoning of the food with salt the problem of physiological solutions will in many instances be eliminated.

A Heart Sustainer.—No medical question is more perplexing than that of the care of the heart when subjected to prolonged strain or toxic impression. Of the many factors involved allow reference to one which the writer deems very important. A paradox will help, perhaps, to accentuate his thought. He would state it thus: A heart depressant may be the best sustainer of the heart. This means that to curb and quiet an overacting heart is to conserve its power, and thereby to support it. It implies, also, that a heart which is doing its duty should not be spurred. The jockey who expects his horse to behave creditably on the homestretch will not allow him to wind himself on the first quarter or half mile.

Morphine.—Morphine is our most potent stayer of flagging force. The value of the drug in shock was cited by Dr. Bell in his excellent paper of a month ago. Dr. M. T. Milnor enthusiastically relates how in complete collapse at the crisis of a pneumonia he gave his patient a hypodermic injection of morphine as an act of mercy to dull the final agony, and saw him drop to sleep only to awaken later reinvigorated, and climbing out of the valley. Have we not all seen what we judged to be the last hours of a patient, mortally sick, drag on and on even into days under the protecting and upholding influence of the morphine we administered to banish terror and torture from those last hours? Have we not the right to assume that a drug which will support a dying man will also assist in the recovery, though the recovery is a long and hard road to death?

Arterial.—Was there ever such an abused remedy as acetanilide? Good and reliable medicinal agent that it is in its appropriate place and

properly applied all we hear of it is outcry, smacking of prejudice and bigotry, as to its potential of evil. Does not mere fairness of scientific judgment require a corresponding statement of its potential of benefit? If it has power for *harm* it, at least, has *power*; and this power may be employed usefully and benignly. Indeed, as a matter of fact, what would we do nowadays with our "algias" and our fevers of irritation without the acetanilide group? And yet even after such plea for impartiality in the estimation of its attributes and effects, the writer wishes to call attention to another sinister possibility connected with the most common use of acetanilide. Migraine and acetanilide are wedded beyond hope of divorce. The injurious consequences issuing from this union are formidable—several are known and branded—I suspect one of which I am not aware any mention has been made. To get my idea before you permit a dogmatic statement which you are at liberty to challenge. Migraine stands for nerve storm—is essentially an explosion of accumulated nerve energy—a discharge of nerve force from overcharged or overirritated nerve cells. Acetanilide forestalls, suspends, or throttles this process. Now it might occur that energy thus prevented from escaping along its usual line as appertaining to migraine should vent itself in some other direction with results still more dire. And this is where suspicion points. Chorea and epilepsy are the supervening factors which have occasioned such surmising. Surely enough these might have appeared as elements peculiar to the development of the individual cases observed. Great caution will be necessary here to avoid in our conclusions the logical error of "*post hoc, ergo propter hoc*." The question, however, is worthy of notice and investigation.

The Right Drug in the Right Place.—It is as far out of the woods as it is in—this is the allegorical announcement frequently made by the writer to his patients suffering from curable chronic ailments. The rule has its exceptions and variations; but is, in the main, reliable. We should not expect or promise in slow disease processes improvement disproportionately rapid as compared with the abnormal changes. The temptation is to storm the case. This leads to hasty and premature abandonment of remedies and measures. The wiser plan is to deliberately and sensibly institute treatment, and then to keep steadily to the chosen course. What is a week or a month in the progress of some troubles? Chronic disease will in all likelihood require chronic medication. The continuous, persistent impression of a proper remedy will succeed better than capricious and intemperate effort. We should dare to hold on. More extended investigation as to the physiological effects of drugs administered in moderate doses through long periods would prove of great value in this department of practice.

Proper Surgery.—Skillful operation is not equivalent to skillful surgery. Not the knife in a clever hand, but the knife and hand as guided by a lordly brain, is the sign and token of the great surgeon. So that what we general practitioners require in our surgical consultants is not merely deft technique, but superior adroitness subordinate to superior intelligence and superior wisdom. *Require* of them—is not that too strong a phrase? No; the expression implies a relationship altogether proper. The

specialist should make his bow to the main body of the profession with Othello's salutation to the Venetian Senate—

"Most potent, grave, and reverend seigniors,
My very noble and approv'd good masters."

It is well enough, at any rate, to maintain this order of precedence theoretically, even though practically it be reversed. And oh! how we everyday doctors do love a safe and sane surgeon!—one that is cool headed and level headed and not headstrong. Let not the knight of the sterilized blade think to convince us that Nature is a fool and a blunderer, and in sheer caprice make superfluous things—at least not those of us to whom Nature is only another name for God. "Woe, to him who disputes with his Creator! Let one pot contest against another pot of earth; but shall the clay say to him who hath formed it, 'What doest thou?' and 'thou hast not skill for thy work?'" We do not know it all. We do, however, know more about ovaries than we once did; and we may know more about appendixes and prepuces hereafter than we do now. Nothing could be more embarrassing and discreditable than to sacrifice a normal and healthy part upon the supposition that it is useless, and then later to find that the same part has an important function.

Rest in Puncture Wounds of Hands and Feet.—It may be assumed that puncture wounds of the hands and feet are to all of us alike troublesome. Of course all the precautions as to cleansing, antiseptics, and free drainage which apply to this class of injuries generally are here particularly indicated. But one very important consideration is, perhaps, sometimes overlooked; that, namely of keeping the parts absolutely at rest. A glance at the anatomy of the structures concerned will reveal the entire necessity for this practice. The limits of any centre of infection could not with more certainty be enlarged than by allowing the tendons to saw back and forth through the field of traumatism, embracing, as it almost invariably does, the tendonous tissues. A puncture wound of hand or foot that will heal uneventfully if motion of the fingers or toes is at once and constantly restrained, may, in spite of all other measures, cause much anxiety to patient and doctor should this safeguard be neglected. When we hear the familiar announcement, I have run a nail into my foot, our first and prompt response should be: Don't step on it and keep your toes quiet.

Milk.—The devil is in a milk curd—not a vague, unsubstantial spirit of evil; but a real, material Satan with horns and hoofs—the embodiment of deceit and malice. And yet our infatuation for the dairyman's staple amounts closely to idolatry—undeniably we do fall down and worship milk. If the same veneration for milk prevailed among the old Egyptians, it is no wonder that they rendered their adoration to the bull Apis as the incarnation of their divine, but dead Osiris. As a matter of fact, milk is the best and worst of foods—in that, it is like Longfellow's little girl with the little curl right in the middle of her forehead:

"When she was good, she was very, very good;
But when she was bad, she was horrid."

Some things should be remembered in this connection. Milk is not the only food available in sickness;—this we are learning more fully every day. It

is not a liquid food essentially; indeed, it is one of the more solid foods. It does not agree with many patients, and cannot be made to agree, bring to bear what tact and what expedients we may. The rule of "try" is all that we can depend upon as a criterion. If it does well our hats should come off to the cow. But if those infernal puttylike masses, which *might* find use at a rubber factory, are either rejected by the stomach or dejected from the bowel, then uncompromisingly it should be: "Adieu, Brindle."

Styles and Fashions in Medicine.—The doctor is liable in his practice to three forms of slavery; slavery to fashion, slavery to routine, and slavery to authority. The adage has it: As well out of the world as out of fashion. Within the realm of medicine this maxim should be nearly reversed—here as well be out of the world as the slave of fashion. Yet within our profession styles and fads hold imperious sway—styles and fads which are as ephemeral as day flies. The real progress in medicine advances as the oak grows: fashions spring up and dazzle and die like the poppies. We often meet the assertion that a medical book is out of date in five or ten years. The assertion is true only as it refers to customs and methods; as pertaining to actual movement forward it is grossly inaccurate; discovery and invention do not proceed at any such pace. Indeed a work of genius is never out of date—Hippocrates is not out of date; Galen is not out of date; Avicenna is not out of date; Sydenham is not out of date. These are landmarks of medicine sacred, inviolable, imperishable. A book of last year, however, may be out of date this year because it records nothing but passing fancies. A few modest volumes would suffice to chronicle the real achievements of medicine: a library is necessary to tell the story of medical speculation and practice. Truth is *forever* truth. Manners once really good are always good—there is no need for a man to change his manners every year or two in order to have good manners—there is nothing finer than an old fashioned gentleman. Bondage to fashion in medicine has two deplorable effects: it induces a blind faith in fads that is without power of discrimination; and it occupies time and thought that might be more profitably devoted to unsolved problems.

More baleful still is the slavery to routine at the opposite extreme. Bad enough it is to waste one's hours and energies in trying to do the same thing in a dozen different ways in a dozen consecutive days but by far worse is it to everlastingly do a thing in the same way. And some doctors certainly beat Paganini "all hollow" at fiddling on one string. This habit tends to mental torpor, it tends to ingenuity it tends to intolerance. When one has been doing a thing over and over in a given way it is well to try another way just to get out of the old rut. The change will demonstrate that there are other ways and it will rub the rust off the bearings.

Slavery to authority is a relic, a survival of the dark ages. For centuries and a German emperor struck from through the chest which had so long and so strictly bound it—delivered to authority, the heavy headed, unimpaired tyrant, his death blow. Reference to the little saint of the reformation in his relationship to the sovereignty of the individual reason, presents to traditional people, the picture of a Madman; the great French historian, writes: "It

is not inexact to say that Luther has been the restorer of liberty for the late centuries." In this glorious restoration of liberty cited by Michelet, medicine immediately participated. Closely after Luther came Andreas Vesalius; and anatomy again began to blaze the way for the subsequent victorious march of the healing art. The freedom that is for the body is for its members. Each one of us, every one of us, in the name of his manhood should spurn the yoke of any master. *Ex cathedra* dictation should be resented with scorn. No matter where he sits, or what offices he performs, or what patronage he has behind him, or what following around him, if a would be leader seeks our adherence let him bring his propositions to us wrapped in a demonstration or in an argument.

If from the three forms of thralldom thus discussed, the thralldom of fashion, the thralldom of routine, the thralldom of authority—if from these a doctor keeps himself free, then shall he be free indeed. And his movement will be that of the untrammelled eagle, rather than that of the pet ape, or of the mule in a mine, or of the bull with a ring in his nose.

But our crazy quilt has, perhaps, already overreached the conventional size. Any remaining patches must go to the rag bag.

TUBERCULOTHERAPY IN TUBERCULOSIS.*

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In 1899 Héricourt and Richet, in the *Bulletin de l'Académie de médecine*, Paris, November 28th, published an article on the feeding of tuberculous dogs on raw meat. They attributed the favorable results they obtained to a *somatoantitoxine* present in the raw meat. Djvorak (*Bericht über den Kongress zur Bekämpfung der Tuberculose*, Berlin, 1899, p. 619) commends the use of raw meat in tuberculosis. Parkes Webber (*Zeitschrift für Tuberculose und Heilstättenwesen*, 1900) also recommends strongly a raw meat diet in the treatment of phthisis. Forbes Ross (*Lancet*, December 1, 1900, p. 1567, Open Air Treatment of Phthisis; *ibidem*, June 22, 1901, p. 1757; *ibidem*, August 24, 1901; *British Medical Journal*, October 13, 1900, Diet in Heart Failure in the Aged) has also strongly recommended raw meat, and raw and cooked myosin albumin for its dietary and reparative powers, on the somatoantitoxine basis. My present effort is to call attention to and make a proposition concerning tuberculosis as the outcome of similar work and observations during many years directed to the subject of tuberculosis in general, with reference to open air treatment and a correct and suitable dietary.

Since the publication of the aforementioned papers, Sir A. E. Wright, of Netley Hospital, has done much good work in opsonins and bacillary vaccines, and places the work and observations of those reported on a sound scientific basis.

My present proposition is as follows:—The tuberculous diet and suitable treatment is an arbitrary matter, and should be based on the results of the work of Wright and others, and on the results of the work of Héricourt and Richet, and on the results of the work of

of diet for tuberculous persons the raw flesh (beef) of animals known to be affected by tuberculosis; with the object of bringing about artificially that which I firmly believe occurs unobserved in nature and in actual daily life among healthy persons." This seems a startling proposition at first sight; but I hope to show in my following remarks that there is more than either theory or enterprise in the same.

Persons acquainted with Jenner's work on small-pox and vaccinia, Pasteur's work in fowl cholera, Greenfield's work in anthrax on sheep, Marmorek's work on streptococcus and tubercle, von Behring's work on diphtheria, Sir Thomas Fraser's work on diphtheria and antivenene of serpents, Calmette's work on antivenene, Haffkine's, Yersin's, and Roux's work on cholera and plague, and Metchnikoff's work on immunity will be able to follow and appreciate my reasons and deductions. Professor Koch, of Berlin, the real originator of all and every antituberculous work, has stated that *bovine tuberculosis is not transmittable to human beings*. Many authorities have denied this and have asserted that *bovine tuberculosis is transmittable to human beings*. "Immunity" answers this obvious discrepancy. My clinical experience and observations lead me to affirm that Professor Koch, of Berlin, is right, inasmuch as the healthy beef eating human adult is not likely to acquire tubercle from meat (beef) taken from tuberculous oxen. On the other hand, infants, poor children, and poor adults who cannot obtain an ample meat diet are particularly prone to infection by tubercle, *bovine* and *human*.

There is something in the muscular tissue which places it in close alliance with blood and blood serum and white blood corpuscles in relation to toxins, alexines, antitoxines, and opsonic functions. Those who habitually partake of meat (beef) in fair quantity, athletes and those well developed muscularly, and particularly those who are in the habit of eating beef partially cooked and raw, such as do slaughterers of cattle and butchers, who are in the habit of eating strips of raw meat, are not those who are commonly found with tuberculosis, either in hospital, in private, or in sanatoria. Actually, one would expect to find habitual eaters of raw meat and undercooked meat more subject to tuberculosis. Yet the reverse is really the case. In England, where infants and young children are artificially fed on cows' milk, we find that during the "milk feeding" period of life the tendency to tuberculous infection is very high. Tuberculous infection of the alimentary canal, abdominal glands, bronchial glands, serous membranes, lungs, and bones is commonest among infants and young children. Further investigation shows that the children of the poor are more liable than the children of the rich. Again, the age when this tendency begins to cease is higher amongst the poorer than the richer children.

The poor man and woman show a greater tendency to tubercle than the comparatively comfortable person as regards worldly wealth. Why is this? Because the children of the rich and the better off amongst the adolescents and adults get meat earlier and more often than the children of the poor and than the poorer adolescents and adults. I have invariably noticed in tuberculous cases, when order-

ing a diet of raw meat (beef), that time after time the same retorts are made by the patient: "Oh, I cannot eat raw minced meat! I never can eat underdone meat; I always like my meat well cooked or stewed!!" Here, then, are persons partaking of food deprived of all antitoxic quality, obtaining only the bare food value in only such proportion as their defective digestion will allow.

There are two periods of human life when tuberculosis obtrudes itself on our notice as an age periodic affection, infancy and old age, in the nonmeat eating periods of life. Between these two periods adults who are large meat eaters, especially of *partially cooked meat*, escape for the most part; and adults who are sparse meat eaters or *overcooked* meat eaters are particularly prone. The vegetarian negro and Asiatic, even in their own hot climates, die of galloping consumption when once infected by tubercle. My explanation of this fact is as follows: *Raw* or *undercooked* meat contains the toxins and antitoxines of the animal, in proportion as their blood serum has had the power, and the muscular tissue and blood serum of a tuberculous animal are the main sources of that animal's resistance, and so their flesh possesses immunizing qualities, hitherto not deliberately used to cure the disease. Under present circumstances of meat supply in England most persons from time to time partake of meat from a tuberculous animal, and so the habitual meat eaters (*underdone*) obtain toxins and antitoxines, and so keep up their opsonic index for tubercle and remain immune to both bovine and human tubercle on the vaccinia principle. This is the analogue of feeding with raw thyroid gland for myxoedema. The milk consuming infant, on the other hand, does not obtain in milk anything else than milk, pus organisms, and their toxins, and tubercle bacilli galore. Milk is a secretory degenerative compound derived from mammary cells. Secreting glands have not been shown to produce or contain antitoxine. Milk feeding then confers no acquired immunity from bovine tubercle and so on to immunity from human tubercle. The raw, or partially cooked, meat eater obtains a maximum of stable nutrient nitrogenous food and antitoxine, protective bodies and a minimum of tubercle bacilli; but the milk consuming infant and old person obtains only a nitrogenous food of less nutritive value, together with a maximum of tubercle bacilli (that is, if both meat and milk are partaken and derived from a tuberculous animal) and no antitoxine or protective bodies. Healthy meat eating adults can with impunity, moreover, partake of (and do) unsterilized tuberculous milk from all sources carelessly; whereas infants run a great risk of tuberculous infection from the same milk.

The explanation being, that the meat eater, exposed to tubercle infection, is constantly partaking, off and on, of meat containing tuberculous antitoxine and so artificially keeps up his opsonic functions, whereas the infant having not yet partaken of meat has no such protection. This artificially acquired immunity of the meat eater can, however, be lost from illness or meat deprivation. The same applies, in the case of the poor, nonmeat eating adult who has little or no protection, owing to the scantiness of his meat diet.

The muscular tissues of all animals are vitally concerned in resisting bacillary infective disease. In

human beings the muscular tissues suffer severely in tuberculosis especially, and are used up rapidly in the fight. The muscles waste and show nervous and chemical hyperirritability, clearly pointing to some essentially vital action in them. The ox possesses relatively more muscular tissue than the human being, for weight and size of frame. This gives to the ox a greater resisting power, as evidenced by the fact that, except in advanced cases, tuberculosis in the ox confines itself to grape disease (Perlsucht), and does not readily undergo caseation or suppurative processes. The foregoing is particularly significant when it is borne in mind with what ease a tuberculous cow can be removed from a herd giving milk and be fattened up for sale in order to be killed for eating, the comparative excess of muscular tissue of the animal rendering this possible.

Liability to infection by tubercle is not the same as the ability to resist the tuberculous process when once implanted. Take, for instance, measles; many persons are very liable to repeated infections, contracting the disease three and four times during life, never being very ill at any time and very quickly recovering. These persons are, however, subjects of low blood coagulability, postmorbilic urticaria, and serous hæmorrhages generally. Many works on diseases of children recommend as a cure raw meat, scraped or shredded, raw meat juice, and raw meat sandwiches for children suffering from chronic diarrhoea, with or without enlargement of spleen and mesenteric glands. Many of these cases are undoubtedly tuberculous in nature, yet they often recover under this diet. (See Eustace Smith, *Diseases of Children*, and Louis Starr, *Diseases of Children*.)

I am well aware of sanitary surroundings, ventilation, etc., as a factor in pulmonary tuberculosis, yet recoveries of children from tuberculous lesions occur even though they remain in their unsatisfactory environment if meat is made a large part of a dietary hitherto deficient in meat, especially underdone meat.

The exhibition of raw meat as a diet to phthisis patients is in England a very inexact and haphazard process, inasmuch as meat from a tubercle free animal and meat from a tuberculous animal are variably mixed from day to day, and one can never depend on exactitude in treatment at any time. It is only by deliberately obtaining tuberculous meat and administering it in an exact and scientific manner that the full benefits, which I firmly believe in, can be secured. Many medical men have become disheartened during the use of raw meat as a dietary and therapeutical measure on account of the marked variations in the condition of phthisis patients consuming raw meat. The reason for their unsatisfactory experience is as follows: For a few days a patient will get tubercle free meat, and there will be no reaction in the system; variation on one or two days meat from a tuberculous animal will be not discernibly obtained; and there will be a marked temperature reaction, with increasing attention of patients to the amount and degree, clearly showing a pronounced tuberculous reaction. The large I attribute to the tubercles and substances in the raw meat not being properly measured or consumed as they ought to be. Further, in patients who after a few weeks disturbance the patient will be relatively much im-

proved in all respects. Whatever is done for a phthisis case in the open air treatment, these carefully fed on raw meat invariably do best. At least, such is my constant experience. Any cessation of this diet is at once obvious in the condition of the patient. If the reaction from raw meat is regulated, the results are always favorable, never the reverse.

The presence of tuberculous cows in a herd used for procuring milk is a serious public danger; and the owners are very loth to remove or destroy such animals; especially if they are "good milkers." If now we had an exact and scientific method of utilizing all infected animals, their toxins and antitoxines, we could create a market for them and actually convert a loss into a decided gain, and the temptation to continue a source of danger into an opportunity of doing real good. Tuberculous animals could be collected on isolated farm areas, and slaughtered as wanted, in order that their flesh could be used for feeding the phthisical, and so improving the resistance to human tubercle by first making them immune to bovine tubercle. Tuberculous cattle can be sorted into various grades of disease, and therefore various grades of physiological toxic or antitoxic activity, by being tested with Koch's tuberculin, and classed according to the amount of reaction elicited. The meat so obtained can be used with exactitude, according to the reaction in the animal.

These conclusions will furnish us with an exact and scientific method of handling an aid provided by Nature in order to facilitate our treatment of tuberculous human beings, and at the same time withdrawing, profitably, a source of imminent danger to milk consuming infants and others with no loss to the owner of such diseased cattle.

The habitual eater of raw or partially cooked meat is daily doing for himself exactly what I propose to do for the tuberculous among human beings, viz., raise their opsonic index by a diet which can be continued after the sufferer has passed out of the hands of the physician into daily life. I feel sure relapses will not then be so frequent, and permanent arrests more common.

I have in my mind a family of five girls and one boy, all of whom but one have died of tuberculosis: a girl, the youngest, now thirty years of age, alone survives, and is in good health. When a little child, she was very thin and delicate, and her family doctor ordered her to eat raw meat sandwiches—"to fatten her"—she took to raw meat as a vice, and used to eat slices cut from the family joint whenever she could obtain it, raw and uncooked—her sisters and brother could not be got to partake of raw meat—she lives now, the others are all dead of tuberculosis. There can be no question of different environment, as she lived and slept with her sisters, even when they were dying, and still continues to reside in the same house. When it is remembered that segregation and precautions concerning sputum, etc., were in those days unknown, there does seem to be some cause to attribute her escape from death to having lived on raw meat. (The patient is completely recuperated by the somatoantitoxines of the raw meat eaten by her sister. The meat have been repeatedly subjected to her toxins, and she has survived.) In these cases there is no time question.

I have also several other patients who show a

of carcass often producing a reaction (presumably a tuberculous animal), and a further change to another carcass, resulting in no reaction. This is so extraordinary that the butcher supplying the raw meat always notifies if the meat is taken from a fresh carcass, when we administer a smaller quantity than usual, till we find out how the patient behaves as regards reaction. After a mild reaction the patient is always much better and improves always whilst on meat from a certain animal, and does not do so well on meat from another. This I attribute to the difficulty of obtaining meat that we really know to be tuberculous, when we could carefully graduate the amount taken and so the reaction and resultant benefit. When there is no reaction for several days, presumably owing to the meat being that from a healthy animal, the patient does not improve. This patient went to a sanatorium where she obtained no raw meat, became very ill, lost three to four pounds a week, and had to be sent home. In six weeks on raw meat in London she regained twelve pounds, and is now able to be about again.

Some patients vary very much from others as regards their tolerance of raw meat diet. Some will show a marked reaction after a fairly large meal (one half pound) of raw meat, others will not show any variation. This depends on whether the meat is "healthy meat" or "tuberculous meat." Where meat can be obtained from a tuberculous carcass (with the pleuræ stripped to hide from the meat inspector the evidences of *Perlsucht*), then a reaction of varying intensity is often forthcoming where it was not obtainable before. If, however, it is possible to obtain regularly meat taken from animals known at time of killing to be really tuberculous, then scientific observation and benefit will be more accurate and certain, inasmuch as they could be guided and regulated.

After a patient has been eating raw meat for some time, there does not occur any reaction, however much meat is partaken of, and from whatever source; plainly showing that the use of raw meat establishes this tolerance of tubercle toxine and antitoxine. This I am desirous of seeing done by the deliberate, measured, and graduated use of meat derived from animals known to be tuberculous, and slaughtered especially for the use of consumptives only. It would be necessary to collect all consumptives in some centre or institution, or institutions, in a large locality or city, and there supply them with somatoantitoxine-tuberculous meat, and carefully note its reactions and effect, and regulate treatment accordingly.

There are three methods of administering raw meat from tuberculous sources. This depends on the digestion of the patients and on the absence or presence of free hydrochloric acid in the gastric juice. After testing with Congo red, phloroglucin, and vanillin in alcohol (Gunzberg's reagent) for hydrochloric acid, according to whether we find it or not, we proceed as follows: Pepsin can of course be added if thought necessary:

I. *Absence or Marked Diminution of Hydrochloric Acid.*—Mince the raw meat and (a) extract it with a cold normal saline solution (small quantity of solution), and compress and collect the resulting fluid; next pass it through a Berkefeldt filter in order to remove bacilli and coarser meat particles

and use the filtrate, in amount according to indications (*Bacillary free juice*); (b) extract it as before, without filtering it, add hydrochloric acid, and allow the patient to partake of the expressed juice, according to indications (*Nonbacillary free juice*).

II. *Moderate Amount of, and Normal Amount of Hydrochloric Acid.*—(a) Mince the raw meat, and allow the patient to have just such an amount, one quarter to one half pound, according to indications, once, twice, or thrice a day as necessary. After ingesting the raw meat administer 5ss—5i dilute hydrochloric acid in water and pepsin; (b) mince the raw meat and allow the patient to eat it without the addition of dilute hydrochloric acid (this latter only if there is much free hydrochloric acid in the gastric juice) and pepsin.

The method under I (a) safeguards a patient whose hydrochloric antibacillary "inner guard" is deficient, yet who cannot take acid, at first, for various reasons, e. g., gastric catarrh, etc. I (b) supplies meat juice and acid as an antibacillary digestion and at the same time allows any bacilli present to be ingested and then digested; and as "tuberculin hydrochloride," to be absorbed and utilized by the patient for antitoxic purposes. II (a) allows the meat and acid to be ingested, with the same results. II (b) depends on the patient's natural gastric juices to digest and protect the system. This latter occurs constantly with healthy adults who ingest tubercle bacilli in meat or milk, and serves to keep up the systemic resistance of the normal meat eating adult against tubercle.

These methods enable us to administer to a patient a given measured quantity of meat containing tuberculoxines and antitoxines, and to watch and carefully observe their reaction with some degree of scientific accuracy, at the same time benefiting the patient. The method is just that which we follow in using thyroid glands for myxedema, and various sera for other diseases, such as "polyvalent" sera in the rectum for streptococcal diseases. The sole exception here is that we deliberately use meat containing bacilli (tubercle), and according to microscopical observation of the meat juice, just as many living bovine bacilli as we like to give by diluting the juice with salt solution. These bovine bacilli gradually lose their power to infect the human body the longer we continue the raw meat diet, and the more of it we give. We gradually bring up the patient's resistance to bovine tubercle to that of a healthy robust meat eating adult; from that of the susceptible milk consuming infant, who is easily infected by bovine tubercle. In time the patient's resistance to human tubercle is also increased and made absolute, and thus permanent arrest of the disease is accomplished by making use of a source of cure which Nature places ready to our hand. So strongly am I convinced of what I have written that I will say this, that it is far better to feed a phthisis patient on *raw meat from tuberculous cattle* than on pure milk absolutely sterilized and *tubercle bacilli free*. In one case the patient gets antitoxine and vaccine to help combat the disease; in the latter case the patient has to fight his human tubercle unaided with in many cases speedy death as a reward.

I trust that my remarks will be productive of thought on the subject, if even no attempt is made

to adopt a method of treatment which I have for some time past been carrying out, more or less successfully, following in a necessarily inexact scientific manner.

53 HARLEY STREET.

ASPHYXIA NEONATORUM.*

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A new born infant is said to be asphyxiated when the skin stimulation produced by the change of surrounding medium from the maternal body to the cool air fails to excite respiration.

The respiratory centre in the floor of the fourth ventricle presides over the function of breathing and normally is excited to action at birth by the reflex stimulus of the cool air on the skin. Once so excited and provided with a proper blood circulation, the action is continuous and automatic.¹

Immediately, then, the cause of asphyxia is the lack of responsiveness on the part of the medullary respiratory centre to the normal stimulus. Perhaps an external stimulus, only slightly greater than the normal, may excite the centre to act. A few slaps on the back causing a painful afferent impulse may be sufficient. In such a case the centre is abnormally unresponsive in only a slight degree. Apparently, then, the depth of the asphyxia is measured by the degree in which the respiratory nucleus is lacking in responsiveness to stimulation. There may be a mechanical obstacle to the expansion of the chest or to the air being drawn into the respiratory passages. Then the nucleus for a short interval is inherently responsive but unable to produce the respiratory act because of extrinsic mechanical obstacles. Finally, however, if these obstacles are not removed it becomes poisoned by the accumulation of carbon dioxide and is inherently unresponsive.

The pathological changes in asphyxia vary in part with the special causes. Cases in which inspiratory efforts were made prior to delivery show changes incidental to the inspiration of various substances. Among the postmortem findings from special and general causes are the following: Engorgement of the right heart with distention of the thoracic and hepatic vessels; extravasation and ecchymoses in the brain, meninges, and viscera; the air passages may contain meconium, and amniotic fluid; the lungs contain areas of unexpanded air vesicles. In addition there may be fractures or depressions of the skull and anatomical imperfections of the lung or heart.

The causes of asphyxia are found in factors which produce mechanical injury to the respiratory nucleus or which interfere with its proper blood circulation.

We have been accustomed to divide the causes into intrauterine and extrauterine. Some authors apply the term intrauterine to a cause developed in any part of the passage of canal and the term extrauterine only to causes which are active after the passage of the child from the maternal body. The

majority, however, classify as uterine only such causes as are developed in the uterus, and as extra-uterine those which develop in the passage through the lower parturient canal, ignoring the occasional accidents producing asphyxia outside the maternal body, such as the drowning of a child lying face downwards in blood or liquor amnii on the bed.

When we attempt to subclassify the causes of asphyxia we find ourselves elaborating an intricate system of subdivisions which makes the matter needlessly complex and which is hardly useful for it is seldom that we can set any given case of asphyxia under a single heading. A child suffering from "partial subarteriation from cord compression, ante partum" may also have some loss of rhythm and force of its heart due to compression of the centres regulating it, and again tonic contractions of the uterus may have partially arrested the placental circulation. All of these causes operate to deprive the respiratory nucleus of its proper blood supply, it being gradually narcotised in the excess of carbon dioxide present. But in the same case direct injury to the centre may be present.

The most important causes undoubtedly are compression of the cord, premature separation of the placenta, and the arrest of the placental circulation by tonic contractions of the uterus, and direct retarding of fetal hearts action by pressure on the centres influencing its beat. Clinical conditions in which lack of oxygen and excess of carbon dioxide exhaust and poison the respiratory nucleus or which directly injure it are twisting or knots of the cord, or its presentation and prolapse; sudden death of the mother; or fevers, eclampsia, hæmorrhage, or poisoning especially by chloroform; changes in the placental vessels, placenta prævia; labor delayed in contracted pelvis, dry labor, and breech presentations; malformations of the fetus, and the compression by instruments and other injuries to the fetus in delivery.

Before birth the diagnosis of asphyxia is based chiefly upon the marked retardation or acceleration of the fetal heart beat. Unusual movements of the child struggling to establish pulmonary respiration or even the intrauterine cry may call attention to the condition. The presence of meconium in the discharges in the vertex presentations is suggestive of asphyxia, denoting as it may a paralysis of the sphincters. I have very frequently seen meconium in vertex cases in which no symptoms of asphyxia developed and in which the sphincters were tight at birth. I believe that it is often caused by stimulation of the lumbar cord by direct or indirect stimuli, and do not attach much importance to this symptom alone.

There are different degrees of asphyxia depending upon the depth of the narcosis of the respiratory centre or extent of the injury to it. On the birth of the child the various degrees are apparent by characteristic symptoms. The mildest degree is that in which the "child meconium" phenomenon is present in which one of the many possible causes of asphyxia has been operative only to a slight degree of for a short time. Such cases require only the removal of the factors causing the stimulus and stimulation such as a flash of cold water or slapping to excite the centre to produce breathing. This degree has been called temporary asphyxia.

*Read before the Cornell Medical Association, November 8, 1906.
There are certain cases of asphyxia in which the child is born with the skin well colored, but the respiratory centre is so affected that it fails to respond to the stimulus of the cool air. In such cases the child is born with the skin well colored, but the respiratory centre is so affected that it fails to respond to the stimulus of the cool air. In such cases the child is born with the skin well colored, but the respiratory centre is so affected that it fails to respond to the stimulus of the cool air.

In the second degree the causés have been operative for sufficient time to require considerable reflex stimulation and other measures to make the centre active. This degree has been called *asphyxia livida* or *blue asphyxia* from the color of the child, or *sthenic asphyxia* from the general tone. In such a case, the color is cyanosed or livid, the pupils are normal, the heart beat is slow but fairly strong and regular. Reflexes are present. The lower jaw is held firm. The cord is usually full, deeply hued and pulsating vigorously. The sphincters are practically normal. Feeble, spasmodic attempts at respiration may be present.

In the third degree of asphyxia, the cause has existed long enough to bring the child to a low state. This type or degree has been called *asphyxia pallida*, *white asphyxia*, or the *asthenic* type. The child is pale or white, the pupils are widely dilated, the heart beat is slow and feeble. Reflexes are absent. The temperature sinks rapidly. Complete muscular relaxation exists. The lower jaw hangs loose. The cord is pale, does not pulsate, and its vessels are nearly empty. Respiratory movements are entirely absent.

The prophylactic treatment of asphyxia comprises much of the subject of the management of labor. When we correct malpositions, moderate our use of anesthetics, protect the membranes from rupture or replace the prolapsed cord, we are guarding against asphyxia of the child. Sometimes we are obliged to inaugurate for the mother's welfare, some measure involving grave risk to the child as in placenta prævia. We may say then that the prophylaxis of asphyxia, vested as it is in the hands of the obstetrician who has a dual responsibility is practised of necessity within limitations imposed by the interests of the mother.

The prognosis of asphyxia neonatorum depends upon the efficiency of treatment as well as on the original cause. Even a case of the first degree may pass into the second and third, and finally to death if neglected. In cases of injury to the skull or brain and in intracranial hæmorrhages, the outcome is, as a rule, unfavorable in spite of prompt and well directed treatment. The causes acting in such cases are usually complex and undoubtedly one of the most important elements is injury to the centres of cardiovascular control.

In such a case, born in the pallid stage or passing rapidly into it, we find the eyes widely dilated, the heart action becomes gradually weaker in spite of treatment, the body temperature is gradually lowered, and death ensues. If there is no such injury, the second degree or livid cases react very well as a rule to prompt treatment. Cases of the third degree, pallid cases, are saved only by wise and protracted treatment. Even the most energetic measures often fail to influence them favorably, and when asphyxia has apparently been overcome, the causes, still operative, may bring about death in a few hours or days.

When a child is born in a state of asphyxia, the indications for treatment are: (1) Removal of obstacles to respiration; (2) reflex stimulation of the respiratory centre; (3) aeration by artificial means; (4) prevention of loss of body heat; (5) stimulation of the heart and raising of the blood pressure.

As soon as the head appears outside the vagina, the mouth and throat are kept open, with a finger wrapped in

gauze and squeeze the contents from the nose. After complete delivery we suspend the child by the feet. We may then make use of one of the various methods for removing aspirated matter. Various appliances for withdrawing such matter may be utilized, such as an ordinary catheter, passed into the pharynx or, better, a catheter, open at the end and fitted with a pipette, the bulb of which catches the fluid (Edgar). The Sheill mucus evacuator or Ribemont-Dessaignes insufflator may be used for the purpose. Utilizing *vis a tergo* in some form is useful. One of the best means in my experience is, with the child suspended, to *blow into its mouth*, while with one hand you press on the stomach to prevent the air entering it, and with the other compress the trachea. In this way the current of air is forced outward and mucus is expelled through the nose. Champneys has recommended blowing in a catheter passed into the trachea, at the same time pressing on the infant's thorax to prevent air entering the lungs. The current of air is directed from the eye of the catheter outwards toward the mouth. The consensus of opinion is against attempting to enter the trachea for this purpose. Some obstetricians do not believe in preliminary attempts at cleaning out the air passages beyond the simple wiping out of the pharynx. They consider that respiration is the most effective way of cleaning the air passages and proceed at once to efforts to imitate and to establish it. Several of the methods of artificial respiration are very effective in squeezing out secretions. Especially so are those of Prochownik, Schultze, and Byrd.

After we are satisfied with the condition of the air passages we are free to stimulate respiration. Slapping the child on the back and buttocks, blowing in the face, dashing it with cold water, can all be done in a trice. Thereafter we have the choice of several lines of action. To carry out some of these, the infant must be separated from the mother by cutting the cord. I believe that we should cut the cord at once in all cases of asphyxia. If the child is in the livid stage, it does not need the possible addition of blood; in fact, some obstetricians recommend blood letting from the cord. If it is in the pallid stage it is getting little or no blood; the vessels of the cord are practically empty. The pallid child demands the immediate separation because it has nothing to lose by it and everything to gain by removal at once to the warm bath, the best agent for keeping up body heat, and by our freedom to use the more cumbersome methods of resuscitation if necessary. The livid type demands immediate separation because its most urgent need is not more blood, but any device that will produce aeration.

I shall discuss some of the more important methods of restoration of respiration by reflex stimuli and artificial respiration. Some of the latter, so called, are useful because of their reflex stimulation of the centres or direct stimulation of the heart by compression of the thorax as well as by artificial aeration.

The method of Schultze is undoubtedly one of the best. Often it seems like magic compared with less heroic methods. The secretions flow from the mouth, the skin takes on a better color, the heart beat increases and soon a gasp is heard. Immersion in hot water and a quick dip into cold may be all that is necessary thereafter. When it acts in this way, as

it frequently does, we feel that practically the entire art of resuscitation has resolved itself into this one splendid procedure. There are some bad features to the method. The greatest objection is in the chilling of the body. When properly done, the child is covered with a hot towel, but even that is inferior to the hot bath. There is always some likelihood of injury to the internal organs of the child. Moreover, it is obvious that the method cannot be used in cases where difficult breech extraction has caused a broken humerus or where cleidotomy has been done. Again, in the pallid stage, a state of shock exists. The chilling of the surface and the rough flight surely add to that especially when, a few swings failing to turn the tide, prolonged "Schultzing" is practised.

Byrd's method of alternately arching the child (inspiration) and doubling it upon itself (expiration) accomplishes in a milder manner and in some degree less effectively, the same purpose as the Schultze method. It has one distinct advantage, however. It can be performed with the child constantly immersed in the hot bath, and it allows other measures of stimulation to be carried on at the same time. I practise the method without inverting the child at the end of expiration, keeping it immersed throughout.

Direct insufflation is a wonderfully potent means of aeration. With his hand placed upon the epigastrium of the child to prevent its stomach filling with the air entering via the œsophagus, the operator blows through gauze into its mouth, the first part of the air which he has taken into his lungs by a deep inspiration. During this act he should not close the child's nose as has sometimes been recommended. He gently presses the thorax to produce expiration. The use of oxygen has been recommended, and surely when the child makes any inspiratory efforts it must prove useful. In most of the methods of artificial aeration, the creation of an atmosphere well loaded with oxygen about the child's mouth and nose ought to be useful.

Prochownik's method, holding the child suspended and alternately compressing and releasing the thorax, is effective. But it also has the objection of not being applicable in the bath. It is useful as a step, however, and I use it immediately after the delivery and cleaning of the pharynx, as it is useful in pressing out fluid from the deeper respiratory passages.

Sylvester's well known method with slight modifications can be carried out in the tub and is the favorite procedure with many obstetricians. It requires an assistant to hold the legs, and I believe the assistant can be used to better advantage. Moreover, the pectoral muscles of the infant are too weak to initiate the chest very much when pulled upon by extension of the arms.

In the Marshall Hall method also the child is deprived of the advantages of the hot bath. With the child method in cotton it may be used with benefit from time to time during the hours following resuscitation when the breathing is still moribund.

The ordinary methods of reflex stimulation are well known. The use of cold water, dipping the face in the face, etc., are useful, not only in the pallid stage, but as the flushing touch to produce natural respiration after the several methods of aeration have brought one to a bad case. The alternate immersion of cold water should be a step of the short

est duration. The strongest reflex stimulus to excite respiratory function is undoubtedly Laborde's method of tongue traction. (I cannot understand how this method ever comes to be classed as a method of artificial respiration.) It depends for its efficacy upon stimulation of the superior laryngeal, glosso-pharyngeal, and lingual nerves, and from them reflexly the phrenic. Second, only to the method of Laborde as an excitant of respiration is that of Cook, dilating the anus. When the reflexes are not yet gone as in the livid stage, this method will usually suffice to restore breathing. In the pallid stage, the sphincters are usually much relaxed. Stretching may, however, have some effect, and if this measure is used along with some good method of aeration it quickly makes use of the returning tonicity and excites breathing.

A great deal can be accomplished in the way of stimulating the heart. Massage of the breast has this effect. So, also, has compression of the thorax which the methods of Schultze, Prochownik, and Byrd provide. Ten minims of brandy, or 0.01 grain of strychnine, aid greatly in the pallid stage.

Infusion through the umbilical vein is attractive in theory for use in the stage of collapse. Forty c.c. of saline solution may be used to advantage to raise blood pressure. There has been no general enthusiasm over the use of Schücking's solution (sodium fructosate and sodium chloride), which is believed to take up the excess of carbon dioxide. The addition of adrenalin solution has not been proved valuable as yet, and the use of oxygenated solution has been violently decried by Seitz and others who reported dilatation of the heart as the result.

It is apparent that there is no lack of methods of treatment for asphyxia. But more than a mere acquaintance with them is important to secure results. Some teachers have a manner of giving the various expedients in the inverse order of their efficacy. They say "try this first, if it does not help, try that, then if all these fail there is still another. And at last before giving up in despair, remember that we still have the Schultze method." Perhaps the physician following this advice and failing finally with the Schultze method may ask himself how it might have come out if he had used one of the most powerful measures earlier.

Some men carry their faith in some one measure to great lengths. Laborde replied to a correspondent who reported that he had failed to reanimate a child by using his method for thirty-five minutes and, afterwards had succeeded by aspiration, that success would probably have come if he had continued longer than thirty-five minutes with the Laborde method. One can hardly blame the physician, however, for trying another measure at the end of that time. But we must not rush haphazard from one method to another. A definite plan of action meeting all the indications should be adopted and consistently followed. If in spite of this, the infant's heart becomes progressively weaker and finally ceases, the parents should say good-bye to the infant, and, heating, the operator may feel that he has given all possible assistance. If he had not tried some other method, he would have been in a better position to do so.

I have described a number of methods, I realize, ship-board work, and in the hospital, and in the home.

ures in place of some I use, but I believe it will be useful to describe some definite course.

As soon as the head is born, swab out the pharynx with the finger wrapped with gauze and squeeze the contents from the nose. After delivery invert the child. Slap its buttocks and back briskly a few times, dash a little cold water upon it and blow into its face. Perform Prochownik's compression of the chest for a half minute. Suck out the mucus from the pharynx of the child with a catheter having a pipette. Blow into the child's mouth, compressing the trachea and pressing gently on the stomach. All these manœuvres are done to better advantage with an assistant's help. It will rarely happen even if no trained nurse or assistant is present that some one cannot be pressed into service. Now ligate or clamp the cord and cut it. Transfer the child at once to a large tub containing eight inches of water at 108° F. Listen to the heart beat so that improvement or retardation later may be estimated. Perform Byrd's method of artificial respiration without inverting the child at the end of expiration. From time to time mucus should be wiped from the nose and mouth as squeezed out from the air passages. While Byrd's method is being done an assistant if present should make rhythmic traction on the tongue. This can be done readily without interrupting the Byrd treatment. The operator can readily pass the index finger of the left hand into the rectum and from time to time this should be done. After four minutes if previous injury does not contraindicate, remove the child from the tub and perform Schultze's method for a minute giving ten swings in that time. By this time unless the case is a very bad one, some signs of restoration of breathing are usually present. If the infant has improved in color and started breathing, however weakly, return it to the hot water, massaging its breasts, and watch the efforts at breathing. If this is shallow, plunge the child into a tub of cold water for a second. If the breathing improves, the case is doing well and Byrd's method in the tub with an occasional reflex stimulation by stretching of the anus will soon bring about satisfactory breathing. All the reflexes now being good, a dip into cold water and a few slaps will probably cause a genuine cry. Continue the Byrd method, however, timing the movements of inspiration and expiration with the child's until both sides of the chest expand well.

If the Schultze swings, however, have not caused any respiratory efforts, return the child to the tub and examine the heart. If it has materially lost ground, inject hypodermatically a solution of strychnine and brandy, which should have been prepared while the swinging was being done. Now perform mouth to mouth insufflation. If improvement follows, continue with this method until the tone is good and then stimulate breathing by the reflexes. If, however, no betterment is observed continue with the first routine, the Byrd method combined with the Laborde, alternating after four minutes with the Schultze method for a minute. Omit the latter, however, if the heart is markedly weak, as the additional shock and chilling will not be well borne. Repeat the hypodermatic injections at fifteen minute intervals and keep up the manœuvres in the tub until

breathing is restored or the heart stops beating. Even after an hour of asphyxia a happy result may be obtained.

A child that has been resuscitated with difficulty must be carefully watched. If the case is one of asphyxia from delayed aeration only, and the lungs are well expanded, there will probably be no more trouble unless aspiration pneumonia sets in. In cases in which atelectasis is present or injury to the respiratory or vasomotor centres, pressure from intracranial hemorrhage or anomalies of circulation due to persistent fetal features, death may ensue at any time. We must see that the child is kept uniformly warm and carefully watched for symptoms of collapse.

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616 MADISON AVENUE.

ONE HUNDRED CONSECUTIVE CASES OF CÆLIOTOMY FOR PELVIC DISEASES IN WOMEN.

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In tabulating this series of cases I have endeavored to bring out several salient features, frequently omitted from similar reports, which have always been of special interest to me and of much value when comparing from time to time different methods of operative procedure.

The cases, taken as they came to me consecutively from all walks of life, are fairly representative of the routine conditions with which the gynecologist is called upon to deal; and the operative treatment carried out covers very well the field of major gynecological surgery.

Every endeavor has been made to have the following statistics as accurate as possible. The case histories were in every instance either taken by me

or verified by a personal interview with the patient before being copied on my records, and there has been no searching of old records by a third party—a frequent source of error.

All of the patients were operated upon by me personally or under my direct supervision, and a careful detailed report of the operation recorded at its conclusion. No attempt has been made to classify the symptoms from which the patients suffered, and which were the determining cause of operation, as such a classification would give rise to much tedious and hardly profitable repetition. In no instance, however, was an operation performed simply to effect an anatomical cure.

Age:

Youngest	16
Oldest	64
Average age, 28.9 years.	

Menstruation:

Earliest at	12
Latest at	19
Average age at onset, 14.4 years.	
Regular	71
Irregular	28
Scanty	13
Moderate	31
Profuse	55
Painful	72
Painless	27

There were four cases of menopause, the earliest at 38 years and the latest at 47 years, the average being 40.2 years.

Forty-four cases had never borne a full term child; twelve of these, however, had had miscarriages. The remaining fifty-six had given birth to forty-nine full term children, with fifty-two miscarriages.

The following pathological conditions of the pelvic organs were encountered:

Uterus:

Retrodisplacements	27
Procidentia, partial	1
Procidentia, complete	1
General fibrosis	7
Multiple fibroids	5
Carcinoma of the cervix	3

For the retrodisplacements, the round ligaments were shortened by the abdominal route fourteen times and by the vaginal ten. The uterosacral ligaments were shortened once per vaginam, and abdominal and vaginal fixation were each performed once.

In both cases of procidentia the round and broad ligaments were shortened. In the one of complete descent the infundibulopelvic ligaments were shortened on each side, and the round ligaments carried through the muscular tissue of the posterior uterine wall.

Supravaginal removal of the uterus through the abdomen was done six times for general fibrosis, and five times for multiple fibroids; complete removal through the abdomen was done once for general fibrosis.

Painful menstruation for carcinoma was performed once vaginally and once abdominally.

The internal iliac, round ligament, and oblique

arteries were ligated once for inoperable carcinoma of the cervix.

Supravaginal removal of the uterus with accompanying inflammatory conditions of the tubes was done abdominally eighteen times, and vaginally once.

In addition, the cervix was repaired seven times and amputated twice, the perineum repaired sixteen times, and ventral hernia twice.

Curettage was also performed whenever indicated.

Among the fibroid cases many interesting features were encountered. Cases XXXII and XXXVI were large intrauterine tumors, springing from the fundus and projecting through the cervix, where the constriction of the internal os had caused necrosis of the extrauterine portion. In Case XXXVI, that of a spinster of forty-five, the entire uterine cavity was filled by a large breast shaped fibroid growing from the fundus and posterior wall, the cervical

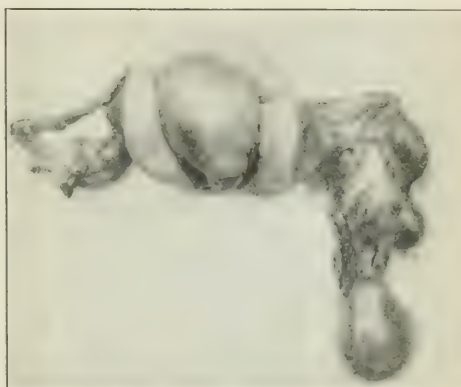


FIG. 1.—Case XXXVI. Fibroid of the uterus.

portion or nipple being firmly held by the internal os and presenting at the partially dilated external os as a mass of soft necrotic tissue. This unusual condition, being associated with the enlargement of the uterus, severe colicky pains, profuse and foul hæmorrhage with elevation of the pulse and temperature, and the presence of secretion in the breasts led one of her medical advisers to a diagnosis of miscarriage and a prompt dismissal from the case by the indignant relatives.

In Case XLVII a small fibroid, about one inch in diameter, growing at the left horn of the uterus, had by pressure on the tube completely severed its uterine connection.

Chloro-anæsthetic	11
Ethylæther	16
Hydrochloric	10
Subcutaneous chloro	18
Local anesthesia	1

Abdominal incisions were made thirty-four times, the chloro-anæsthetic twenty times for laparotomy, ten times for hysterectomy and seven times for tubal resection.

Abdominal resection of the tube was carried out nine times, for cancer six, salpingitis once, for pro-

pinx, once for hydrosalpinx, and in one case of tubo-ovarian abscess.

Vaginal removal was done once for chronic salpingitis, and vaginal resection four times for the same condition.

Abdominal removal of the tube for tubal gestation was done twice.

One of the tubal gestation cases, Case LXXI in the series, was of more than passing interest on account of the position occupied by the tube. The gestation was three and a half months and contained in the right tube. This lay anterior to the uterus, to which it was firmly adherent, as well as to the bladder and appendages of the opposite side, the whole wrapped round and round by omental adhesions and plastic exudate, making a firm, uniform tumor which before operation led to a diagnosis of general uterine fibrosis.

Ovaries:

Cystic degeneration.....	51
Ovarian cyst.....	4
Prolapse	11

Abdominal removal was performed thirty-eight

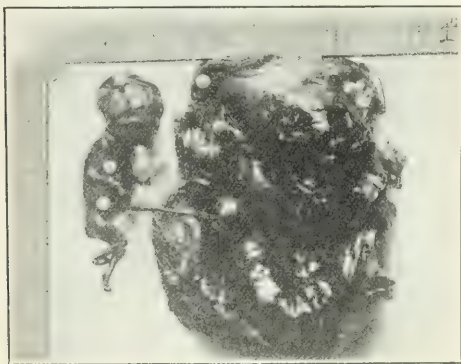


FIG. 2. Case LXXI. Tubal gestation.

times for cystic degeneration and four times for ovarian cysts. Abdominal resection of the ovary was done eight times for cystic degeneration.

Vaginal removal was performed twice and vaginal resection three times for cystic degeneration.

The ovarian ligaments were shortened, for prolapse of the ovary, nine times abdominally and twice vaginally.

Case XXI, a right multilocular ovarian cyst, eight inches in diameter, showed a twist of one and a half turns in the pedicle.

Case C, a large cyst of the left ovary; the subjective symptoms were all on the right side, which the findings at operation readily accounted for. The cyst, very tense and adherent, compressed the right appendages firmly against the wall of the pelvis. After removal of the cyst these symptoms entirely disappeared.

One is impressed at first sight by the many times inflammatory conditions of the appendages were met with, but most of the cases where these occurred came from the venereal wards of the City Hospital, after having suffered from repeated attacks of gonorrhea that had, as a rule, caused an involvement of both sides.

The appendix was found in the pelvis, adherent to the right appendages, fourteen times, and removed. In twelve cases it was found adherent posteriorly to the caput and was removed seven times and inverted five times. In two cases, although apparently normal, it was inverted at the request of the patient. In no instance was a separate incision made for this work.

Of the right sided inflammations with involvement of the appendix, one showed an unusual and instructive condition.

CASE LXXXVII.—Mrs. W., thirty-seven years old; first menstruation at fifteen years, regular, six days, profuse with severe pain; last one week previous. Patient had had one child by normal labor, sixteen years ago. A diagnosis of double tuboovarian abscess and chronic appendicitis was made; temperature was 100.4° F., pulse 80. At operation through the transverse incision, double tuboovarian abscess with extensive adhesions was found. To the right tumor was adherent the elongated and greatly thickened appendix, the lumen of which communicated with the abscess cavity by a small opening. On this side there was an active inflammatory condition, denoted by many recent adhesions and much plastic exudate, and the pus, fetid in character, showed many colon bacilli present, while on the opposite side the condition was one of quiescence and no colon bacilli were found in the pus. Removal of the uterus supravaginally, with appendages and appendix was performed, and a gauze drain passed into the vagina through the posterior fornix. A maximum elevation of temperature of 100.4° F., with a pulse of 104, was reached on the fourth day, the temperature becoming normal with a pulse of 90 on the sixth day. Convalescence was uneventful.

Bicornate uterus was encountered twice, colloid cyst, between the bladder and uterus and of uncertain origin, once. Tubointestinal sinus once; corpus luteum cyst, three inches in diameter, once; twisted pedicle in a right ovarian cyst once.

In approaching the field of operation the abdominal route was selected seventy-six times; the longitudinal incision through the sheath of the rectus being employed thirty-four times, and the transverse incision of Pfannenstiel at or just above the pubic hair line thirty-eight times. Kustner's incision was used four times. The vaginal route was chosen eighteen times, the incision being made through the anterior fornix, between the bladder and uterus.

In six cases the combined abdominal and vaginal methods were used, the latter having been begun for exploratory purposes and disclosing involvement of the appendix or conditions too high up to be satisfactorily treated from below, was abandoned.

The bladder was accidentally opened once in a case of vaginal celiotomy, but being repaired at the time, it promptly united by primary union, drainage by means of a self retaining catheter being carried out for three days.

The postoperative complications met with were: Bronchitis, once; bronchopneumonia, once; lobar pneumonia, twice; acute suppurative appendicitis developing on the eighth day, once; and a localized peritonitis, of mild degree and few days' duration, twice.

Three patients out of the hundred died.

CASE VII.—Mrs. D., aged sixty-four; pregnant four times. First menstruation had taken place at seventeen; always regular, but profuse; last seventeen years

previous to operation. The uterus was large, of general fibrosis, extending three inches above umbilicus. A median abdominal incision was made, hemisection of tumor performed, and supravaginal removal with appendages. Time of operation was 45 minutes. Ether narcosis. Pneumonia developed on the second day. Temperature, 104.3° F.; pulse, 126; respiration, 40; with exitus on the fourth day. Post mortem examination gave lobar pneumonia as cause of death.

CASE LXI.—Mrs. W., aged forty-four; primipara. First menstruation had occurred at twelve, always regular, but profuse, last two months previous to operation, with continuous hæmorrhage ever since. The uterus was large, of general fibrosis, extending two inches above umbilicus. A median abdominal incision was made, supravaginal removal of uterus and tubes performed. Time of operation was 40 minutes. Ether narcosis. Five hours later signs of cardiac failure appeared, pulse becoming rapid and irregular and of varying quality, marked cyanosis was continuous. Exitus in two hours. No post mortem examination.

CASE LXXI.—Mrs. M., aged twenty-four years; nullipara, first menstruation occurred at thirteen, always regular, but profuse, last three weeks previous to operation. There was a double tuboovarian abscess. Transverse abdominal incision was made, and extensive old and recent adhesions were found. Supravaginal removal of the uterus and appendages. Time of operation was one hour. Ether narcosis. At the end of eight hours symptoms of cardiac failure rapidly developed with exitus two hours later. Post mortem examination of the field of operation showed a few small blood clots adherent to the cervical stump, no fluid blood present and no congestion or distention of the intestines.

These are of necessity omitted from the following statistics:

The percentage of cases septic at time of operation was 20.4.

As the behavior of the temperature and pulse during the period of postoperative recovery gives an insight into the recuperative powers of the human system extremely valuable in contrasting different operative methods, and in estimating their relative merits, it has been my custom to note in each case the temperature and pulse before operation. The maximum temperature and pulse after operation with the day of occurrence and finally the day upon which the temperature first became normal with the pulse rate at that time. From these observations were drawn the averages for the ninety-seven cases which follow.

The average temperature and pulse last recorded before operation was: Temperature, 99.05° F.; pulse, 84.9.

The average maximum recorded after operation was: Temperature, 99.95° F.; pulse, 94.2. This was reached on the 2.2 day, giving an average post-operative elevation of temperature of only 0.9 of one degree, with an increase in the pulse rate of only 9.2 beats. The temperature became normal, with a pulse of 84.8 on the 4.6 day.

A considerable reactionary elevation of temperature and pulse immediately following the operation, but which rapidly subsides to near the normal, is frequently met with, and is of much less serious import than a protracted elevation, prolonged and accompanied by a retarded return to the normal. It has been my observation that this reactionary elevation of the first day or two is in direct proportion to the amount of trauma inflicted within the peri-

toneal cavity at the time of operation, and experience has firmly convinced me that the most extreme gentleness should be used at all times in intraabdominal work, and particularly during the separation of adhesions. I never hear the expression, "breaking up adhesions," used without a shudder for the poor patient upon whom the breaking up process was carried out. Often have I seen a reactionary disturbance and a stormy convalescence follow in the wake of one of these "breakers" that was out of all proportion to the operative requirements of the case.

Many different ways of meeting the operative indications presented were often at our disposal, but as some of these would have been attended with so much shock to the patient and accompanied by such a prolonged convalescence that every effort was made to determine on a method of procedure that should fulfil the operative requirements of the case with the minimum danger from postoperative complications. Where any question as to the advisability of operative interference arose the patient was invariably given the benefit of the doubt, and kept under observation long enough for the symptoms to justify an invasion of the peritoneal cavity.

In the abdominal sections the percentage of cases in which primary union occurred was 79.5. In the first half of the series catgut was used as a ligature and suture material with a strand of silkworm gut as a subcuticular stitch in closing the wound. Silk was then substituted for the catgut. In the cases where catgut was used, primary union resulted in only 64.8 per cent., while after the introduction of silk it obtained in 90.1 per cent. Each series had the same number of cases septic at time of operation. Where primary union did not result the most common disturbing element was an accumulation of serum between the skin and fascia. This was liberated as soon as discovered, generally on the fourth to eighth day, the wound irrigated with normal saline solution and closed without drainage. There were only two severe wound infections, one due to the streptococcus and one to the colon bacillus, this latter occurring in a case where the appendix, as well as the uterus and appendages, had been removed.

Anteoperative Treatment.—All cases were prepared abdominally and vaginally the day previous to operation, the vagina, external genitalia, and abdomen being scrubbed with the tincture of green soap, a poultice of which was then applied to the abdomen and external genitalia. This was removed on the operating table and followed by a final cleansing with the green soap, alcohol, and ether.

Operative Technique.—In the abdominal sections, when the longitudinal incision was used, the sheath of the rectus muscle, generally the right, was opened, and the muscle retracted to the outer side. At the completion of the work within the peritoneal cavity the peritoneum was closed with a continuous stitch, the rectus muscle allowed to return to the median line, and the incision in its sheath, when short, closed by a continuous suture and when more than three inches long by interrupted sutures. No arteries were passed through the body, and the skin flaps were incised and by a continuous strand of silkworm gut sutured on the fourth day. When the transverse incision was employed the original technique of the method was modified to some extent. In cases where the disease extended well up

out of the pelvis into the abdomen the site of election was just above the pubic hair line at the transverse fold instead of at the hair line, the situation selected when the disease was limited to the pelvis. After the transverse division of the skin, subcuticular tissues and rectal sheaths, instead of incising the linea alba, the right rectus muscle, after separation from the pyramidalis was retracted outward and the peritonæum incised vertically. The self-retaining retractor of Doyen was then introduced and retained until the intraabdominal work was completed. The peritonæum was then closed by a continuous suture, and the incision across the sheaths of the recti by interrupted ones, a subcuticular suture being used to close the skin incision. This is, to my mind, the ideal abdominal incision for pelvic surgery, giving a better exposure of the field of operation and of the general abdominal contents than any but the most extensive longitudinal section.

While the intraabdominal work was in progress the Trendelenburg position was invariably used, the table being elevated to an angle of 45 degrees, and only lowered for treatment of the appendix and before closing the peritonæum. The field of operation was walled off by gauze pads wrung out in hot saline solution, and in all cases of pyosalpinx and tuboovarian abscess the pus was removed by aspiration, when practical, before the separation of adhesions was begun, a most important point and one often neglected. When the removal of a tube was called for its deep dissection from the cornu of the uterus was practised in most cases. In the tubal resections as much of the tube was removed as thought necessary, a dorsal opening one inch long made into the lumen of the remainder at its distal end and the serous and mucous surfaces stitched together by interrupted sutures to preserve a patent opening. In one instance where an obliterative salpingitis had closed the middle two thirds of the tube only, this portion was removed and the distal and proximal ends sutured together over a probe.

In the vaginal section cases the anterior vaginal wall was incised transversally at its reflection from the cervix and longitudinally to within one inch of the urethral meatus, the bladder separated from the uterus and anterior vaginal wall, and the peritonæum divided at its uterine reflection. Through this opening the fundus was delivered into the vagina and the treatment indicated carried out. When this was finished the fundus was replaced and the longitudinal incision in the anterior vaginal wall closed by interrupted sutures; the transverse incision was left open to afford free drainage from the wound area, from which there is always considerable oozing, and so that the anterior vaginal wall, in the retrodisplacement cases, might form its new attachment at a more desirable point higher up on the cervix.

Hæmostasis was secured by the use of the Child angiocliripe, and by individual ligation of the vessels. No case of secondary hæmorrhage occurred.

Drainage through the abdominal wound was never employed, and through the vaginal only four times, once in a vaginal hysterectomy for carcinoma of the cervix, and once each in abdominal hysterectomy for uterine fibrosis, for carcinoma of the cervix, and for tuboovarian abscess.

PERFORATION OF THE GASTROINTESTINAL TRACT BY SWALLOWED BODIES.

*With a Report of Two Cases.**

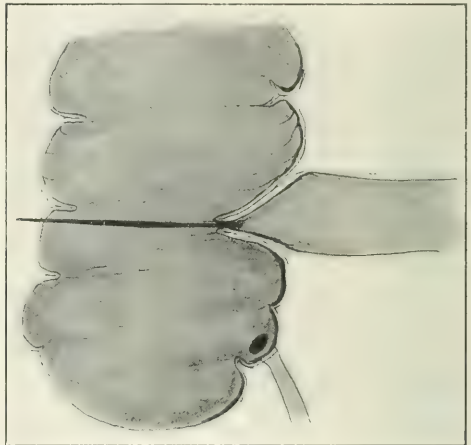
By GEORGE G. ROSS, M. D.,
Philadelphia,

Surgeon, Germantown Hospital; Assistant Surgeon, German Hospital.

Within the last year I have had two very interesting examples of perforation of the wall of the gastrointestinal tract by swallowed foreign bodies.

They are as follows:

CASE I.—John L., admitted May 7, 1907, discharged May 15, 1907, seen and operated upon in the German Hospital. This patient was referred to me by Dr. McCracken, of Philadelphia. For three days he had had typical symptoms of an attack of acute appendicitis, and on admission this condition seemed to be present and to demand immediate operation. This was accordingly done under ether anaesthesia.



Modification from Gray's *Anatomy*, showing toothpick *in situ*.
(See Case I.)

The incision was made through the right border of the rectus muscle, and the abdomen opened in the usual manner. The general peritoneal cavity was then walled off with gauze pads. The cæcum was partially delivered, bringing up the appendix, which was swollen, thickened, and had a congested serosa. The meso-appendix was transfixed and tied off with linen thread and cut. The appendix was then tied off at its base with linen thread and removed, the mucous membrane cut out of the stump and several linen thread Lembert sutures were introduced into the cæcum, infolding and oversewing the appendiceal stump.

After these manipulations had been completed a piece of wood, shaped like a toothpick, was found in the bottom of the wound. Upon further examination the wound of exit was found to be in the outer wall of the cæcum opposite the ileocecal valve. The opening in the cæcum was closed by sutures of linen thread. A calcified gland, about the size of a cherry stone, was found in the omentum near the cæcum. Drainage was secured by a piece of selvaige gauze, placed beneath the cæcum and brought out at the lower end of the wound. The wound was closed by tier sutures of iodine gut, and an aseptic dressing was applied.

* Read at a meeting of the Medical Society of the State of Pennsylvania.

The recovery was uninterrupted, excepting slight superficial infection of the wound. The drain was removed on the third day.

A pathological examination of the appendix showed chronic obliterative appendicitis.

CASE II.—Mrs. DuB. Internal blind fistula of two years' standing. The tract involved the anterior segment of the anal margin and the perinæum. The abscess followed pregnancy, and it was thought by the patient to be the result of a perineal tear. Operation revealed an old abscess cavity communicating with the rectum just inside the sphincter and containing a fish bone one half inch long. The patient then recalled having swallowed the bone toward the end of her pregnancy and also having experienced a sharp pain during defecation preceding the development of the abscess.

In reviewing the literature, numerous cases of perforation of the alimentary tract by swallowed foreign bodies can be found. I have not attempted to take into consideration those cases of perforation above the stomach, as cases of pharyngeal and oesophageal injury rarely come under the observation of the general surgeon. Nor have I included cases in which the patient habitually swallowed objects of unusual size or character and finally had serious trouble, as these cases but rarely offer the clinical or diagnostic features of those we are discussing.

The variety of objects accidentally swallowed by patients is amazing. Pins, needles, buttons, coins, large fragments of wood and bone, pass down with or without the presence of food and with practically no unpleasant symptoms. Even nails and open safety pins have been found. Sometimes also patients in temporary periods of mental aberration swallow large objects and later forget all about them. Thus in a case reported by Lihotzky (1), a woman swallowed a teaspoon, but no history of the accident could be obtained from the family until the spoon was found post mortem; then the occurrence, which dated several years back, was brought to the mind of the husband.

Most of the swallowed objects are disposed of *per vias naturales*. There are certain agencies which tend to prevent perforations of the alimentary tract by swallowed bodies even when they are sharp ones, such as pins, needles, etc. Among these may be mentioned the pliability of the intestinal and gastric walls, their free mobility, and the occasional inclusion of the foreign body in portions of swallowed food.

Very interesting in this connection are the experiments of Muller (2), who quotes and confirms the work of Exner (3). He finds that the process described by Exner, by which foreign bodies in the intestines are turned about as they move down the canal, is a purely muscular one. The intestinal wall, by some inherent property form slight corrugations at the point of contact when touched by a slight foreign body, then pushing the point away, and ultimately turning the body entirely around in many cases. This was carefully observed upon dogs in numerous cases. These movements took place also when the intestinal connections with the vagus and the solar plexus were severed, thus proving the action to be a pure reflex, due to some intrinsic property of the gut wall itself. That a similar action occasionally takes place in the human intestine we

may infer from such cases as that of Kretz (4), in which a chicken bone finally perforated and caused a fatal hemorrhagic peritonitis. At the examination of the intestines numerous scars were found upon the inner wall. Doubtless in these places the bowel had been strong enough to resist the pressure of the sharp bone and push it away by its own muscular action.

The mechanism of perforation, when it does occur, is simple. By peristaltic or muscular action, the pointed or sharp edge of the body is forced into the mucosa. An inflammatory reaction sets in, the object remains in situ, and by pressure necrosis, or more rarely by suppuration, the perforation takes place. A blunt object may also perforate, yet it is evident that such a one would be more likely to pass through the entire alimentary tract without great damage thereto.

As regards the locality of the perforation it may be stated that most frequent are those of the rectum and appendix. Next in order of frequency comes the large intestine, then the small intestine, and then the stomach. The relative immunity of the stomach from perforation can be easily understood when we consider the thickness of its walls, especially at the pylorus, where a foreign body would be most likely to impinge, and the fact that any body, small enough to be swallowed by an ordinary person, can move freely about in the stomach and need not be in contact with any particular portion of its wall for a long period of time. The vigorous peristaltic motion of the stomach would not favor the resting of any object against its wall long enough to cause a pressure necrosis.

Equally evident is the fact that the appendix, consisting of a narrow tube with but one opening, and easily liable to suppurative processes, offers the most vulnerable point to a foreign body. Often, however, the perforation is at its base, or in the adjoining portion of the cæcum, by pressure of the proximal end of an object whose distal end has been caught in the tip of the appendix.

In the rectum also the foreign body is powerfully driven against the wall of the bowel when defæcation is accomplished with difficulty or when it is voluntarily prevented at the proper physiological moment. Occasionally, the perforation here is high up in the rectum, and Hadra (5) mentions the fact that when this is so, i. e., when the foreign body is impacted above the line of the coccyx, and as he says, "above the pelvic diaphragm," its removal is a matter of considerable difficulty. The difference in frequency of occurrence between perforations of the large and small bowel is not easily to be explained and must remain for the present a matter of conjecture.

The length of the time that a foreign body may remain in the alimentary canal before perforating it, varies very greatly. In but few cases can any history be obtained even after the operation and finding of the object. Thus, in the case of Lihotzky (1), before mentioned, a spoon remained in the stomach and duodenum two and a half years before perforating, and then did so only when the position of the abdominal viscera was disturbed by pregnancy. Doubtless in the case of a sharp object the time would have been far less, but there is no exact way of determining this. Thus in a case re-

ported by T. C. English (6), a piece of broken bodkin was swallowed by a sixteen year old girl. It penetrated the second part of the duodenum within twelve days after it had been swallowed.

Occasionally perforation by pins, needles, etc., is prevented for a time by their inclusion in hard fecal masses or even in calcareous incrustations, as may have occurred for a time in a case reported by Hall (7), in which a pin perforating an appendix was found encrusted with phosphates.

As predisposing factors to perforation, when the object has been swallowed, there may be mentioned violent peristalsis, sudden displacement of the viscera, and coincident local inflammation. Most if not all of the reported cases are too indefinitely described as to previous history of the patient to determine such preexisting causes definitely.

Perforations when they do occur may be divided into those cases in which the wall of the viscus is completely perforated, and those in which the perforation is but a partial one. The latter condition is practically unknown.

Clinically, however, the distinction between those cases in which the perforating body leaving the canal enters the peritoneal cavity, and those in which it becomes imbedded in the surrounding tissues, is more important. The former mode of exit occurs in practically all the cases of perforation between the cardiac end of the stomach and the rectum, the latter is found practically only in the rectum. In discussing diagnosis and treatment, these two classes of subjects really furnish distinct clinical entities. The cases I have reported represent the first and second divisions, respectively.

In my first case the salient features are as follows: (1) The absence of any history on the part of the patient of having swallowed the foreign body; (2) the fact that there were no points upon which to diagnosticate the presence of the foreign body; and (3) the simulation of an acute appendicitis.

1. In most of the similar cases reported there is also an entire absence of a reliable history. Thus, in fifty cases of foreign body in the appendix reported by Ramsay (8) (quoting also Kelly and Hurdon) in only six was there any history of the swallowing of the object. Doubtless in some instances the patient himself deceives the physician, as must have been the case in the remarkable instance reported by Bell in which bodkins, needles, etc., were found in the various portions of the abdominal cavity, and all history of having swallowed them was denied by the patient.

2. The foreign body did not give rise to any symptoms by which its presence could be diagnosticated. This is also in accord with the general rule. Before perforation takes place, or even during it, if there is no associated peritonitis, the pain may be severe, but variously referred over the abdomen and practically impossible to account for. Such was the situation in the remarkable case of Bell, already referred to, in which the pains were ascribed to a neurosis. At operation the neurosis was found in the shape of pins and needles of various sizes and forms. A diagnosis was not correctly made in any of the cases that I have been able to find in the literature. It is only as a rule when definite symptoms, such as of a local or general peritonitis are present, that the surgeon is called, and then the intervention neces-

sary for the relief of the secondary condition leads to the discovery of the primary one.

3. The simulation of an attack of acute appendicitis. Naturally the symptoms to which a perforating foreign body gives rise must vary entirely according to the locality of the perforation. When in the appendix or the cæcum it usually simulates or causes true perityphlitis or appendicular inflammation, with the rapid formation of abscess. In the upper abdomen, slowly perforating gastric ulcer or cholecystitis will be considered the probable conditions present. Thus Pique (9) reports the instance of an insane patient with symptoms of acute cholecystitis and fever. The patient's statement that he had swallowed a box of pins was not given much attention. On section a perforation of the stomach three quarter inch in diameter was found, with an encysted peritonitis, the inflammatory mass being near the pylorus and adherent to the abdominal wall. A pin was found in it.

When the perforation is in the small intestine low down or in the descending colon, the abscess is usually recognized and opened without any exact pre-operative opinion as to its origin. Among these may be mentioned the cases reported by Beach (10), in which a perforation of the colon caused the formation of a large abscess in the left iliac region.

Perforations of the appendix itself are, as has been mentioned, quite common. In these cases a typical appendicitis as a rule results, often with the formation of an abscess. Such are the instances reported by Gunnard (22), Hall (*loc. cit.*), Woolsey (23), McIntosh (24), Kane (25), Spellissy (26). These cases have lately been well presented and studied by Patterson (27) in a thorough review of the literature on foreign bodies in the appendix.

Cases almost exactly resembling an appendicitis, but from perforation elsewhere than in the appendix itself are reported by Remy and Jeanne (11), where the perforation of the cæcum was caused by a needle, by Morton (12), in which it was caused by a fish bone, and by Pitois (13) in which it was caused by a mass of raisin seeds.

At times, as in cases reported by Lihotzky (*loc. cit.*), of perforation of the duodenum, and by Kretz (*loc. cit.*), of perforation of the ileum by the broken wish bone of a chicken, a diffuse peritonitis results at once, as the lesion occurs in the location not favorable to the walling off of the infection. This is generally of a virulent type, and such cases always end fatally.

Rarely the inflammatory mass surrounding a foreign body leaving the bowel may be sufficient to cause an obstruction. Such a case has been reported to me in a personal communication by Dr. G. G. Davis. In this instance the irritant was a splinter of wood which had penetrated the intestinal wall.

Several instances have also been reported in which the foreign body has penetrated the contents of a hernial sac, either accompanying or giving the symptoms of a strangulation. Cases are reported by Budinger (14), in which this occurred in an inguinal hernia, and by Schiach, in which a perforation was found in a femoral hernia. Macewen (16) reports a case in which an appendix perforated by a pin was found in a strangulated inguinal hernia, and Symonds (17) had a similar one. In the case reported by Broughton and Hewetson (18) a fem-

oral hernia contained an acutely inflamed appendix with an abscess in the hernial sac, and a pin was found lying in the bottom of the abscess.

These various pathological processes, resulting from or accompanying the perforation, all tend to show how impossible is a diagnosis of the original condition.

Occasionally small sharp pointed objects like needles penetrate the intestine and work their way to the surface. Thus, Treves (19) extracted from under the skin of the groin a needle which had been swallowed by the patient, a child, some months previously.

In the second case presented the conditions differ entirely from those in which the foreign body enters any portion of the peritoneal cavity. Here again we note an entire absence of any remembrance on the part of the patient of having swallowed the object found to be the cause of the trouble.

In contradistinction to the first case, however, we note the following points: (1) A foreign body imbedded in the wall of the rectum or surrounding tissues often causes very suggestive symptoms; (2) careful examination will often reveal its presence.

1. In many cases where foreign bodies have been found as the cause of fistulæ, sinuses, and abscesses about the rectum there has been more pain than is usually associated with chronic cases of this kind. There is generally a history of a stabbing or pricking pain coming on at intervals. Some patients, as is the case reported by W. Dutton Akers (20), have pain upon sitting down. Tenesmus is not uncommon, as for instance, in the instance of Akers before mentioned and the case published by Ramsay (*loc. cit.*). Occasionally also there is a history of bleeding from the rectum. The presence of these symptoms where the local lesion appears of not sufficient magnitude to give rise to them should always lead to the suspicion, at least, of an irritating foreign body.

2. Careful examination will often reveal the presence of the perforating object. By this I mean, that careful digital and proctoscopic examination, under favorable conditions, will accomplish the object mentioned. Too often in rectal cases a very superficial examination is made. Abscess or fistula is diagnosed, without any thorough attempt to ascertain the extent of the lesion, its probable cause, or the condition of surrounding structures. Especially valuable is the proctoscope. When used properly and with good illumination this is a most valuable diagnostic aid. Used wrongly in a routine or hasty manner or in a manner causing excessive pain to the patient, it is not only useless, but capable of doing great harm.

As to the nature of foreign bodies found imbedded in the rectum, it may be safely stated that fish bones are by far the most frequent. In a series of twenty cases reported by Goodsall (21), fish bones were found in thirteen, and a pin in the other case. Hadra also reports a case in which a fish scale was found. Larger or blunter objects, when they have reached the rectum, usually traverse it with but superficial damage.

When suppuration takes place as a result of the inclusion of the foreign body, we may have either an acute abscess, or a blind or complete fistula which has resulted from such an abscess. The latter con-

dition is the one most frequently found at operation. Thus, Goodsall in thirteen cases reports three of acute abscess and ten of blind or complete fistula. Occasionally a foreign body may be implanted in the rectum without causing either fistula or abscess, but with marked local irritation of a nonsuppurative form.

The treatment of rectal conditions such as those mentioned is usually determined by the secondary condition, as in a minority of cases only is the foreign object simply felt and removed. In either case the surgical aspect of the situation is usually not grave, and the patient is soon relieved.

In the cases of abdominal perforations of the alimentary tract the situation is entirely different. Here, as we have mentioned, the presence of the perforating body is never recognized, except where it comes to the surface, until grave secondary symptoms arise. The surgical procedures themselves must, of course, be instituted according to the usual fundamental principles. In every case of unusual intestinal ulceration or perforation which we find at the operation we should be on the lookout for a foreign body, though it is going too far to assume, as Hadra has done in several of his cases, that a perforation of the bowel without evident cause must have been caused by a foreign body, even though such a body can nowhere be found.

For the present, at least, cases such as the ones mentioned must remain among the curiosities of medical literature. Future refinements in diagnostic methods may enable us to recognize the symptoms caused by foreign bodies which have injured the wall of the intestinal tract as distinctive, but in the light of our present knowledge this is as yet impossible.

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EXTRAUTERINE PREGNANCY.

By L. G. HANLEY, M. D.,

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Erie County Hospital, etc.

Mrs. F., age thirty-seven, married ten years, her menstruation began at thirteen years of age, and she has been regular every twenty-eight days until October 3, 1906. November 14, 1906, she became very ill, vomiting, pain in the rectum, dizziness, etc., the pain being more pronounced in right side. It was necessary

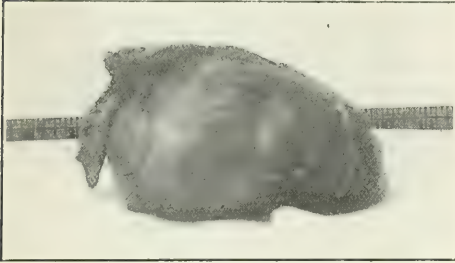


FIG. 1.—Tumor as removed.

to use anodynes to quiet her. She was unable to leave bed. I saw her on December 21, 1906, in consultation with Dr. Smallman. Examination revealed a mass in posterior cul-de-sac, more to the right. Uterus was bound down and fixed, and the slightest pressure caused pain. A diagnosis of pregnancy with a suspicion that it might be extrauterine was made. The incoercible vomiting had caused the patient to lose in weight and strength, and it was with great effort that she could get up from a recumbent position. She was unable to retain hardly any nourishment, and for nine weeks she vomited a light green fluid; abdomen was somewhat distended; bowels could not be moved except by cathartics and enemata; pain in rectum was of a most ex-

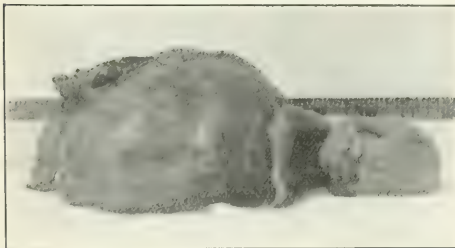


FIG. 2.—Child in sac.

cruciating type. She also had some symptoms of partial obstruction of bowels.

Removal to Sister's Hospital was recommended, and she was taken to that institution on February 21, 1907, having been brought on a cot by train thirty miles. All the presumptive and probable signs of pregnancy (colostrum) were present, but at no time could the fetal heart be heard or a sound of placental souffle. The ~~constant~~ ^{constant} fetal movements. The tumor was as high as umbilicus, tender to the touch, especially on the right side. There had been no discharge of blood or ~~secretions from the vagina~~. An examination was made in March, 1907, by Dr. Smallman, Dr. H. C. Buswell, Dr. Charles Banta, Dr. S. Y. Howell, and Dr. Eugene Smith. Diagnosis, pregnancy. Examination one month

later resulted in a division of opinion, whether pregnancy existed or not. The uterus had not been explored for she and her husband, while there was any doubt regarding her condition and being desirous of having an heir, were willing to take a chance and wait. At this time her vomiting and pain had ceased, and the tumor, which had been as high up as the umbilicus, had diminished somewhat in size. On June 10, 1907, there appeared a sanguineous discharge from the vagina accompanied by no pain, not very profuse and lasting eight days.

Having now gone about the full term of uterogestation, I assured the husband that Nature could do no more, and I decided to open the abdomen. On June 27th, after preparation of patient, I operated upon her. A large mass firmly adherent with broad base and filling the hollow of sacrum and about as high as the umbilicus was found with about one and one half feet of intestine adherent. On account of the adhesions and difficulty of separating same I was inclined to fix the sac to the abdominal wall, marsupialization, but finally managed to remove *in toto*. I also removed the other tube and ovary as they were badly swollen and showed the effects of inflammatory action. On the second day after operation there was a paretic condition of bowels; abdomen was greatly distended, and this was accompanied by vomiting. This condition was relieved by a high rectal enema consisting of a half pint of syrupus

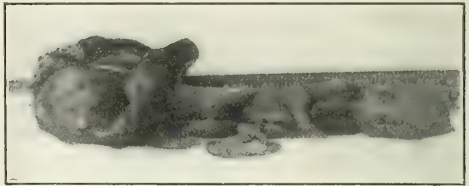


FIG. 3.—Child, cord, and attachment to placenta.

fusus and two quarts of warm water. No other bad symptoms occurred, and patient left hospital in three weeks.

The sac was one half to three quarters of an inch in thickness. The fetus was not macerated or discolored, no peeling of the skin or breaking down of the tissues, and appeared to have been dead about two weeks. The greatest development was in the outer part of the tube near the fimbria.

428 PORTER AVENUE.

TREATMENT OF SNAKE BITES AS SEEN IN THE JUNGLE.

By CHARLES S. BRADDOCK, JR., M. D.,

Haddonfield, N. J.,

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Those who sojourn in tropic lands become more or less accustomed to the minor reptiles, as lizards, scorpions, and centipedes, but few there are who overcome their fear or antipathy to the snakes that abound, and whose presence too often means death to the individual. In all my jungle life and experience I saw very few persons who were the victims of snake bite, who had been bitten above the knee, except those who had been bitten while lying down. It is always imperative, and "according to Hoyle," to shake out your blanket at night before lying down, and also to shake out your shoes in the morning, on the chance of a stray scorpion or centipede having taken up his abode there.

Contrary to general belief, the python or boa constrictor rarely attacks people, and is looked upon very differently by the people than is the hamadryad and cobra. The python will take up his abode in a neighborhood and will not disturb anything except the henroosts; these he disturbs very much, as he has a great fondness for chickens, also for a stray dog or small goat. I know of one case, however, in a floating house, where a python attacked a woman, and, contrary to the preconceived idea, did not crush her in his folds, but attempted to swallow her, commencing with one of her feet. When she was rescued, her foot and ankle were badly lacerated by the snake's teeth. The Chinese kill the python to make medicine from the liver, which has a high repute among them. They also use the dried skin for medicine. Any Chinese drugshop in Siam will have a number of python skins for sale.

One of the most important things to know about snake bites is that the poisonous snakes, such as the hamadryad, cobra, etc., leave on the individual only the two punctures of the poison fangs, while the less poisonous and harmless snakes leave, besides the two punctures, the marks of adventitious teeth. This is most important in prognosis, as being called to see persons bitten who were showing great shock, it helps physician and patient materially to assure the patient that while he may be very ill, he will not die. At the same time, while knowing this, I always used the same strenuous treatment and was very successful.

There is only one snake in the Far East, that is, in India, Burmah, Siam, and the Malay peninsula, that will always and at all times attack a man on sight. That is the hamadryad, justly more feared than any other animal that crawls. Fortunately for mankind they are not common, except in limited districts. They are so feared by all that the native Shikarris or hunters will go miles out of their way to avoid the locality in which they are known to exist. The hamadryad will stalk a man as a tiger stalks his prey. Mr. Leonowens, who as a boy was educated with the present king of Siam, and who is interested in teak forests, told me he had seen elephants die in half an hour after being bitten, and that he always carried a shotgun loaded with buckshot when in the jungle infested by them. He said that one of his men, a Burmese, was chased by one, and escaped by throwing away his clothing, piece by piece, the snake stopping each time to bite the clothing. He shot the snake himself just as the man fell exhausted near him.

These two snakes, the hamadryad and cobra, cause the great annual death toll of India from snake bite, about 22,000 people, last year. One reason for this great death toll is, that Hindoos and Buddhists will not kill the snakes, as it is against their religion to take life. The cobra will go away from you usually, except in the nesting season, and then he will attack you on sight if you disturb him or his mate. It is at this time that so many deaths take place among the Malays and Siamese, as it is coincident with the rice planting season, and the peasants are busily at work in the rice fields. The cobra will live under water, and many people are bitten on the foot or heel while planting rice. Death usually takes place in an hour or less. I have known a large water

buffalo to be bitten and die in fifteen minutes. It must have been bitten directly into a vein.

In the Malay peninsula and in Siam, no one ever walks abroad after dark without a lamp or torch, as it proves almost suicidal to do so. The great majority of snake bites are received after dark by people stepping on them. Of course I speak of the jungle, not of the cities.

The treatment was most strenuous, and my usual course was to cut deep into the tissues, causing free bleeding. A tourniquet between the bite and the trunk of the body, some distance away from the bite, keeping it on tightly for an hour at least. Pure crystals of potassium permanganate were rubbed into the wound, and the wound packed with the same. A ring of punctures was made around the wound with a hypodermic needle and a strong solution of permanganate was forced into the tissues all around the wound at a distance of an inch or so, so as to make a dam to counteract any poison partly absorbed. Then the wound was washed out freely with a strong permanganate solution. Nitroglycerin and digitalis were given in heroic doses, as in a few minutes the pulse fails rapidly, also brandy and whiskey in half pint doses and strychnine hypodermically in large doses. With these remedies close at hand I was very successful in saving life.

Of course, when some time had elapsed, it was impossible to help, as too much of the snake venom had been absorbed.

I called the attention of the Siamese government to the great death rate from snake bite, and as the natives have no remedy and do not know what to do when bitten, they simply laid down and die. At the request of the government, together with pamphlets on beriberi, plague, cholera, dysentery, malarial fever, etc., I wrote a small pamphlet on first aid to the injured, one of the most important things treated of being snake bite. I had to adapt this to the common people who have very few or none of the remedies I have mentioned in the jungle. So I told them to cut deep, put on a tourniquet, rub in permanganate, burn out with hot coals from camp fire, and give rice spirits or whiskey. These works, with the exception of two textbooks, the first books on modern medicine in the Siamese language, were distributed all over the kingdom by the government, in hundreds of thousands of copies, to educate the people.

Therapeutical Notes.

Gelatin for Gastric Ulcer.—Senator, of Berlin, gives every two or three hours a tablespoonful of a solution of gelatin (50.0 grammes) in water (500.0 c.c.) flavored with sugar or fennel seed.—*Journal de médecine de Paris*, September 20, 1907.

Treatment of Epidemic Cerebrospinal Meningitis by Mercurial Inunction.—Watanabe (*Nordiskt medicinskt Arkiv*, July, 1907, through *Le Bulletin médical*), in the course of an epidemic of cerebrospinal meningitis, treated twenty-four patients, of whom eleven died before he had time to regularly institute proper treatment. The other nine were subacute, at some of these were brought into the hospital, to friction upon the shaved scalp, with blue ointment, using ten to twelve grammes for ability

and five to eight for children. All of these were cured.

Sodium Fluoride as a Solvent for Diphtheritic Membranes.—In a discussion upon pseudomembranous laryngitis, Royet said that a very useful agent in dissolving the false membranes in the nose and throat was sodium fluoride in a one to one thousand solution. It could be used as a gargle, or as an application, even in stronger solutions.—*Lyon médical*, September 8, 1907.

Phthieriasis of the Scalp.—The *Journal de médecine de Paris* (September 29, 1907) gives the following formula to remove lice from the scalp:

℞ Tincture of benzoïn,.....	5.0 grammes;
Bichloride of mercury,.....	1.0 gramme;
Crystallized acetic acid,.....	25.0 grammes;
Eau de Cologne, q. s. ad,.....	500.0 c.c.

M.

It is only necessary to apply this to the affected area and keep it in contact for ten minutes; then it is to be washed off with hot water and soap. In this way, absorption is prevented, or reduced to the minimum. This preparation has a decided advantage over the ointments usually employed, or oil.

Treatment of Cracked Nipples.—Roudaud (*Journal de médecine de Paris*, October 6, 1907) directs attention to the importance of treating the nipples during the last month of pregnancy. They should be washed daily with soap and water, and kept covered with a dry dressing. There is no need of other treatment. After delivery, special attention should be given to them. After and before each nursing, they should be carefully washed with a mild antiseptic solution (boric acid in water, or brandy and water). It is not advised to have a wet compress, for fear it might cause maceration of the epidermis. Between the nursings, a dressing made of three thicknesses of sterilized gauze, is kept applied, over which a layer of absorbent cotton is laid, and a bandage pinned over to keep it in place. The mouth of the child should be washed out before nursing (with a tampon of cotton moistened with boric acid water). This is to prevent infection of the breast. In case of pain, the glycerite of starch may be applied to the nipple and covered with dry gauze. Before presenting the nipple to the infant, it should be carefully washed with boiled water, to which some hydrogen peroxide may be added (half and half). After nursing, the washing should be repeated, and the breast covered with cotton, and confined with a bandage. The rubber nipples, on account of the difficulty in keeping them clean, should be avoided as much as possible.

Fatal Poisoning from a Bichloride Tablet.—Michel and Barthélemy report (*Revue médicale de l'Est*, August 15, 1907) a case of a woman, thirty years of age, who, desiring to bring on her menses, believing herself pregnant, introduced a corrosive sublimate tablet into the vagina (containing 0.25 or 0.50 gramme). This occurred at three o'clock in the morning. About eight o'clock, she had violent pains in the abdomen. She was nursing twins, and gave them the breast at this time, and they immediately vomited. She went to the hospital, but it was not until eleven o'clock, or eight hours after the introduction, that the partially dissolved tablet was removed from the vagina. She suffered with vio-

lent pains in the lower abdomen, severe colic, bilious vomiting, and had also a serosanguinolent diarrhœa, anuria, intense stomatitis, and a discharge from the vagina, which was putrid and fetid. The general condition was very grave, with tendency to collapse, hypothermia, and imperceptible pulse. In spite of treatment, the symptoms continued, for a week, with hæmorrhages and sloughs flowing from the vagina, and from the mouth. On the seventh day, she passed some red colored urine, and the menses appeared. At the end of two weeks træmia occurred, and she died comatose. At the autopsy were found the lesions of acute nephritis, superficial ulcerations of the large intestine, and gangrene with sloughing of the vagina.

The Diagnosis and Treatment of False Diabetes.—Lebeaupin (*Journal de médecine et de chirurgie pratique*, July 25th, through *Revue de thérapeutique*, September 1, 1907) recommends that practitioners should not be satisfied with a single examination in order to affirm the existence of diabetes mellitus. Alimentary glycosuria may occur in numerous people, without polydipsia, without polyphagia, and without polyuria, and without any organic lesion. The urine remains normal in quantity, and in density. Its acidity is greater, and the proportion of sugar small. The diagnosis is of importance, especially in young persons with joint affections, since the prognosis has not the gravity of that of a true diabetes. The severely rigid, classical diet of true diabetes is necessary in these patients; especially, the hydrocarbons are not excluded, because these aliments are indispensable to life. If the glycosuria is grafted on an arthritic diathesis, it is necessary to be very careful to avoid a meat diet. The alkalies should be the bases of the medicinal treatment. If there is a nitrogenous diabetes, arsenic gives the best results. In digestive diabetes, a meat diet should be allowed, and starches should be replaced, as much as possible, by fats. This form occurs particularly among women who indulge freely in pastry, chocolate, etc.; it is very difficult to make the patients change their habits because food is poorly digested. In nervous glycosuria, the potassium bromide, the antispasmodics, and narcotics are prescribed.

An Unexpected Cause of Spasmodic Torticollis in Young Children.—Strazza (*Il Morgagni*, June 29, 1907, through *Journal de médecine de Paris*) calls attention to a cause of spasmodic torticollis, which would, ordinarily, often escape observation. In a child, eight years of age, he observed a torticollis on the right side, caused by a spasmodic contraction of the sternocleidomastoid, which attended an acute otitis media of the corresponding ear. The torticollis increased and decreased at the same time with changes of condition in the auricular and ganglionic manifestations. In another girl, who was affected for ten years with stenosis of the Eustachian tube, adenoids of the vault, and hyperplasia of the tonsils, with associated septic infection of the submaxillary ganglion, there was also observed a spasmodic contraction of the sternocleidomastoid. After treatment of the pharynx, by removal of the adenoids, the disposition to torticollis disappeared. The spasmodic condition was evidently due to the irritation, which the cervical polyadenitis exerted upon

the nerve trunk (motor branch of the spinal accessory), which innervates the sternomastoid. This polyadenitis, caused by the vulnerability of the mucous membrane of the throat of children, would explain the frequency among them of torticollis. In fact, this cause should be considered, and excluded from the diagnosis before regarding the condition as rheumatic. The absence of pain in these two cases was probably due to the nonexistence of neuritis.

Novel Surgical Expedient for the Removal of Ascites.—Ruotte reports the performance of a novel operation (*Lyon médical*, October 6, 1907), consisting of transplanting the internal saphena vein to the peritoneal cavity, in order to carry off ascites. The patient, sixty-two years of age, came into the hospital for treatment for a very large abdominal effusion. She had a history of malarial infection and of alcoholic habits, but there was no syphilitic trace. Present sickness began six months before admission, on January 22, 1907. She had dyspepsia. She had lost flesh, and was much emaciated. The abdomen was very large, and covered with large veins. On account of œdema of the legs, she could hardly go about. Urine was not albuminous and free from sugar. There had been no jaundice. On January 23rd, she was tapped and thirteen litres obtained of a lemon colored fluid; but by the 26th, the abdomen had refilled and she was again relieved of nine litres. The liver was found to be small; the spleen was not palpable. Ruotte decided to perform a novel operation, which he had devised, but had not previously executed. It was the transplanting of the internal saphena veins into a peritoneal incision in the hope that these vessels would carry off the ascites. The operation was performed on the right side, on January 29th. An incision was made in the thigh in the course of the saphena, which was cut at a distance of eight centimetres from its termination. Its inferior end was tied, and the superior fragment was dissected free up to the cross, and laid back above after having been bevelled, for the extent of two centimetres, upon its anterior face, which was designed to make it correspond with an incision to be made in the peritoneal cavity, so that the vein could be sutured to the serous membrane. The external incision was prolonged above the crural folds; and the walls of the abdomen divided as well as the peritoneum, to the length of two centimetres. From the opening seven or eight litres of serosity escaped. The bevelled edges of the vein were then carefully sutured with catgut ligatures to the border of the peritoneal wound. When the suturing was complete, the musculoaponeurotic layers were sutured together above, and finally the skin. There was no drainage tube placed in the incision. Healing proceeded without incident, and the ligatures were removed on the eighth day, leaving complete union. The ascites was not reproduced, and the legs were no longer swollen. The patient was allowed to get up on the twentieth day after the operation. She was discharged in good health July 21st; at this time the ascites had not returned, and her legs did not swell after walking. (The title of this communication states that the operation was done on the "external" saphena, which is obviously an error.) Since reporting this case the author has performed

a double operation upon the saphena veins of both sides simultaneously, with the same successful results upon the ascites and œdema of the extremities. In a third case, complicated with heart lesion, the patient died suddenly on the third day after transfer of the left saphena vein to the peritoneum. At the autopsy, a slight funnel shaped depression was seen in the peritoneum, admitting a probe, which penetrated with great facility to the femoral vein. The union was perfect. Only a few spoonfuls of effusion were found in the peritoneal cavity. The liver was in an advanced stage of cirrhosis.

Treatment of Itch.—At the Hôpital Saint-Louis, Paris, the following method of dealing with scabies is employed (*La Clinique*, September 27, 1907): The treatment consists of two parts: 1. Cleaning and softening of the skin by means of friction with black soap for ten minutes, followed by a warm bath for thirty minutes. 2. Rub, for twenty minutes, the skin over the whole body with the following pomade (Helmerich):

Formula for Summer.

R	Sublimed sulphur,	10.0 grammes;
	Potassium carbonate, pure,	4.0 grammes;
Lard,	32.0 grammes;	
Distilled water,	4.0 grammes.	

M.

Formula for Winter.

R	Sublimed sulphur,	10.0 grammes;
	Potassium carbonate, pure,	4.0 grammes;
Lard,	31.0 grammes;	
White wax,	1.0 gramme;	
Distilled water,	4.0 grammes.	

M.

This pomade should remain on the skin for twenty-four or forty-eight hours. The rubbing being finished, the patient puts on his clothing, which has been baked in the oven while he was in the bath. On the following day he returns to take a bath of starch. The irritations do not cease immediately; they are kept up by lesions made by the friction and cause considerable itching of the skin. No more baths are given for fear of increasing the epidermic lesions. Thisunction treatment will destroy all of the adult acariæ. At the most, some of the eggs will remain in the cuniliculi, and there will hatch out, at the end of three weeks, which is the period of incubation for these parasites. Some cases with infected lesions, also infants and elderly persons, do not bear the Helmerich ointment very well, and it can be replaced, as follows:

R	Lard,	30.0 grammes;
	Sulphur,	30.0 grammes;
Balsam of Peru,	15.0 grammes.	

M.

Or, another:

R	Lard,	30.0 grammes;
	Beta naphthol dissolved in alcohol,	5.0 grammes.

M.

It is generally necessary to return to the friction, three or four times, at intervals of a month. After being treated, patients should take five or six starch baths. The postscabious dermatitis, with lesions unsensitive to the treatment, which may become irritated and infected, are readily cured by applications of lard, petroleum, or what is better, the following:

R	Glycerine of starch,	150.0 grammes;
	Bismuth subnitrate,	1.0 gramme.

M.

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NEW YORK, SATURDAY, NOVEMBER 9, 1907.

THE CITY HOSPITAL, BLACKWELL'S ISLAND.

There are few practitioners in New York who are aware of the changes which have come about in the City Hospital on Blackwell's Island. Under the care of a really efficient commissioner of public charities, who, it may be said, is not much given to utterances on reform on paper, or in the public press, but has a remarkable power for creating competent service where it is really needed, the work now accomplished stands out as a bright spot in the array of medical activities in New York.

We have just received the annual report of the Department of Public Charities for 1906, and have been very favorably impressed by its directness and relevancy. Turning to that part of the report by the inspection committee of the City Hospital, signed by Dr. Oertel as chairman, whose remarks we have been able to verify by an actual inspection of the hospital, we find that "the changes which have been accomplished during the year 1906, and which are still progressing, practically initiate a complete reorganization of the whole hospital system. While the medical department has profited to an extraordinary extent by the marked general improvement and the competent, businesslike method of administration, it will only be attempted in this report to touch upon the points which directly concern it. A great deal has been accomplished and is developing."

All this is true and even more literally true than Dr. Oertel has expressed it. The City Hospital is now a modern hospital in every sense of the word. The building is old, it is true, but new lighting facili-

ties, a new kitchen, a new staff house, and a new superintendent's residence are all in process of construction, and the old wards are taking on a much better appearance. Neatness, dispatch, and efficiency are emphasized at the first glance, whereas we have had the uncomfortable picture of too much slovenliness, laziness, and semicompetency in the not very remote past.

Some of the striking reforms which have been carried out may be briefly summarized. Not many years ago the City Hospital was filled with old, chronic material; such cases are now taken care of in the City Home, where they properly belong, and acute hospital cases are under treatment in the wards. Many individuals who used to be admitted into the hospital for minor complaints are now more properly treated in dispensaries. The results of the strict enforcement of these general rules can "hardly be overestimated, for it not only allows restriction of bed space for the really ill, but in preventing overcrowding of the institution much better care for the patients than had previously been possible."

Another great advance has been made in the food supply of the hospital. This has consisted in better supervision of the food as it is delivered, better sorting of foods to different classes of patients, and increased detail attention paid to the mode of preparation, and a marked advance has been made in the matter of cleanly service. These matters of internal administration have been considerably improving for the past few years.

We have spoken of the new hospital additions which are now in course of construction. They add much more space for bed service, and also admit of better classifications. A decided improvement has come about in the boat service to and from the island. At the present time the boats are run on time, and the annoyances and trials of this type of transportation are reduced to a minimum. It is to be hoped that the elevator service which was originally planned for the new bridge will be erected. Its omission from the present working plans is impossible of comprehension. We trust we are misinformed with reference to the present state of mind of the bridge commissions relative to this elevator service.

Although the advances made have been most practical and stable, certain further improvements are desirable. These concern mostly the methods of admission, the provision of a new operating room, the installation of a new fire alarm system, the use of a telephone system in all the wards, and improved dock facilities. These are details which make for comfort and progress. So much has been done, and so well done, by Commissioner Hebbard; in fact, more than was ever dreamed could be done by the most optimistic, that as physicians we have grounds

for belief that the doing of good works will not cease, and that the physicians of New York, as well as its citizens, may feel that its poor are being cared for in the City Hospital not as cattle, but as feeling human beings.

"TUBERCULOTHERAPY."

We presume that Dr. Forbes Ross's article on Tuberculothrapy in Tuberculosis, which we publish in this issue, will impress our readers as striking if not startling. Dr. Ross puts forward the following proposal: "To deliberately and wilfully procure and use as an article of diet for tuberculous persons the raw flesh (beef) of animals known to be affected by tuberculosis; with the object of bringing about artificially that which I firmly believe occurs unobserved in nature and in actual daily life among healthy persons."

As we interpret Dr. Ross's argument, he starts with the reasonable assumption that the lean meat of a tuberculous animal, itself free from lesions, contains antitoxines elaborated in the blood of the animal and will therefore serve the purpose of assisting the system of a tuberculous person in its fight against the disease. Since, however, he supports Koch's contention that human and bovine tuberculous disease are not identical, we must suppose that he entertains the idea that the antitoxines generated in one disease may prove operative in staying the progress of another. Whatever we may think of Dr. Ross's theoretical views, his observations have evidently been so extensive as to entitle him to respectful attention.

LAMINECTOMY FOR PARAPLEGIA FROM POTT'S DISEASE.

The understanding of the determining causes of paraplegia in Pott's disease is of capital importance for the treatment and particularly for operative indications. In the first place, when paraplegia occurs during the progress of tuberculous spondylitis it is often attributed to compression of the bone produced by the deviation of the spine, from fractures or displacement of the necrosed vertebræ. Ollivier and Michaud attribute it to the compression of the fungous masses accumulated in the vertebral canal and compressing the meninges. For Lamblongue these fungous masses degenerate into cold abscesses, and it is the tension of their contents which, by pushing the walls of the abscess inward, causes the compression. Of late some pathologists have endeavored to demonstrate that the paraplegia does not result from a direct compression of the cord, but from compression of the afferent vessels, with anemic softening (Zuglen), of the efferent vessels with œdema from stasis, followed by medullary

changes (Kohler). All these theories are mechanical and Schmauss has emitted an inflammatory theory. According to this writer, the first consequence of vertebral caries is external pachymeningitis, followed by infiltration and caseification of the dura mater; the inflammation then extends to the dura mater itself and produces an inflammatory œdema, so that the cord softens and degenerates. This is what he calls "compression myelitis." And still more recently Trendelenburg has affirmed that compression from the bone is the most frequent cause of paraplegia.

From the multiplicity of the theories it may be assumed that there are divers causes of paraplegia, and as an example it may be said that, out of five cases reported by Exchaquet, there was no bone compression found at operation. In two cases there was direct compression produced by tuberculous granulations or fungous masses, while in another there was thickening of the dura mater, and in the remaining two no compression could be found; nevertheless the cord was softened in one of these. With Chipault, we may admit that in certain cases medullary lesions are due to direct compression from some tuberculous lesion, while in others it is the consequence of œdema by stasis. And, lastly, the cord may have undergone specific changes associated with similar lesions of the pia mater. In the five cases reported by Exchaquet the operation was unsuccessful, but better statistics have been published by Chipault and Lloyd. It should be said that many of the cases reported as cured have no value, because insufficient data have been given, the preoperative state of the patient is unknown, also the degree of the paraplegia, while in others cure is spoken of without any other detail, so that the ultimate success of surgical interference in these cases is still a matter of doubt.

Kraske advises it only in hopeless cases, and he points out that the paraplegia is really the result of bone compression, and says that the operation, generally without favorable results, still more weakens an already diseased spine. He believes that an operation should be undertaken only in those very infrequent cases of tuberculous disease of the vertebral arches or when orthopædic treatment, continued for a long time, has remained without result, and he feels certain that the cause of the compression is extradural. Calot, Kirmisson, Chipault, and Meisen are in accord on this point, and they believe that the operation should be undertaken only when orthopædic treatment is unsuccessful, and then only if compression is due to an abscess or to fungous masses; but the operation does not guarantee against a recurrence and certainly diminishes the solidity of the spine. According to Tillmanns, the

results are good only when the boss is the cause of the paraplegia and the tuberculous process has been cured; while Lloyd is positive that the best treatment of paraplegia from Pott's disease is laminectomy.

Of all the surgeons, mentioned, Trendelenburg has certainly had the best results. In 1889 he reported eight cases, and in seven of them a marked improvement had been obtained, or even a complete and durable cure. This author believes that the most frequent cause of the paraplegia is bone compression, because in five of his cases he met with this condition, and he concludes that operation is to be undertaken only when the tuberculous process is cured, and says it may then be resorted to even when the paraplegia is of long standing. Ménard, in his most complete work on Pott's disease, advises orthopædic treatment above all, and laminectomy, according to him, is never successful.

From all these statements what may be concluded? What strikes one in the first place is the enormous postoperative mortality; in the majority of cases the patient does not die from sepsis, operative shock, or the narcosis, but from an increase of nonmedullary symptoms. What is the use of operating on a paraplegic affected with large pulmonary cavities, tuberculous renal disease, or even, as in some published cases, symptoms of meningitis? One should not operate unless he is sure, at least as much as one can be, not only that the patient can withstand the operation, but also that his general condition is compatible with a life of several years.

This restriction having been made, the question arises as to whether one should operate in all cases of paraplegia from Pott's disease? In reply to this it would seem proper to say that orthopædic treatment is the one of choice. Immobilization, extension, perhaps even forced straightening give excellent results, according to Touche, Vulpius, Hoffa, and Ménard. Orthopædic treatment, with the exception of forced straightening, is not dangerous and consequently should be preferred to all other methods. But when no improvement takes place, the outlook of a paraplegic is so bad that any treatment which gives him a chance of improvement should be undertaken, and there are cases where laminectomy has given back the power of locomotion. Therefore the operation should sometimes be undertaken, but unfortunately we are powerless to diagnose the cause of the paraplegia, and consequently, operating blindly as we are obliged to, we can never foresee whether the results will be satisfactory or not. Whether or not one should wait for the cure of the tuberculous process, as advised by Trendelenburg, is a question. It is difficult and often impossible to know whether the process is cured. It

would seem, however, that, when one waits, the lesion of the cord, minute at first, increases; degeneration takes place, and then all chance of success is lost, while with an early operation the cord will be found in a better condition, the pressure having lasted for a shorter time, and consequently its functions are more apt to be restored.

The majority of paraplegics get well quickly by orthopædic treatment, and one meets with instances where vesical disturbances complicate the scene and where, one or two days after immobilization or extension has been begun, the urinary troubles diminish and sensation returns; briefly, orthopædic treatment, especially in children, acts from the very beginning of its application. Occasionally it is only during the second or third week that improvement occurs, rarely later. If at the end of four weeks of treatment no improvement manifests itself, it should be given up, and then one can either decline to operate, leaving the patient in a most pitiable state, or operate and take one chance of a cure against two of death. In all cases the prognosis should be most reserved.

HOMOGENIZED MILK.

Dr. Bernheim-Karrer, of Zurich, reports in the October issue of the *Correspondenz-Blatt für schweizer Aerzte* interesting data about homogenized milk. The homogenizing machine is a French invention (*lamineuse Gaulin*), and in France this milk has been used as *lait fixé* for a considerable length of time. The machines built in Germany show a difference in construction, but are planned upon the same fundamental ideas. Milk, heated to from 131° to 149° F., is passed under high pressure (150 atmospheres in the German process, 250 in the French) between very rapidly moving plates, thus combining intimately the fats with the general body of the milk. This result may be demonstrated by the microscope, which shows that homogenized milk is uniformly impregnated with very small fat globules which take the place of the much larger globules of different sizes found in the raw product as well as in sterilized milk. It is said that on this account the milk is rendered more easily digestible.

Homogenized milk shows no constitutional difference from the raw cows' milk, the freezing point and the specific gravity are the same. There is no loss of salts, and the percentage of fats is not changed. These examinations were conducted in the laboratory of the state chemist. It is alleged that homogenized milk, besides being more easily digestible and thus of value in the feeding of nurslings, does not as quickly deteriorate as raw cows' milk, tastes better, and cannot be skimmed by the middleman.

This *lait fixé* was at first well received in France, and Switzerland soon followed, the great *Berner Alpenmilch Gesellschaft* adopting homogenizing in July, 1906. But soon there set in a reaction in France, when especially the Pædiatric Society of Paris declared itself against its use as producing infantile scurvy if its employment was protracted. Lecornu, in his *Les Laits industriels, Thèse de Paris*, 1904, gives six such cases, and he was soon followed by other writers.

Our author has made the same observations; he found that the prolonged use of homogenized milk would produce infantile scurvy and gives the time as between four and ten months. He is of the opinion that Lecornu's tentatively given aetiology might be the proper one, viz., that the homogenizing is not itself at fault, but the milk is exposed in the process to many infections, and will therefore take up scurvy toxins. He has thus far been unable to prove the existence of such toxins, the experimental attempts to produce infantile scurvy by feeding rats with homogenized milk or by injecting it into rabbits, mice, or guinea pigs being unsuccessful; but he thinks that these toxins are of bacterial origin.

Dr. Bernheim-Karrer advises against the use of homogenized milk in children under two years of age as a permanent nutrient, but he states that these infants may take it for a short period, and that older children may thrive well on it without unpleasant sequelæ.

News Items.

Changes of Address.—Dr. Ellice M. Alger, to 55 East Fifty-sixth Street, New York.

Philadelphia Changes of Address.—Dr. John R. Forst, to 2115 Chestnut Street. Dr. R. Tait McKenzie, to 26 South Twenty-first Street.

The Geneva, N. Y., Medical Society.—At a meeting of this society, held on Thursday evening, November 7th, Dr. A. L. Sweet read a paper on Fractures and Dislocations.

Harvey Society Lecture.—On Saturday evening, November 16th, at the New York Academy of Medicine, Professor James Ewing, of Cornell University, will deliver a lecture on the Aetiology of Tumors.

Philadelphia Medical Examiners' Association.—At the regular meeting of this association, held on Tuesday evening, November 5th, Dr. Henry Beates, Jr., delivered an address on Some Considerations of the Circulation in Relation to Metabolism.

The Northwestern Medical Society. At the regular meeting of this society, held on Monday evening, November 4th, Dr. Judson Daland gave a lantern slide demonstration on pleurisy in Bombay. Dr. Joseph Macfarland and Dr. John M. Swan took part in the discussion.

The Floyd County, Georgia, Medical Society.—At a meeting of this society, held at Rome, on October 31, 1907, at the office of Dr. W. L. Finkhouser, a paper on Eclampsia was read by Dr. Finkhouser. At a meeting held on November 7th, at the office of Dr. R. M. Harbin, a paper on the Science of Nutrition was read by Dr. Harbin.

A Public Lecture will be given at the New York Academy of Medicine, 12 West Forty-third Street, on Thursday, November 14, 1907, at 8:30 p. m. Subject, Possible Progressive Growth in Muscular Efficiency After Fifty Years

of Life Without Systematic Physical Exercise, by Mr. Horace Fletcher; and Observations on the Results of Tests for Physical Endurance at the Yale University Gymnasium, by Dr. W. G. Anderson.

The Elmira Academy of Medicine.—The following programme was arranged for a meeting of this academy, held on Wednesday evening, November 6th: Dr. Sherman Voorhees, Elmira, N. Y., A Study of the Pneumatic Spaces of the Face; Dr. Frederick C. Annabel, Elmira, N. Y., Report of a Case; Dr. A. M. Loope, Wellsburg, N. Y., Report of Some Unusual Obstetrical Experiences; Dr. George V. R. Merrill, Elmira, N. Y., Typhoid and Tetany: A Case.

The Obstetrical Society of Philadelphia.—At the regular meeting of this society, held on Thursday evening, November 7th, Dr. F. Hurst Maier reported a case of chorio-epithelioma. Dr. Charles C. Norris reported a case of primary squamous cell carcinoma of the fundus uteri. Dr. George Erety Shoemaker read a paper on Procidencia Uteri in Nulliparous Women. Dr. Harry A. Duncan read a paper on Blood Examinations in Gynecological Cases.

The New York Academy of Medicine.—At a meeting of this academy, held on Thursday evening, November 7th, the programme presented was as follows: A Report on the Serum Treatment of Epidemic Cerebrospinal Meningitis, by Dr. Simon Flexner and Dr. J. W. Jobling; The Recent Epidemic of Poliomyelitis, by Dr. Virgil P. Gibney. Discussion by Dr. A. Jacobi, Dr. Walter B. James, Dr. L. Emmett Holt, Dr. Henry Koplik, and Dr. Henry Heiman.

The Hospital for Deformities and Joint Diseases.—The Board of Directors announces that the recent addition to this hospital at 1917 Madison Avenue, between One Hundred and Twenty-third and One Hundred and Twenty-fourth streets, New York, will be dedicated and opened on Saturday afternoon, November 9th, between the hours of two and six o'clock. The medical profession is invited to be present at the exercises.

The Buffalo Academy of Medicine.—The programme for a meeting of the *Section in Surgery* of this academy, held on Wednesday evening, November 6th, included the following: Report of cases of foreign body removed from the bladder with operating cystoscope, by Dr. David E. Wheeler; (a) Facial-hypoglossal anastomosis with illustrations on the cadaver, by Dr. George F. Cott; (b) Vesicular diseases, by Dr. Nelson W. Wilson.

Personals.—Professor W. B. Cannon, of the Harvard Medical School, delivered an address on Some Physiological Processes in the Region of the Pylorus, before the Cleveland, Ohio, Academy of Medicine, on October 11, 1907.

Dr. Robert Koch, who has been conducting an investigation on the sleeping sickness, at Uganda, Africa, has returned to Berlin.

Dr. H. W. Lincoln has been appointed gastrologist to the Swedish Hospital of Brooklyn, N. Y.

The Russell Sage Institute of Pathology.—On November 1, 1907, a certificate of incorporation for this institute was filed with the Secretary of State at Albany. Its objects are stated to be the encouragement of scientific research in medicine and pathology, the investigation of diseases and the maintenance of laboratories. The directors are Dr. Edward G. Janeway, Dr. Theodore C. Janeway, Dr. D. Bryson Delavan, Dr. Simon Flexner, and Dr. Graham Lusk.

The Tenth District, Wisconsin, Medical Society, composed of Chippewa, Eau Claire, Dunn, Pepin, Pierce, St. Croix, Barron, Polk, Washburn, Sawyer, and Burnett counties, will hold its next annual convention at Eau Claire, on November 10, 1907. Papers will be read by Dr. A. W. Wilmarth, of Chippewa Falls; Dr. C. A. Harper, of Madison; Dr. Bardeen, of the University of Wisconsin; Dr. Paul, of the State sanatorium for tuberculosis; Dr. Olague, of St. Paul; and others.

Section in Otolaryngology, College of Physicians of Philadelphia.—At the regular meeting of this section, Dr. G. Herman Meyer read a paper on The Palate as a Factor in the Pathogenesis of Speech. Dr. E. A. Randall presented a case of carcinoma of the larynx and largely carried it out. Dr. George B. Wood reported a case of unusual lymphatic involvement of the vocal cords and presented Dr. Eugene R. Mitchell's report of a case of laryngitis following a mastoid operation in typhoid fever.

The Medical Society of the County of Albany, N. Y., will hold a meeting on November 14th. Dr. Nathaniel

Bowditch Potter, of New York, will read a paper on Opsonins and Opsonic Therapy. At a meeting of this society held on October 30th, Dr. Joseph Price, of Philadelphia, delivered an address before the senior students of the Albany Medical College on Dirty and Neglected Cases of Peritonitis, and Dr. Holmes C. Jackson, of the college faculty, spoke on the Physiological Function of the Peritoneum.

Scientific Society Meetings in Philadelphia for the Week Ending November 16, 1907.—*Monday, November 11th*, Section on General Medicine, College of Physicians; Wills Hospital Ophthalmic Society. *Tuesday, November 12th*, Philadelphia Pediatric Society; Botanical Section, Academy of Natural Sciences. *Wednesday, November 13th*, Philadelphia County Medical Society. *Thursday, November 14th*, Pathological Society; Section Meeting, Franklin Institute. *Friday, November 15th*, University of Pennsylvania Medical Society; American Philosophical Society.

Meetings of Sections of the New York Academy of Medicine.—The Section in Surgery held a meeting on Friday evening, November 1st. The Section in Otolary met on Friday evening, November 8th. The Section in Neurology and Psychiatry will meet on Monday evening, November 11th. The Section in Public Health will hold a meeting on Thursday evening, November 12th. The Section in Pediatrics will hold a meeting on Thursday evening, November 14th. The Section in Orthopaedic Surgery will meet on Friday evening, November 15th.

The Medical Society of the County of Suffolk, N. Y.—At the semiannual meeting of this society, held at Riverhead, L. I., on Thursday, October 31st, Dr. Paul M. Pilcher, of Brooklyn, read a paper on The Radical Cure of Femoral Hernia in the Aged; Dr. L. C. Baldwin, of Bellport, read a paper entitled The Vagaries of Influenza; and a paper entitled A Study of Calculus Lodged in the Urethra was read by Dr. Roland Hazen, of New York. The next meeting of the society will be held at Brentwood, on the last Thursday of April, 1908.

Civil Service Examinations for the State and County Service.—The New York State Civil Service Commission will hold examinations November 16, 1907, for the following positions: Health Officer, village of Port Chester, \$600; physician, State Hospitals, \$900 and maintenance; trained nurse, State institutions, \$420 to \$600, and maintenance. The last day for filing applications for these positions is November 9. Full information with application forms for any of these examinations may be obtained upon postal card request from Charles S. Fowler, chief examiner of the commission, at Albany.

Philadelphia Branch of the American Pharmaceutical Association.—At a meeting of this branch of the American Pharmaceutical Association, held on Tuesday evening, November 5th, there was a discussion on the official standards and tests. Dr. A. R. L. Dohme and Dr. Herman Englehardt spoke upon the eighth revision of the United States Pharmacopoeia and its relation to some drugs and chemicals. Mr. Henry L. Bernegau made some comments on official standards and tests, and Mr. William L. Cliffe spoke on the same subject from the standpoint of the retail druggist.

The College of Physicians of Philadelphia.—At the regular monthly meeting of this college, held on Wednesday evening, November 6th, Dr. J. K. Mitchell exhibited a patient with unusual bony growths; Dr. Robert G. LeConte reported a case of retroperitoneal undescended testis strangulated by a twist. Mr. Morris Jastrow, Jr., read a paper entitled The Liver in Antiquity. Dr. A. P. C. Ashhurst reported a case of perforation of the gallbladder during typhoid fever, with recovery after cholecystectomy. Dr. George E. de Schweinitz and Dr. T. B. Holloway read a paper on pulsating exophthalmos.

The Cholera Situation in Russia.—According to press dispatches from St. Petersburg, October 31st, the latest official cholera statistics for the week ending October 22nd, show that the epidemic is now being checked with the approach of winter. There were 1,009 new cases reported and 416 deaths were recorded. More than half the number of cases, 569, were in Kiev and Volhynia provinces, where the winter is belated. There were only 103 cases in the four southern provinces and 75 in the five provinces of the Middle Volga region.

The Frederick Douglass Memorial Hospital and Training School, Philadelphia.—At the annual meeting of the board of directors of this hospital and training school the following officers were elected for the ensuing year: President, Mr. Andrew F. Stevens; vice-president, Bishop J. S. Caldwell; treasurer, Mr. Lewis M. Mintess; financial secretary, Dr. William A. Sinclair; secretary, Mr. James H. Williams; medical director, Dr. N. F. Mossell; chaplain, Rev. Dr. C. A. Tindley; advisory board, Dr. James Tyson, Mr. James Gay Gordon, Dr. Talcott Williams, and Miss Caroline H. Pemberton; superintendent of nurses, Miss Elsie M. Browne.

The Ohio County, West Virginia, Medical Association held a meeting at Wheeling, on October 24th, under the presidency of Dr. L. D. Wilson, of Wheeling, who in the presidential address reviewed the history of the medical man in the county since 1847. The advances of the profession were considered at length, and the relation of the physician with the people treated in an interesting manner. The matter of inaugurating the postgraduate course was discussed at some length and a special meeting was to be held on Monday, October 28th, at the board of trade, when the matter was to be taken up and instructors appointed and the work begun. At that meeting, too, the obtaining of permanent headquarters was to be considered.

The Philadelphia Academy of Surgery.—At the regular monthly meeting of this academy, held on Monday evening, November 4th, Dr. Charles F. Nassau exhibited a nineteen months old infant on whom cesophagotomy had been performed; Dr. A. P. C. Ashhurst exhibited a case of sigmoid diverticulitis and a case of radical cure of umbilical hernia in a child; Dr. T. Turner Thomas read a paper on Ludwig's Angina, an Anatomical, Clinical, and Statistical Study; Dr. George Erety Shoemaker reported a case of subacute appendicitis associated with ruptured extrauterine pregnancy, and a case of subacute appendicitis associated with dermoid cyst of the ovary and gallstones; Dr. Oscar H. Allis exhibited a renal calculus; Dr. Admell Hewson demonstrated the effects of various sized pistol balls on the skull; Dr. James K. Young exhibited an improved Thomas-Jones clubfoot wrench.

The Mortality of Chicago.—According to the report of the department of health for the week ending October 26, 1907, there were during the week 509 deaths from all causes, as compared with 505 for the corresponding week in 1906. The annual death rate in one thousand of population was 12.59. The principal causes of death were: Apoplexy, 5; Bright's disease, 38; bronchitis, 9; cancer, 18; consumption, 62; convulsions, 8; diphtheria, 14; heart disease, 43; influenza, 1; intestinal diseases (acute), 35; measles, 1; nervous diseases, 10; pneumonia, 68; scarlet fever, 6; typhoid fever, 10; whooping cough, 1; violence, other than suicide, 45; all other causes, 118. There were 83 deaths of children under one year of age; 41 between one and five years of age; 44 of persons between five and twenty years of age; 240 between twenty and sixty years of age; and 101 over sixty years of age.

The Health of Pittsburgh.—During the week ending October 26, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chickenpox, 4 cases, 0 deaths; typhoid fever, 87 cases, 7 deaths; scarlet fever, 26 cases, 2 deaths; diphtheria, 20 cases, 1 death; measles, 8 cases, 1 death; whooping cough, 5 cases, 1 death; pulmonary tuberculosis, 20 cases, 7 deaths. The total deaths from all causes during the week numbered 124, in an estimated population of 404,300, corresponding to an annual death rate of 15.98 in one thousand of population. The summary of the deaths for July has just been issued. During that month there were 714 deaths, corresponding to an annual death rate of 21.25 in one thousand of population.

The Kensington Dispensary for the Treatment of Tuberculosis and the Kensington Branch of the Young Men's Christian Association have joined in an effort to lessen the number of cases of tuberculosis in Kensington. Dr. William Burdick, of the Christian Association, is visiting the large manufacturing plants and is delivering lectures on personal hygiene and the prevention of tuberculosis. The lectures are given from a wagon during the noon hour shut down of the factories. Dr. J. W. Irwin is also delivering lectures and is holding night clinics at the dispensary. The wagon that Dr. Burdick takes to the mills is

Pith of Current Literature

BOSTON MEDICAL AND SURGICAL JOURNAL.

October 31, 1907.

1. The Superiority of Primary Over Secondary Cæsarian Section, and the Feasibility and Advantages of a Predetermination of the Method of Delivery,
By EDWARD REYNOLDS.
2. The Origin of Right Handedness,
By GEORGE M. GOULD.
3. Medical Expert Testimony,
By E. W. TAYLOR.

1. The Superiority of Primary Over Secondary Cæsarian Sections, and the Feasibility and Advantages of a Predetermination of the Method of Delivery.—Reynolds has selected 289 cases of Cæsarian section operated in by twenty different operators. Of these 82 were operated in before labor began, 158 early in labor, and 49 after the failure of the natural powers was established. The 82 cases done before labor yielded one death, a mortality of 1.2 per cent. The 158 cases done early in labor showed 6 deaths, a mortality of 3.8 per cent. The 49 cases done after the arrest of the head, or after an unduly long first stage, showed 6 deaths, a mortality of 12 per cent. Considered in the most superficial way this very marked variation in mortalities is just what should have been expected *a priori*, i. e., it shows that when the section is performed for purely mechanical indications, its mortality is proportionate to the amount of labor which has been endured before operation. The Cæsarian section before or during labor seems not inapily comparable to an operation for appendicitis in the interval or during the attack. The author's conclusions, therefore, are: First, it is clear that the mortality of the primary section is less than than of the section performed during labor. Second, it seems also clear that the section performed early in labor is safer than that undertaken after the failure of the natural powers. Third, it is desirable that cases which are to be subjected to the Cæsarian section should be selected as such in advance of labor, whenever the conditions make this possible.

3. Medical Expert Testimony.—Taylor remarks that the natural result of the entire situation is that doctors are arrayed over against each other, as are lawyers. Partisanship almost involuntarily develops. The doctor assumes the legal attitude. He takes sides. He confers in the court room with his attorney to frame questions to confound his fellow practitioner on the witness stand, and the pitiable spectacle of medical expert testimony, which any great trial presents, is spread before us. The medical profession as represented by its experts becomes a laughing stock. The jury disregards its statements. The press ridicules the so called experts whose disagreements are emphasized to the last degree. Much time and money are spent in bringing out testimony so contradictory that the court often actually instructs the jury to ignore it, and the whole farce of the present system is ingloriously exposed. Radical reform is at present unlikely. What can in the meantime be done quietly and unobtrusively by the medical profession? Each individual who testifies as an expert in court may at least further the cause of reform by the following means: refuse to be forced into even the appearance of partisanship. To this end refuse to testify on the contingent basis; decline to prompt lawyers in the court room; maintain an inflexible determination to state the whole truth as you see it, remembering that the emphasis on a single word or the tone of voice or manner may easily and very definitely indicate bias. Do not allow the natural disadvantage of your position as an answerer of questions to influence your temper or your judgment, and, above all else, do not permit yourself to fall into the common error of testifying regarding matters of which you are ignorant. The ideal to-

ward which the medical profession must strive in this matter of medical expert testimony is that of an appointment by a central authority, of physicians to sit in judgment upon the medical aspects of the case presented. No doubt such a system, if universally adopted, would have certain objections and would possibly run counter to the general method of court procedure, as exemplified in trial by jury. The fact, however, remains that the present system is unsatisfactory as well to the legal as to the medical profession, and that the medical profession is placed in an invidious light thereby which it should strive by all legitimate means in its power to obviate and overcome.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

November 2, 1907.

1. The Three Class (*Freibank*) Meat System as an Aid in Eradicating Tuberculosis,
By CHARLES WARDELL STILES.
2. Percussion of the Chest in Infants and Children,
By SAMUEL M. HAMILL.
3. The Growth of Lymphosarcoma in Dogs. Summary of Recent Observations,
By S. P. BEEBE.
4. The Treatment of Experimental Tumors with Bacterial Toxines,
By S. P. BEEBE and MARTHA TRACY.
5. The Experimental Production of Epithelial Proliferation,
By GUTHRIE MCCONNELL.
6. Osteoplastic Operations,
By Professor D. KÜSTER.
7. Prolapse of the Ovary and Its Treatment,
By GEORGE GRAY WARD.
8. Ovary and Tube and Ovarian Tumors in the Inguinal Canal. Rare Condition. Report of Two Cases,
By J. H. CARSTENS.
9. The Dentist in the United States Navy,
By RICHARD GRADY.
10. Erysipelas,
By L. NAPOLEON BOSTON and ALBERT ENGLES BLACKBURN.
11. The New Era in Pediatrics; the Courses and Scientific Foundations,
By GODFREY ROGER PISEK.

1. The Three Class (*Freibank*) Meat System.—Stiles states that our Federal meat inspection system is essentially a two class meat system, that is, meats which come to inspection are either "passed" for unrestricted trade or they are "condemned" and thus excluded from use as food. In Germany meats are divided into three classes, namely, a first class containing meats which are "passed" for unrestricted trade, a second class (*Freibank* meats) containing meats which are allowed on the market under certain restrictions, and a third class containing meats which are condemned, and thus excluded from the food supply. If a form of the *Freibank* system, slightly modified to suit the conditions in this country, could be adopted in place of our present two class system of meats the result would be that not only would we have a method by which a considerable economic loss could be saved to the country but, more important still, we would have a method at our disposal which would doubtless be a great aid in helping to eradicate tuberculosis from the dairy herds. Meats could be divided as follows: 1. Inspected and passed. These meats should be only such as are placed on the market without restriction. They would include fresh meats, certain canned meats, and cured meats. They would correspond to the present "United States inspected and passed." 2. Inspected and passed as *Freibank* Meats. This class would include all meats which could hardly be allowed on the market without restrictions and in fresh condition, but which could be safely (viewed from a sanitary standpoint) allowed on the market if they were properly cooked. In order to eliminate any possibility of fraud or any unfair competition with the "inspected and passed," it would seem wise to require that all *Freibank* meats be cooked. If prepared in a registered abattoir they could best be canned, and the cans should bear some such mark, in raised or depressed letters, as "Inspected and passed as *Freibank* meat." If sold uncanned by a local butcher, State and local regulations should provide that they be cooked

and sold under declaration. 3. Inspected and condemned. This class would contain the meats which are unconditionally condemned as food, and would thus represent all those meats of the present "inspected and condemned" class which could not be properly passed even in cooked condition.

3. **The Growth of Lymphosarcoma in Dogs.**—Reebe says that during the last two years the Huntington Cancer Research Fund has been, in part, devoted to the study of a tumor which occurs naturally in dogs. This tumor, under the name of "infectious lymphosarcoma," has been the subject of investigation and observation at other laboratories during recent years, and because of its ease of transplantation it affords a splendid opportunity to study experimentally the tumor process in a large animal. Nearly all the opinions in regard to the nature of the growth support the belief that it is a neoplasm, and the term infectious has been applied to it, because the tumor occurs naturally on the genital organs and may be transmitted by coitus. We do not know why this tumor begins to grow, but we can readily understand how it may be transmitted from one host to another, and in neither its origin nor transmission have we any evidence of the action of a microorganism. There is, therefore, no more reason for applying the term infectious to this process than exists in the case of any other tumor which may be transplanted, and, indeed, following such logical normal epithelium should be considered infectious. The cause of the tumor will not be found until our knowledge of physiological growth and development is more complete. So far as these facts can be applied to the human subject, they indicate that there is no reason to consider human tumors infectious to any greater extent than the tumors we have followed in his study of the dogs. It is possible that human tumors can be transplanted in the human species, but we cannot argue therefrom that certain houses or water courses are sources of infection. Our efforts to find a direct cure for these tumors has been limited to the study of the mixed toxins advocated by Dr. Coley in the treatment of sarcoma. Dr. Tracy has carried out these experiments in addition to making a thorough study of the toxins of *Bacillus prodigiosus*, the results of which are now in press. The outcome has been very interesting and demonstrates beyond doubt the value of the method. The study has likewise demonstrated the unstable equilibrium which the tumor cell has in comparison with normal cells, since a great variety of toxins affect these growths unfavorably. Apparently the tumor cell has a special function of growth enormously developed, but the means of defense have been sacrificed.

7. **Prolapse of the Ovary and its Treatment.**—Ward concludes that many cases of prolapse of the ovary are unaccompanied with symptoms. In these cases the ovary is probably not inflamed or adherent, and has ample room for movement; but many cases are accompanied with characteristic symptoms and are only to be cured by elevating the ovary out of danger of irritation and traumatism. Failure to recognize the accompanying prolapse of the ovaries with a retroflexed uterus, and to elevate them, is often the cause of an unsatisfactory result following an operation for retroversion. Operations to elevate the ovary which depend on shortening the uterine ligaments, or the ovarian ligaments, are always prone to a recurrence to the former condition, should the same etiological factor be again present. An operation which throws the retroflexed uterus forward into a fold is doubtless a step in the right direction, but there is evidence of a more serious condition in the ovarian vessels and their branches, an already existing active inflammation of the ovarian vessels. The Mackenzie-Barrows operation, with a positive and permanent removal of the prolapsed ovaries, is therefore, in these cases, the only safe and

ple and rapid of execution. The anteligamentous transposition of the ovary in no way interferes with the function of menstruation or fecundation. It is not necessary to fasten the end of the tube forward of the broad ligament in the proximity of the ovary to favor fecundation, as proved by Barrows's cases. The operation can be combined with suspension of the uterus, Gilliam's operation, shortening the round ligaments or the infundibulopelvic ligaments for an accompanying retroversion or prolapse of the uterus which can be performed by the vaginal route much more readily than the other operations.

10. **Erysipelas.**—Boston and Blackburn have collected the histories of 564 cases of erysipelas. From their observations they conclude that season has long been recognized as a prominent predisposing factor in erysipelas, the greatest number of cases occurring during cold weather, and this is, in a measure, explained through the fact that men are more likely to suffer abrasions of the skin during the winter months. During June, July, August, and September, when in this climate we have our greatest heat, cases of erysipelas are few and, in fact, the rule is that during these months the erysipelas wards are often without a single occupant. Season also exerts a decided influence on the mortality rate, the greater proportionate number of deaths occurring during November, December, January, and February, at which months, in this climate, we have our extreme cold. They have observed, further, that should the months of March and April be unusually cold the death rate is increased. Age is of great clinical importance both as a predisposing and prognostic factor in erysipelas. Most striking in this connection is the fact that in their series all cases developing in children during the first year of life were followed by a fatal termination, while between the first and tenth years the disease was not fatal. At the other extreme of life the mortality rate in erysipelas is exceedingly high, 83 per cent. of cases terminating fatally in those after the age of eighty, and 38 per cent. in those between the seventieth and eightieth years. The duration of the disease in fatal cases is shorter during early adult and middle life than it is in the aged or in infants. It has been difficult to explain satisfactorily why this condition exists, and the best explanation they have to offer is that between the ages of twenty and sixty erysipelas is apt to represent a highly virulent type of infection, and complications develop early and are severe in character. In the senile the erysipelas process is liable to be of a low grade of infection and to spread extensively. Of the 539 cases analyzed with reference to sex there were 342 males and 197 females, while of the 66 deaths 56 of them were males and 15 females. Acute nephritis was found as a complication in sixty-nine fatal cases. A single urinary examination was supposed to have been made, although in twelve of the cases they found no such records. Of fifty-seven cases where a chemical and microscopic analysis was conducted, thirty-two of these showed both albumin and renal casts, fourteen others displayed albuminuria, in one the urine contained casts, but no albumin was found, and in ten the examination was negative. Judging from their experience they are inclined to believe that both albumin and casts would have been found in a much larger percentage of cases had the urine been examined during the fatal illness. Among the cases that showed no results during the active stage of the erysipelas process, only twenty-four (15 per cent.) terminated in death. Nephritis complicating erysipelas, according to the authors, gives a bad prognosis, particularly the same in the senile. The American Association of the study of the erysipelas problem has formed a committee on the subject, although the different members are working independently.

death rate, which suggests strongly that nephritis is not of necessity a serious complication. An analysis of the records for examinations of the urine in 483 cases of erysipelas gave the following: Albumin and renal casts were present in 134 cases; albumin alone was found 148 times; casts without albumin 40 times; albumin and sugar 5 times; and a negative result was obtained in 156 of the cases. In their examination of the literature they found only mere mention of glycosuria as a complication or as a preexisting condition in erysipelas, and the fact that in their study of 483 cases glycosuria was present five times (1.03 per cent.) seems worthy of special mention. An analysis of 552 cases with reference to the site of development, degree of extension, etc., gave the following results: In sixty-six instances the spread of the disease was limited; in 486 of the cases it was extensive, while in 435 instances (78.8 per cent.) the process extended from one side of the body to the other (crossed the median line), and 117 of the cases spread of the erysipelas process was arrested when it reached the median line of the body. In 485 cases the initial site of infection was the face, twenty-nine left leg, eleven right leg, three both legs, fifteen the body (trunk and chest), twelve scalp, four left arm, and three right arm. Of the 485 cases originating at the face only seven (0.14 per cent.) of them spread to the scalp, while in the remainder the inflammatory process was limited to the margin of the hair.

MEDICAL RECORD.

November 2, 1907.

1. Study of a Case of Two Handed Synchronous Writing, By GEORGE M. GOULD.
2. Acute Anterior Poliomyelitis, or Acute Spinal Paralysis of Children; Remarks on the Epidemic Now Prevailing in New York, By JOSEPH COLLINS.
3. Mental Defectives, an Attempt to Treat Some Cases with Medicines, By SIEGFRIED BLOCK.
4. Primary Melanosis of the Palate; Nasobuccal Fistula of Recent Sarcomatous Origin, By J. N. ROY.
5. Streptococcemia Accompanying Appendicitis, By DAVID SHEITLIS.

2. **Acute Anterior Poliomyelitis.**—Collins remarks that the epidemic of the disease now prevailing in New York city and vicinity had not so far added to our knowledge of causation of the disease, but it had materially contributed to our knowledge of its clinical history. This summer had been a cool one, and in New York extremely dry. Sanitary surroundings had nothing to do with it, either. The dangerous age was from one year to three years, and in this epidemic there had been very few children beyond four years. It was a striking fact that the majority of the children were in good health when they were seized by the poliomyelitis. The symptoms of anterior poliomyelitis are sharply defined. A young child in good health becomes peevish, restless, irritable, and displays manifestations of pain and discomfort on being handled, and soon develops fever, which is sometimes accompanied by vomiting and occasionally diarrhoea. These symptoms continue for from two days to a fortnight, the average period being from three to four days; the mild fever, 101° to 102° F., the peevishness, restlessness, and irritability, or torpidity, the obvious great discomfort on being handled, being the principal features. In a few cases meningeal symptoms are conspicuous. Then the fever disappears, the child becomes quiet, bright, and alert; oftentimes it is even playful and attempts to get up. Then it is found that it is paralyzed in one or more extremities, oftener in the legs than in the arms, but very often in both legs and both arms, or one leg and one arm. After a week or two the paralysis begins to disappear in one or more limbs, and at the end of a few weeks it is often limited to one extremity, or a part of one extremity, to a group of muscles, or, in very rare instances to one or two muscles. During this time, which is consonant with the disappearance of the oedema around the inflamma-

tory area in the interior gray matter of the spinal cord, the paralysis is clearing up. The author calls attention to the fact that physicians who are called to see these patients during the first two or three days of the illness have an unusual opportunity to assist in the discovery of the causation of a terrible malady, as well as to establish the truth about its symptomatology and prognosis. The diagnosis during the first three or four days cannot be made; it can only be suspected. And at this time, every child that sickens with symptoms that are known to be premonitory and early symptoms of anterior poliomyelitis should be treated as if they were genuine examples of the disease; that is, a lumbar puncture should be done, and the urine and feces collected, and in the investigation and interpretation of the matter collected the services of some research institution should be sought. If every physician who sees one of these cases in the beginning of the disease would do this, there would be some chance of determining its cause, a chance that is extremely minimized if investigations are begun only after the patient has been ill for a week.

BRITISH MEDICAL JOURNAL.

October 19, 1907.

1. Inebriety: Its Causation and Control, By R. W. BRANTHWAITE.
 2. The Choice of a Medical Career, with Remarks on Medical Ethics and Etiquette, By J. CRAIG.
 3. The Calmette Serum Reaction in Ophthalmology, By S. STEPHENSON.
 4. A Case Showing the Stokes-Adams Phenomena, By C. BEARDS.
 5. Two Cases of Pernicious Anæmia with Unusual Features, By J. FORTUNE.
 6. A Case of Splenomedullary Leucæmia, By J. D. SHAPLAND.
 7. A Forgotten Swab: Another Warning, By G. T. GIFFORD.
- (The Seventy-fifth Annual Meeting of the British Medical Association).
- Section of Tropical Diseases.
8. Introductory Remarks, By J. CAULIE.
 9. Discussion on Antimalarial Sanitation, Introduced by W. J. R. SIMPSON and H. ZIEMANN.
 10. Discussion on Diabetes in the Tropics, By R. H. CHARLES, R. K. C. BOSE, and others.

1. **Inebriety.**—Branthwaite who, as an inspector, is the only man in close touch with all inebriates under legal detention in England, subdivides alcohol takers into (a) strictly moderate, (b) careless and occasionally excessive drinkers, and (c) habitual drunkards. In the case of the latter, he is convinced that the real condition to be studied, the trouble to be fought, and the source of all the mischief, is inherent defect in mental mechanism, generally congenital, sometimes (more or less) acquired. Alcohol, far from being the chief cause of habitual inebriety, is merely the medium which brings into prominence certain defects which might otherwise have remained hidden, but for its exposing or developing influence. In the absence of alcohol the same persons would have proved unreliable in other ways. It is extremely doubtful whether habitual inebriety is ever really acquired, that is, in the absence of some measure of preexisting defect. It is most improbable that any normally constituted individual can become a habitual drunkard, without the intervention of nerve shock, or other influence sufficiently potent to disturb the equilibrium of nervous and mental mechanism. Habitual inebriates may be classified according to their mental state as follows: 1. Insane, certified and sent to asylums. 2. Very defective, imbeciles, degenerates, epileptics. 3. Defective as above, but less marked, eccentric, silly, dull, senile, or subject to periodical paroxysms of ungovernable temper. 4. Of average mental capacity. The chief characteristic mental symptoms observable in all these cases may be classed under three main heads: (a) Impaired development of

moral sense. This is the one that is most apparent in the largest number of cases, and the one which is most likely to have existed previous to drunken habits. (b) Imperfect control over impulse is an exceedingly common symptom, and accounts largely for erratic behavior. (c) Associated closely with the last is defect in power of judgment. The predisposing and exciting causes of mental defect in habitual drunkards, given in the order of their importance, are: (1) A neurotic heredity, especially of mental disease, epilepsy, or similar defect which has caused habitual drunkenness in forbears; (2) imperfect nutrition during foetal life, and the influence of alcohol drinking by the mother during pregnancy; (3) injury at birth; (4) the administration of alcohol during infancy; (5) falls, blows, or other injury, and bad feeding or general neglect during childhood; and (6) any shock, injury, or disease during later life which affects the nervous organization injuriously, and thereby impairs vitality and resistance to impulses. Given these conditions, or some of them, the exciting causes may practically be summed up in one word—environment. As regards treatment the various agencies applicable to these cases may be classed under three main heads: (1) Influences which incite or strengthen moral resolution; (2) medical treatment; and (3) control and enforced abstinence. Influences to strengthen moral resolution are useful only when applied to inebriates whose mental condition approaches the normal. Drugs are relied on too much; they are extremely valuable for the relief of unpleasant symptoms during the transition stage. They are also necessary as aids to the removal of temporary damage resulting from excessive indulgence. But further than this they have no value, and the author states his absolute unbelief in the possibility of the existence of a specific. He emphasizes: (1) The necessity for greater attention to neurotic and psychopathic indication; and (2) the necessity for an earlier recognition of the condition, with a view to the timely exercise of effective control in cases which cannot possibly be benefited by milder measures.

3. **The Calmette Reaction.**—Stephenson has applied the Calmette serum reaction to the eyes of some thirty patients, with satisfactory results. The reaction is said by Calmette to diagnosticate tubercle, and the method is of almost incredible simplicity. A drop of a one per cent. watery solution of dried tuberculin is placed in the eye of the patient. In the case of healthy subjects the result is *nil*. On the other hand, the tuberculous subject shows a local reaction, now widely known as the "ophthalmic reaction of Calmette." From the third hour onwards the eye to which the tuberculin has been applied becomes reddened, and in the course of several hours shows all the appearances of a severe or less pronounced attack of acute mucopurulent inflammation of the conjunctiva. The maximum reaction is seen within six or seven hours after the instillation of the tuberculin. All traces of inflammation disappear within two or three days. It is felt from a case and among the patient scarcely any discomfort. Neither ordinary or "old" tubercles seem to be affected, as these contain glycerin to hydrate the conjunctiva and thus need no proper reaction.

5. Discussion on the Indications for Operation in Cases of Intracranial Tumor,
Introduced by J. S. R. RUSSELL.
6. Some Observations on the Recent Outbreak of Cerebro-spinal Fever in Belfast,
By A. G. ROBB.
7. Tuberculin Treatment of Tuberculosis in Children,
By C. KIERRE.
8. Discussion on the Diagnosis of Acute Pancreatitis,
Introduced by W. OSLER.
9. Open Air Roof Wards on Metropolitan Hospitals,
By W. P. NORTHRUP.
10. A Case of Lymphadenoma Treated by X Rays,
By J. M. CLARKE.
11. Some Remarks on the Diagnosis and Treatment of Pericarditis,
By S. WEST.
12. Some Remarks on the Prevention of Appendicitis,
By W. J. TYSON.
13. Discussion on Rheumatoid Arthritis and the Morbid Conditions which Simulate It, with Especial Reference to Pathology and Treatment,
Introduced by A. P. LUFF.

7. **Tuberculin in Children.**—Riviere groups tuberculosis in children under two headings: 1. Strictly localized tuberculosis. 2. Tuberculosis not strictly localized, that is, accompanied by symptoms of general disturbances, such as fever. It is in the first group that the most certain successes of tuberculin are achieved. It is on the child population that the weight of localized tuberculosis falls: cases of surgical tuberculosis come under this heading. The success or nonsuccess of tuberculin treatment is a question of dosage. The writer considers $\frac{1}{2000}$ to $\frac{1}{1000}$ mg. suitable for a child of one year, $\frac{1}{4000}$ mg. for a child of five years, and $\frac{1}{3000}$ mg. for a children of ten or twelve years. The opsonic index should be carefully watched. In localized tuberculosis tuberculin is an almost certain remedy. There is an improvement in the general health, an increase in the appetite, and a gain in weight, color, and general fitness. There is a marked change for the better in the mental state. And, lastly, there is a tendency to local healing. Among the cases treated were tuberculous dactylitis, abscess, tuberculous glands, and joints. Tuberculous glands do well, but need prolonged treatment. Cases accompanied by general symptoms, such as phthisis and tuberculosis peritonitis are generally benefited by tuberculin. It also has a most remarkable effect in cases of secondary infection with staphylococci and streptococci.

8. **Acute Pancreatitis.**—Osler recognizes two groups of cases of acute pancreatitis, one in which there is distinct enlargement of the gland, which may be partly due to hemorrhage into its substance; and another group in which the gland is in a state of suppuration or necrosis. An important distinctive anatomical point is that in the acute pancreatic hemorrhage cases there was no fat necrosis. There are three main causes: 1. A mechanical cause, as a calculus in the common bile duct leading to bacterial infection. 2. A chemical cause, as bile, gastric juice, or duodenal contents. 3. An infective cause, the various pathogenic organisms living in the intestine. Infection does not result until stasis of the pancreatic juice occurs. Gallstones are frequently associated with acute pancreatitis; a favorable site for the stone is the ampulla of Vater. Bile alone, independently of infection, is unable to set up the disease. Many cases are alcoholic and show gastrointestinal disturbance, the condition being duodenitis with blocking of the duct. Mumps and typhoid fever are less common causes of acute pancreatitis. Acute pancreatitis affords

causes of acute pancreatitis. Acute pancreatitis involves the activation of the trypsinogen to trypsin. This process is often possible in the pancreas itself. A feature of the process is that the trypsin itself is a very active enzyme. The trypsinogen is an inactive form of the enzyme. The trypsinogen is converted to trypsin by the action of trypsinogen activator. An example of this is the

1. *Journal of the American Medical Association*, 1990; 263: 1033-1036.

2. (b) *Planning activities* – as Initiatives and Components.

Journal of the Philosophy of Education Society of Great Britain, 33(1), 1-14.

1. *Neuroendocrine System and Immunity: The Yaw and the Dendrite* by G. Grossman and J. L. L. L. L. L. L.

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(Source: U.S. Census Bureau, *U.S. Census of Population, Housing, and Income*, 1990, Table S-100-1, 1990, Washington, D.C.)

4. *Phrynosoma hernandesi* (Bourc.) 10.00 g. 100 g.

cent. of the cases not operated on, die, while of those operated on more than fifty per cent. recover. The gallstone cases are particularly fatal.

13. Rheumatoid Arthritis.—Luff holds that rheumatoid arthritis is a constitutional disease, not a local one, the affection of the joints being only a part of the process. It is due to the presence of microorganisms which gain access to the blood probably through some chronic catarrhal of the alimentary tract, although the infection may also occur from the nose, pharynx, or lungs. After entering the circulation they find a suitable nidus in the joints where they grow in the synovial membranes, ligaments, cartilages, and bones. Inflammatory changes result, causing ulceration, erosion, destruction, and hypertrophy. During the growth of the organisms toxins are produced which by their action on the nervous system produce the nervous symptoms. Of the disease, the local sweatings and pigmentation. The disease is commoner among women than men, and the acute form is generally met with in earlier adult life. If rheumatoid arthritis is seen and recognized early in the acute stage, it is curable. In the later stages it may be arrested, but the deformed joints cannot be brought back to normal. The most useful drugs are guaiacol and potassium iodide. Guaiacol if given long enough and in sufficient doses can arrest the disease, diminish the size of the joints, and markedly relieve pain. It probably acts by inhibiting the growth of the specific microorganism. It is best given as the carbonate in cachets, in doses of five or ten grains gradually increased to fifteen or twenty grains. Cases do not do well at the seashore, but are benefited by dry warm climates such as Egypt.

LANCET.

October 10, 1907.

1. Air, Water and Situation, By N. MOORE.
2. On Some Vital Properties of Milk, By M. COPLANS.
3. Frontal Band Alopecia as a Possible Sign of Exophthalmic Goitre and Associated Conditions, By D. WALSH.
4. A Case of Intraparietal Hernia, with Very Small Peritoneal Opening, Giving Rise to Severe Abdominal Pain, By J. A. C. MACEVEN.
5. Multiple Fibromyxomata of the Choroid Plexus, By M. B. DOBSON.
6. An Interesting Case of Acute Intestinal Obstruction, By H. J. CLARKE, JR.
7. Vicious Circle After Gastrojejunostomy: Subsequent Lateral Anastomosis: Recovery, By C. KING.
8. A Mechanism for Replacing the Cotton Plugs of Test Tubes Used for Receiving Culture Media, By G. C. CHATTERJEE.
9. Notes on Two Cases of Paroxysmal Tachycardia, By E. O. MOON.
10. Blood Pressure in Fevers, By J. DAVIDSON.
11. A Case of Intussusception in an Infant Three Months Old: Enterectomy: Recovery, By F. W. COLLINSON.
12. The Mode of Spread and the Prevention of Plague in Australia, By J. A. THOMPSON.

2. Milk.—Coplans's experiments show that the factors controlling the growth of organisms in milk are explicable on the grounds of latency and inhibition. Inhibition is a vital property of new milk; it is manifested as a bactericidoinhibitory power towards certain organisms as follows: 1. At air temperature (20° C.), slightly bactericidal and absolutely inhibitory for a period of six hours following milking, partially inhibitory for a further period of eighteen hours. 2. At blood heat slightly bactericidal and absolutely inhibitory for a period of one hour; slight growth only in the following hour; partial inhibition during hours two to ix. 3. At 0° C. for twenty-four hours; then, when raised to air temperature, absolute inhibition and bactericidal power persist for three hours; partial inhibition for a further period of nine hours. The standard for the rate of increase without inhibition is that which occurs in inoculated boiled milk incubated at like temperature with minimized latency. Latency—this in

general indicates the series of phenomena latent period and comparative latency (or quiescence absolute and relative), which first characterizes the growth of organisms when there is alteration in environment—e. g., food supply, acidity, or temperature. Phenomena of expiring latency have the effect of giving rise to the erroneous belief that there have been several additions of organisms to the milk under investigation, by reason of the sudden increases in number at frequent intervals. Latency and inhibition may exist independently or side by side, increasing or masking their several effects. The action of preservatives is to damage the bactericidoinhibitory action of milk as well as to restrain the growth of organisms. The facts relating to the bactericidoinhibitory action of new milk form the basis of a method for estimating within certain limits the period that has elapsed since the time of milking.

2. Frontal Alopecia in Graves's Disease.—Walsh calls attention to the occurrence of a congenital form of frontal band alopecia which appears possibly to be related to exophthalmic goitre on the one hand, and on the other to certain signs and symptoms connected with that disease. Hairlessness in the frontal region is characteristic of infants; its persistence into later life constitutes the congenital frontal band alopecia or congenital high forehead. It is far more frequent in girls than in boys. The band may be quite bald, and is almost invariably associated with boys that run backward in a line with the frontal eminences. The band itself may be from one half to one inch in width; it is situated at the anterior margin of the frontal portion of the scalp, and extends from one frontal eminence to another. This congenital frontal band alopecia often runs in families and is hereditary. The author has found it, in both children and adults, constantly associated with enlargement of the thyroid and tachycardia, nervousness, pigmentation, chilblains, epistaxis, and tremors, a condition suggesting potential Graves's disease. In eighteen cases of exophthalmic goitre, the congenital frontal band alopecia was present in all. It was present in five out of six cases of myxœdema. It may possibly indicate some evolutionary change or may be degenerative or trophoneurotic.

10. Blood Pressure in Fevers.—Davidson has made careful sphygmometric observations in many cases of fever: Among his findings are: 1. Scarlet Fever. Here the blood pressure curve is very similar to that of the temperature and pulse. After the seventh or eighth day the blood pressure has usually fallen below normal. Complications have a marked effect upon the blood pressure. 2. Scarlatinal Nephritis. Signs of increased tension in the arterial system are evident in most, if not all the cases, and synchronously with the appearance of albuminuria. This increased tension of the aortic system is always connected in a marked degree with a slowing of the cardiac action. With the subsidence of the nephritis the pulse rate increases in the ratio that the arterial pressure decreases. 3. Diphtheria. A reduction in blood pressure was found in every case, depending in amount to a large extent, if not entirely, on the degree of toxæmia. The administration of strychnine and alcohol annulled the fall of blood pressure, but only if given regularly. A constant blood pressure level, as maintained by the use of strychnine at regular intervals, seems to represent the ideal to be aimed at in the stimulant treatment of toxic conditions such as diphtheria. 4. The administration of antitoxine in diphtheria, while causing a slight rise in the temperature, had no effect upon the blood pressure. 5. Typhoid Fever. Here the blood pressure is always considerably lowered, the diminution progressing steadily the longer the duration of the case; and it only rises again on the establishment of convalescence or on the occurrence of some acute inflammatory complication (pneumonia, peritonitis, etc.).

symptoms and diagnosis, and gives among other illustrations two plates which represent very differences in the microscopic appearance of the f. ss. in cases of biliary and pancreatic deficiency. He then considers the condition of pancreatitis, which he denominates the "pancreatic drama," a condition which is not necessarily associated with biliary lithiasis, and the results of this condition as found on autopsy, with a study of reported cases. He closes with some remarks on cancer of the pancreas.

2. **Typhoid Fever and "Ulceration of Duguet."**—Letulle says that the ulcerations of the uvula and other parts of the throat, known as the ulcerations of Duguet, met with in typhoid fever, are not met with in the various forms and varieties of paratyphoid, and believes that they may prove to be of value in differential diagnosis.

October 16, 1907.

The Variations of Water in the Organism in Inanition,
By Professor H. ROGER.

Variations of Water in the Organism in Inanition.—Roger alleges that contrary to the usual supposition inanition is not a consequence of a dehydration of the organism. At the very first water is produced in abundance, but does not supply the needs of the cells. In the majority of cases of inanition associated with morbid conditions water is found in great excess. This excess of water explains a superactivity of the tissues. After a period of inanition the organism acquires a great power of resistance. It is a general law that the vitality of the tissue, and consequently its resistance, is proportional to the quantity of water they contain.

LA SEMAINE MEDICALE.

October 16, 1907.

1. Ninth French Congress of Internal Medicine, Held at Paris, October 14 to 16, 1907.
2. Twentieth French Congress of Surgery Held, at Paris, October 7 to 12, 1907.

LYON MEDICAL.

October 13, 1907.

1. Inflammatory Tuberculosis and Late Rickets,
By A. PONCET and RENÉ LERICHE.
2. Acute, Generalized Peritonitis with Especial Reference to Treatment,
By LECLERC and ROUBIER.

1. **Inflammatory Tuberculosis and Late Rickets.**—Poncet and Leriche, in this article, deal with the osteo-articular deformities of growth, scoliosis, genu valgum, painful flat foot, coxa vara, etc., which are of tuberculous origin.

2. **Acute, Generalized Peritonitis.**—Leclerc and Roubier present a very extensive paper which is divided into two parts: 1. The study of acute, generalized, typhoid peritonitis from a clinical point of view. 2. A critical study and analysis of the cases of surgical intervention. From a clinical point of view they consider the causes and mechanism of peritonitis from perforation and from propagation, then the symptomatology first of peritonitis from perforation: (a) sudden and rapid; (b) following a more insidious course. (c) in the child, with the prognosis. Then follows peritonitis by propagation with its distinctive diagnosis, which is much more difficult in the child than in the adult. The paper is not concluded in this issue.

BERLINER KLINISCHE WOCHENSCHRIFT.

October 7, 1907.

1. The Pathology of the Lung,
By G. SCHMIDT.
2. The Pathology of the Lung in the Child,
By H. H. SCHMIDT.

3. Concerning Retrogression in the Embryonal Formation of the Blood and the Origin of Malignant Tumors,
By C. S. ENGEL.
4. A Case of Infected Hydronephrosis with a Rare Anomaly of the Course of the Ureter,
By P. MANASSE.
5. An Anatomical Preparation of a Kyphotic Vertebral Column (Concluded),
By H. VIRCHOW.
6. Paratyphus and Infections by Means of Food,
By E. KUTSCHER.

1. **Percussion of the Apex of the Lungs.**—Goldscheider describes at length the anatomical relations at the apex of the lungs and the best method of percussion. He makes the points that the examination can be made best with the patient in a sitting position, and that the percussion should always be gentle.

4. **A Case of Infected Hydronephrosis, with a Rare Anomaly of the Course of the Ureter.**—Manasse found the left kidney occupying its normal position, but its ureter arose from the highest point of the pelvis and passed downward on the anterior wall of the pelvis instead of on the posterior wall, as is usual. It was thin walled, of the usual calibre, and perfectly permeable. The renal vessels entered the kidney behind the ureter. The anomaly was evidently congenital and is extremely rare.

5. **Anatomical Preparation of a Kyphotic Vertebral Column.**—Virchow presents a very long analysis of the conditions found on reposition of a kyphotic vertebral column by which he tries to make clear a positive estimate of the influence of coincidentally acting factors in the production of this condition.

6. **Paratyphus and Infections by Means of Food.**—Kutscher compares the clinical picture of so called meat poisoning with that of paratyphus, and finds that they agree. The pathological conditions found are also in agreement. In both, the lymphatic elements of the intestinal tract rarely if ever changed, while the contrary holds true in typhoid fever. As a rule, there is a marked, often hemorrhagic, enteritis. In both intestinal ulcerations are rare, and when they occur they do not occupy Peyer's patches, but are usually situated irregularly in the colon. He therefore considers that meat, or food, poisoning called forth by paratyphus bacilli should be reckoned as paratyphus infections, with a special mode of infection.

ROUSSKY VRATCH

September 1, 1907.

1. Periodic Family Paralysis (To be concluded),
By N. M. POROFF.
2. The Treatment of Chronic Inversions of the Uterus (Concluded),
By L. G. LITCHKUSS.
3. On the Pathology of Osteomalacia (Concluded),
By A. B. BERNSTEIN.
4. On Cammidge's Reaction in Diseases of the Pancreas,
By S. G. AGABEKOFF.
5. On Lebedieff's Removable Continuous Buried Suture in Laparotomy,
By A. S. DOUBINTCHIK.

3. **Pathology of Osteomalacia.**—Bernstein reviews this subject from the view point of modern research, and concludes that for the present we must be content with one fairly well established fact; namely, in osteomalacia there is a collection of acid products in the body, in virtue of which the calcium phosphate of the bones is dissolved and eliminated. Whether this hyperacidity is caused by a germ or some other influence, we are as yet unable to say. In speaking of the treatment Bernstein says that, in addition to the old palliative methods, by means of baths, iron, iodides, etc., we now have the phosphorus treatment and the removal of the ovaries or even Porro's operation. The operative treatment of osteomalacia is as yet not sufficiently developed.

to allow definite conclusions. Phosphorus is undoubtedly of great value in the treatment of the disease. The operation of choice is oophorectomy. It was discovered accidentally that the removal of the ovaries produces a marked and rapid improvement in all the symptoms of osteomalacia. The removal of these organs, according to Fehling, induces a set of inverse changes to those which characterize osteomalacia. Curatulo and Jarulli conclude from their study of the subject that the ovaries must secrete some substance which favors the oxidation of organic phosphorus compounds in the body.

4. **Cambridge's Pancreatic Reaction in Urine.**—Agabekoff found Cambridge's reaction very useful in determining the presence or absence of pancreatitis with fat necrosis of this organ. In a number of cases the reaction gave proof of the presence of pancreatic disease, although no symptoms of the latter had been noted during life. In another set of cases in which it was difficult to exclude pancreatic disease the absence of the reaction gave the needed clue.

THE JOURNAL OF CUTANEOUS DISEASES.

October, 1907.

1. The Present Status of Our Knowledge of the Parasitology of Syphilis, By OSCAR T. SCHULTZ.
2. Report on Tropical Diseases of the Skin, By WILLIAM DORRECHER.
3. Peripheral Syphilitic Arteritis, By HERMANN G. KLOEZE.
4. Report of Eight Hundred Dermatological Cases Treated with X Ray and High Frequency Currents at the Mount Sinai Hospital, By SAMUEL STERN.
5. Clinical Reports—(a) A Case of Syphilitic Reinfection; (b) Cases of Syphilis Insontium, By G. K. SWINBURNE.
6. Xeroderma Pigmentosum, By WALTER BOOTH ADAMS.

1. **The Present Status of Our Knowledge of the Parasitology of Syphilis.**—Schultz says that in the two years and four months that have elapsed since the publication of Schaudinn and Hoffmann's first paper, there has appeared an immense literature dealing with the aetiology of syphilis. The great majority of the references are confirmatory of Schaudinn and Hoffmann's announcement of the presence of *Spirochæta pallida* in certain of the lesions of lues. A small fraction of the work attacks the correctness of this finding, while a still smaller proportion deals with Siegel's *Cytorrhynchus luis*. Enough time has gone by and enough work has been done to make possible a summary of results, and an attempt at determining what conclusions one may draw concerning the present status of our knowledge of the parasitology of syphilis. Whatever may be one's views as to the correctness of Siegel's work upon the relationship of *Cytorrhynchus luis* to syphilis, it does deserve some commendation, because the attempt to confirm or disprove it, resulted in the discovery of *Spirochæta pallida*. Further than this, little can be said in favor of a possible aetiological relationship between cytorrhynchus and syphilis, or of the protozoan nature of cytorrhynchus. In neither respect has Siegel's work received confirmation by any large proportion of the number of investigators who have busied themselves with syphilis. Bodies, which agree to Siegel's description of *Cytorrhynchus luis*, are in part blood platelets, in part cell granulations and cell degenerations. They do not exhibit true motility or undoubted evidences of multiplication. Similar bodies are seen not only in syphilis, but also in a number of other conditions, as in "leucæmia of the blood of lower animals," leprosy, leishmaniasis, Delile's bacillus, the numerous other bacilli described in association with syphilis, as well as the organisms of Doublet, Clarke, and further, and of Hensel; the author distinguishes without discussion. There remains, therefore, no conclusion, save only *Spirochæta pallida*. Of

these, the author says that the presence, in the various manifestations of syphilis, of a characteristic spiral organism, *Spirochæta pallida*, has been confirmed by the vast majority of those who have busied themselves with the subject. The negative observations thus far reported are of value only in so far as they show the amount of patience and experience required for the finding and the identification of the organism. Comparative study and direct observation lead to the belief that the parasite is protozoan in nature. The finding of *Spirochæta pallida* in a doubtful clinical case is of the greatest diagnostic value to the clinician. Its presence in pathological material is of equal importance to the pathologist. Because it has thus far been impossible to obtain and grow the organism in pure culture, Koch's postulates are not susceptible of proof. However, the constant presence of the parasite in the lesions of syphilis, its presence only in syphilis and not in other diseases, its definite relationship to the pathological changes, its morphological characteristics, and its presence in the lesions of experimental syphilis of lower animals, furnish sufficient evidence to establish the aetiological relationship of *Spirochæta pallida* to syphilis.

4. **Report of 800 Dermatological Cases Treated with X Ray and High Frequency Currents at the Mount Sinai Hospital, of New York.**—Stern reports these cases. Among them may be mentioned epithelioma. Of this disease the author says that the longer he treats epithelioma with radiant energy, the more he realizes that his success depends a great deal upon the proper choice of cases. There is no question as to the value of the method in suitable cases, but there is also no question as to its failure in improperly chosen ones. It is very hard to lay down any fixed or definite rules as to the choice of cases. Experience is the most important factor. As a general rule, it might be said that the lesions best adapted for radiotherapy are those which are situated on the surface of the epidermis. Deeper seated nodular epitheliomata are best treated by other methods. Small nodular epitheliomata, situated on the surface of the skin, can often be readily destroyed by a few applications of the high frequency spark. The value of the x ray in psoriasis is well established, says the author. The length of treatment necessary to cure it depends very much upon the nature of the lesions. Acute and subacute lesions—that is, those that do not have much induration and are covered with small flake like scales—yield much quicker to treatment than the old chronic indurated spots covered with thick scales. Those situated on the face and scalp generally yield quicker than those on the trunk and extremities. As a rule, he does not treat psoriasis situated on the trunk with x ray, on account of the possible injury to the underlying viscera. The treatment does not seem to have had much influence upon the recurrence of the lesion, although it seems to him as if those cases where the x ray has been used until a dermatitis and peeling off of the skin has been produced remain free for a longer period than those cured by other methods. The results accomplished in this eczema are very encouraging. Eczemas of all varieties should not be less readily treated by x ray. Chronic weeping kind generally requires less treatment than the dry, scaly patches. He has repeatedly seen cases of severe itching, due to x ray, cured by the use of treatment, cured with the x ray. One hundred and twenty-five cases were treated with generally good results in all those who had sufficiently persisted with the treatment. It is only the more stubborn psoriasis in the field of radiotherapy, as is established, as shown by the author, that is not cured. But the best success was accomplished in the treatment of psoriasis with other methods of treatment. The method of treatment was to use the x ray in the areas of the greatest hyperæmia.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of October 17, 1907.

The President, Dr. JOHN A. WYETH, in the Chair.

The Mosquito as a Sanitary Problem.—Dr. EDWARD A. AYERS delivered this, the *Wesley M. Carpenter Lecture*. So far as was known mosquitoes were the only factor involved in the production of malaria, yellow fever, and filariasis, although recent investigations brought dengue and beriberi into the list. Several hundred thousand human beings were killed annually through mosquito infection and many millions injured in health. The prevention of mosquito infection of man was the simplest problem in the list of infectious diseases. The extermination of these insects was feasible, the methods sufficiently understood, and accomplishment well within the financial capacity of every nation. The mosquito as a sanitary problem was one of the most attractive and urgent medicopolitical issues of the day. By reason of its ubiquity and skin piercing capacity the mosquito was king of the insect world, and while other insects annually destroyed \$800,000,000 of lumber, grain, and fruit in the United States, the mosquito destroyed health, lives, and values combined. In his time he had destroyed more human beings than existed to-day. He approached this result nearly every five hundred years. One healthy favored pair of early June mosquitoes would start a progeny that would rival the human population of the globe in numbers ere the harvest moon. Yet, one man with a spade could destroy more prospective mosquitoes in an hour than mankind numbered at any time. The only regions of the globe that they neglect were the poles and the great deserts. A pregnant mosquito could sleep through the wintry months, and when the spring sun set her free, go and lay four hundred hatchable eggs. Resulting from the vast researches of Theobald, Giles, Grassi, and many others, over 500 mosquito families had been bertillinized, and still the work was incomplete. In common with all insects any species of culix might cause infected wounds through accidental presence of "septica" on their probosces, and induce typhoid, cholera, and other germ diseases by soiled food transportation; but the anopheles, stegomyia, and *Culex fatigans*, which were known to inoculate our blood with malaria, yellow fever, filariasis, and apparently dengue and beriberi, stood first in interest. The mosquito's favorite home was the unwonted swamp, and his food the garbage of the vegetable world. The mother mosquito deposited from 50 to 400 eggs at a time. The larva would starve in distilled water, and hated kerosene. The larvovupal transformation was startling. His nature dresser quickly unlatched threw aside his caudal syphon, and evolved as substitutes two air trumpets to the nape of the neck, now becoming his forehead, because he had shed his face as a mask might be taken off, and his new brain and eyes were then within his distended chest. He even discarded his gut terminal apparatus, now that he would eat no more during his submarine existence; and projected a two bladed paddle to his much altered nether extremity. He drew his octagon barreled body under his enormous chest; his nature dresser pumped air into a subfrontal vacuole that was just sufficient to float him, and bring his two air syphons out of the water. As a pupa he could see, breathe, and swim. No food now could pass his lips for two days. His long legs were coiled in the bottom of his bulging chest; his eyes peeped out from his mosquito head; his wings were neatly furled along the segmented body; and his antennae were tucked like a bib about his throat. Suddenly his shell would split open along his back; his shoulders gently rose through the fissured hull into the

from his shell, it would float higher and keep him perfectly dry. He lifted his body, wings, and hindlegs free, and having little air cups in the hollow of his feet, he could stand upon the waters. Then he unfurled and dried his wings, shook out his crumpled antennae and flew, and in flying evolved sweet melody. According to Russell, the male made curious use of his whiskered antennae in finding a mate. He must discover her by her song. His antennae were highly sensitive to waves of sound. Within a couple of days the widowed mother would deposit her eggs. The wing song of the culix and stegomyia was of higher pitch than that produced by the anopheles. Contralto in culicidal tone production meant malaria.

Through two thousand years suspicion was held that mosquitoes were responsible for malaria in man. In 1843 Klencke observed malarial blood changes in man. In 1880 Manson demonstrated the guilt of mosquitoes in causing elephantiasis; while Finley in 1881 threw suspicion on the mosquito as causing yellow fever. It was seven years now since the immortal quartet, Reed, Lazear, Carroll, and Agramonte, demonstrated the mosquito source of yellow fever. The annual report for 1907 of the Army Medical Board announced the finding of a new parasite, the *Filaria philippinensis*, caused by the *Culex fatigans*; also that this mosquito transmitted dengue; and that beriberi was probably due to the mosquito. In 1863 Demarquay reported the existence of a minute smooth worm, the *Filaria sanguinis hominis Bancrofti*, in a case of chylocele in a resident of Havana. This nematode proved to be an embryo filaria, its adult form being discovered by the elder Bancroft in 1876. In 1880 Sir Patrick Manson described the presence of this wandering worm in the stomach, muscles, and other parts of the mosquito's body. The adult filariae were long, slender, hairlike male and female nematodes, three or four inches in length, which were injected in embryo form into man's skin capillaries by mosquitoes, whence they moved to the deep lymphatic canals, and from which they could not escape once they were fully grown, as they were larger than the capillaries. They had a tendency to coil into knots and clump several together, thus obstructing the lymph circulation as to cause elephantiasis, or connective tissue hypertrophy. Following Laveran's description of the erythrocytic development of the parasite, A. F. A. King in 1883 published a strong *a priori* argument pointing to the mosquito as man's inoculator, and against air and moisture sources. His views were endorsed in 1884 by Koch, Laveran, and Pfeiffer. The functions of the gametocytes, or sexual forms of the parasite, were next argued over by Bigmani, Laveran, and Manson. W. G. MacCullum demonstrated their male and female character and product. He then considered the life cycle of the malarial parasite. Nott in 1848 charged the cause of yellow fever to mosquitoes. It should be recognized that the remarkable near truth conclusions of Dr. Carlos J. Finley in 1880 well mapped out the lines of final experiments for the Commission of 1900. The deplorable death of Jesse Lazear from accidental inoculation, the premature death of Walter Reed from gangrenous appendicitis originating in profound bodily exhaustion, the physical and other trials of James Carroll, but recently advanced in rank by Congress only to die within the year, were familiar features of the final death grapple with yellow fever. In the forty-seven years preceding 1900, 35,952 residents of Havana had died from yellow fever, a constant mortality of one in every ten of her inhabitants. Under the vigorous activity of Colonel Gorgas, yellow fever was completely exterminated in ninety days. Havana's yellow fever chart from 1881 to 1901 showed an average annual mortality of 449.

According to Jackson the filarial worms were in the blood of from ten to fifty per cent. of the peoples of the

tropical and subtropical portions of the globe. If one took continental United States as a base for estimating the prevalence of the world's malaria, it would be found in the United States census that 18,594 deaths were charged against it for the year following May 31, 1889. During the next ten years the death rate fell from 19.2 per 100,000 to 8.8 in the registration area, which was about one third the whole. In Italy the mortality during the last few years had fallen from over 15,000 to 4,700. During the past hundred years 100,000 of our people died from yellow fever, and some 500,000 were infected.

The work of the yellow fever commission in Cuba enabled our army medical department to gain control of the disease in ninety days; but the broad questions of mosquito extermination had found practical solution since that time. That such extermination was feasible, economical, and less difficult than was generally supposed was his opinion, founded not only on the statements of others, but on a six years' personal experience in swamp, field, and laboratory. Mosquitoes could not breed in waters reached by "killie" fish; in rough, or running waters; screened, or air tight waters; nor in water fully filmed with kerosene or crude petroleum. Their destruction was chiefly accomplished by drainage of all standing water areas, or by leading the "small-fry" fish to the larvæ and pupæ in parts that could not be kept dry. The great swamps of Elizabethport, Hackensack, and Jersey were being dried mostly by 10 x 30 inch ditches. One man could keep 75,000 feet of ditches in proper condition from year to year. Extensive plans for constructing an inland water route for vessels of considerable draught along our entire Atlantic coast from Buzzard's Bay to Florida were under way, and when completed would help drain many hundred thousand acres of swamp land. Drainage of swamps for mosquito extermination should be incidental to permanent agricultural reclamation. New Jersey was well under way in the drainage of her 200,000 acres of swamp land, and had dug over a million feet of ditches. Long Island has some 50,000 mosquito acres. Staten Island has received radical treatment. Even crowded Manhattan was ridiculously infested with mosquitoes. The mosquito as a sanitary problem should no longer exist. The mosquito was a political problem; its widespread existence had become an anachronism; and his extermination was a problem for the civil engineer. The yellow epidemic of 1878 cost not less than \$100,000,000. The loss to New Orleans was over \$10,000,000, while nearly \$5,000,000 relief money was poured into the stricken cities of the South. With these money loss equivalents every State on the Gulf of Mexico could have been rendered mosquito proof, with enough left over to have rivalled the treasury balance of to-day. Onslaught against political sanitary inertia was to-day the most promising field to organized medicine.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

MEETING OF DECEMBER 28, 1907.

The President, Dr. T. E. SATTERTHWAITHE, in the Chair.

The Stomach and Some of Its Affections was the general subject of the evening.

The Origin and Destination of Hydrochloric Acid.—

Dr. WALTER H. PETERS, in his paper, stated that he was not in a favor of Hesse's and the suggestion of hydrochloric acid as a functional factor in the secretion of the gastric juice. The present evidence led him to believe that the hydrochloric acid of the gastric juice was secreted by the parietal cells of the stomach, and that the hydrochloric acid was generally available to the gastric juice as soon as the decomposition of the gastric mucus was completed. (4) The intake and release of sodium chloride was always greater than the intake;

(6) the food contained an abundance of alkaline sodium phosphate, and very little neutral sodium phosphate; (7) the blood contained a considerable amount of the neutral phosphate; (8) the urine was rendered acid by the acid sodium phosphate. With these facts before us, he said, we could easily work out a theory which would fit all the known data. The proteid molecule was drawn, with oxygen into the protoplasm of the gastric epithelial cells, and these, by a process of oxidation reduction, sulphur and hydrogen were split off with the formation of sulphuric acid, which was discharged into the stomach from the free surface of the cells. The sulphuric acid here attacked the sodium chloride, forming hydrochloric acid and sodium sulphate. After the hydrochloric acid had served its purpose in the digestive act it reacted upon the sodium phosphate in the intestinal tract, restoring the sodium chloride lost in the stomach, and produced the neutral phosphate for the blood. The neutral phosphate, escaping from the blood through the malpighian tufts, came in contact, in the uriniferous tubules, with the uric acid; thus forming the acid phosphate and a urate.

Lack of Gastric Mucus and Its Relation to Hyperacidity and Gastric Ulcer.—In this paper Dr. J. KAUFMANN gave some personal observations which showed that the secretion of gastric mucus is a necessary function, and that lack of mucus leads to serious disturbances. From the combined results of macroscopic and microscopic examinations, he said, the amount of gastric mucus present in any existence could be easily estimated. Under normal conditions a moderate amount of mucus was found in the stomach contents after a test breakfast, while under pathological conditions the mucus was either increased, decreased, or absent. In his observations he had noted a lack of mucus in a great number of cases; this being more common than an increase. This lack might be due to different causes. There was either insufficient secretion, or the secreted mucus was digested, or it was dissolved by the action of bacteria, as was seen in cases of bronchoblenorrhœa. Certain considerations, however, militated against the probability that this complete lack of mucus in the breakfast was entirely due to its being digested. No matter what the cause of the lack of mucus, he thought we were justified in concluding that the lining of the stomach was not well covered with mucus when no mucus was found in the gastric contents after a test breakfast. This undoubtedly meant that mucus was the protective agent of the gastric mucosa. If the latter was covered by only a thin layer of mucus, the consequences might be serious with an active gastric juice, especially one of high acidity. An analysis of a large number of histories had convinced the speaker that all the subjective symptoms of patients suffering from hyperacidity were most pronounced in patients whose stomach contents were found entirely free from mucus. There had always been difficulty in explaining the occurrence of "hyperacidity symptoms" in cases where there really was no hyperacidity, and while most authors maintained that in such cases a sensory neurosis was the underlying cause of the symptoms, of the gastric mucosa, he believed that a more satisfactory explanation was afforded by the lack of a sufficient covering of mucus. The explanation was corroborated by the fact that in many cases of hyperacidity the so called hyperacidity symptoms than the application of large quantities of alkali, and he had often been required to treat, when the stomach had been attacked, that the high degree of acidity, this mucus secreted. Furthermore, he had frequently found in such cases, after this treatment, either a moderate or complete lack of mucus in the stomach contents, when the examination history was attended by no serious results at all. The more the secretion of mucus by the gastric mucosa, the more

could be readily understood from Pawlow's experiments.

The effect of insufficient covering of the mucosa might lead to more serious disturbances than simple discomfort and pain. Without a sufficient covering of mucus the gastric mucosa became more easily injured by the many insults, mechanical, thermic, and chemical, to which it was constantly subjected, and when once injured, even though slightly, the damaged part became more exposed to the invasion of bacteria and to the digestive action of the gastric juice. It seemed probable that such occurrences were the primary disturbances in the development of gastric ulcer. The majority of cases of this affection gave a history of a more or less prolonged period of suffering from so called hyperacidity symptoms, and, as had been seen, this suffering was due just as much to the lack of mucus as to increased acidity. It could now be seen how the lack of mucus was instrumental in bringing about the first lesion of the mucous membrane. A treatment, therefore, which induced an increase of gastric mucus helped to cure the ulcer, when present, and we could thus understand the effect of the time honored treatment of gastric ulcer. An increase of mucus, though apparently pathological, might often prove nothing more than a mere active manifestation of a useful function, which served to protect the mucous membrane. In conclusion, Dr. Kaufmann said that the routine examinations of stomach contents had so far been principally directed toward the secretion of gastric juice and its disturbances, but a more careful study of the protective secretion of mucus and its disturbances would greatly help us to understand and to treat gastric diseases.

The Surgical Treatment of Ulcer of the Stomach.—

In this paper Dr. O. G. T. KILIANI conceded that this affection was one which unquestionably belonged, in most cases and at most times, to the domain of medical treatment. Taking up the conditions in which surgical interference had been supposed to be especially called for, he said that the acute free perforation of an ulcer into the peritoneal cavity was so extremely rare that operation for *indicatio vitalis* hardly ever became necessary, and that in hæmorrhage, also, operation was really very rarely called for, because, even in extreme cases, the hæmorrhage ceased just before the crucial point, namely, as soon as the patient passed into deep collapse. And just in those cases where medication failed, and operation would become necessary and desirable, the surgical treatment failed too, because the patients could not stand the shock of the operation and because quite frequently it was impossible to find or get at the bleeding vessel. The other indications for the operative treatment of ulcer were, uncontrollable violent pain, inflammations with or without pus forming adhesions, the formation of scar tissue, with symptoms of stenosis, and suspicion of malignant degeneration. In general, it might be said that the best observers in medical and surgical clinics had finally reached the conclusion that a patient with ulcer who had been subjected to one or several systematic courses of rational treatment, with very little, if any, improvement, or who had had recurrences again and again, ought to be operated upon. Gastroenterostomy was the operation of choice for this condition. All other forms of operation aimed at treating the ulcer *per se*, by removing it or otherwise, while the object of gastroenterostomy was to form anatomical conditions which partly overcome mechanical difficulties, partly set the stomach at rest, and give the ulcer a chance to heal. The remainder of the paper was devoted to results, prognosis, mortality, etc.

On Modern Methods in the Medical Treatment of Gastric Diseases.—By Dr. A. ROSE (to be published in

On Modern Methods in the Surgical Treatment of Gastric Diseases.—Dr. FRANZ TOREK, to whom had been assigned this branch of the subject, said that when we looked over the progress which had been made in the surgery of the stomach during the last few years, we found that it consisted mainly in an elaboration of certain details in the technique, including improvement in the construction of certain instruments. Improved technique helped us to guard our asepis still more strictly, and also enabled us to employ the suture much more frequently, where formerly we preferred mechanical appliances like the button. It was, therefore, in this branch of surgery, just as in all other branches; the attention to minute details which was responsible for a great part of the progress made in the art and for the improvement in the results achieved. The technique of gastric surgery had come more prominently into the foreground, since physicians had begun to appreciate the fact that many cases diagnosed as chronic gastritis were in reality cases of malignant tumor or of congestion due to mechanical obstruction by an open ulcer or its resulting cicatrix. Unless a distinct cause for gastritis, such as alcoholism, errors in diet, etc., could be traced, the other possibilities should be kept in mind, and proper measures at once be taken for making a correct diagnosis. Many cases would thus be found to be not chronic gastritis, but some malady requiring surgical treatment. The speaker devoted most of his attention to gastroenterostomy and resection, the most important operations on the stomach, and had time to refer only briefly to Kocher's gastroduodenectomy, pyloroplasty, gastrotomy (the construction of an abdominal gastric fistula), and excision of parts of the stomach and of the entire organ.

Gastroenterostomy, he said, was indicated mainly in ulcer of the stomach, whether the ulcer were open or whether the scar of the healed ulcer had, by contracting, narrowed the lumen, causing obstruction and motor insufficiency. The indication next in frequency for its performance was obstruction at the pylorus for inoperable carcinoma. The communication with the intestine, a loop of jejunum being usually selected, might be established either at the anterior or the posterior wall of the stomach. In performing anterior gastroenterostomy care should be taken not to have the loop of the jejunum too short, lest pressure between the jejunum and transverse colon should result. In posterior gastroenterostomy, on the other hand, a long loop was neither needed nor desirable, and the anastomosis was made at as short a distance from the beginning of the jejunum as was compatible with easy approximation. As for the method of making the anastomosis, the majority of surgeons at the present time preferred the suture to the use of the Murphy button or the McGraw ligature. The method of suture had lately been perfected very much by the help of instruments which clamped off only those segments of the stomach and the intestine which were needed for the operation, in place of the former method of tying or clamping the intestine at two places, above and below the site for anastomosis. With the newer method it was easier to do clean work, the vessels did not have to be caught, and the parts to be united were brought into satisfactory apposition before the suture was begun. Consequently, the suture could be performed more quickly than was formerly the case, so that even in point of rapidity the Murphy button had much less advantage now. Anastomosis by suture was to be preferred in all cases except those where the patient's condition was such that the shortening of the operation through the use of a mechanical contrivance became imperative.

Having described the present technique in detail, Dr. Torek stated that of the two gastroenterostomies, the posterior operation was his own choice and that of most other surgeons, for the reason that it enabled one to

lings and Bottle Fed Infants, Bacterial Conditions in the Digestive Tract during Childhood, Adolescence, Adult Life, and Senescence; Bacterial Flora of Carnivorous and Herbivorous Animals; Classification of Bacteria in Intestinal Tract; Common Bacterial Infections from the Standpoint of the Microorganisms; Fermentative and Putrefactive Processes from the Standpoint of Their Products; Types of Chronic Excessive Intestinal Putrefaction; Modes of Control of Bacterial Processes in Excessive Intestinal Putrefaction, and Sociological Considerations.

This review of the contents reveals at a glance the thoroughness of the study. It is one deserving a place in every practitioner's library, and its principles merit being an integral part of every physician's knowledge of disease and of his therapeutical art.

The Integrative Action of the Nervous System. By CHARLES S. SHERRINGTON, D. Sc., M. D., Honorable LL. D. TOR., F. R. S., Holt Professor of Physiology in the University of Liverpool, Honorary Member of the American Physiological Society, etc. With Illustrations. New York: Charles Scribner's Sons, 1906. Pp. xvi-411.

The Mrs. Hepsa Ely Silliman Memorial Lecture Foundation of Yale University was established in 1883, and from time to time a series of lectures has been given in accordance with the will of the founders. The last annual series consists of ten lectures by Professor Sherrington, of Liverpool, and are here collected in a volume of 400 pages. To give the titles of the chapters gives an entirely inadequate idea of the contents thus: Coordination in the Simple Reflex takes three chapters; Lecture IV is devoted to the consideration of Interaction Between Reflexes; Compound Reflexes, Their Simultaneous and Successive Combinations are considered in Lectures V and VI. Reflexes as Adapted Reactions, is discussed in the seventh lecture; while Some Aspects of the Reactions of the Motor Cortex; The Physiological Position and Dominance of the Brain; and Sensual Fusion are the titles of the remaining three lectures.

It is doubtful if a more thoughtful, comprehensive, or fundamental consideration of the physiology of the nervous system, so far as its related processes are concerned, has been given for many a year. While it cannot be said that the author has always expressed himself in the simplest of terms, yet in view of the intricacies of the subjects discussed it might seem hypercritical to demand an easier or more interesting presentation.

In quoting the sentence "The resultant singleness of action from moment to moment is a keystone in the construction of the individual whose unity it is the specific office of the nervous system to perfect," we obtain at once the general purpose of the author's whole argument, and the methods by which he has traced this unity of action in the nervous system, and the experimental physiological proof adduced to show the steadily advancing integration of function after function, reveal at the same time the keen analytical ability of the author as well as his equally valuable power to synthesize his results which enables him to give closer philosophical deductions concerning the fundamental processes of mind. He says: "The interference of unlike reflexes and the alliances of like reflexes in their actions upon their common paths seem to lie at the very foundation of the great psychical process of attention." The experimental proof of this in lower animals is clearly indicated and augurs well for the consummation of the wish of the psychologist and psychiatrist that methods may be devised whereby "this interference of unlike reflexes" may be subjected to exact study. When such a time comes the problems surrounding the disorders of attention in hysteria, of dementia praecox, of most mental disorders, may be read as from an open book.

The so called materialistic interpretation of man's

activities receives an immense stimulus from this volume, but any explanation is desirable no matter what particular camp of followers may claim it as their own. Lecture VI will be read with close attention by all those who are particularly interested in the teleological questions which are bound to come to the fore.

"That a reflex action should exhibit purpose is no longer considered evidence that a psychical process attaches to it; let alone that it represents any dictate of 'choice,' or 'will,' is a truism to scholars of physiology, but how restricted is the belief in this fundamental proposition; and that many higher functions of mind, so called, come within the scope of 'reflexes' who can yet pronounce? Common sense has recognized this law as applied to certain types of reactions which have been termed 'insane reactions.' Certain impulsions, obsessions, compulsory ideas, and acts belong in this category, and undoubtedly are such mechanisms. Whence and how the disintegrations?"

The volume is filled with suggestive things. The reader cannot finish a page without permitting his mind to stray off into many paths which lead in the direction of many of the larger problems of life and conduct. We commend it heartily to our readers, not as idle summer reading, but as good, hard material that makes for solid acquirement.

BOOKS, PAMPHLETS, ETC., RECEIVED.

The Nervous System of Jesus. By Salvarona, Associate of the American Institute for Scientific Research of New York. Langhorne, Bucks County, Pa., 1907. Pp. 100. (Price, 50 cents).

Jahresbericht über die Leistungen und Fortschritte auf dem Gebiete der Erkrankungen des Urogenitalapparates. Begründet von weil. Prof. Dr. M. Nitze und Dr. S. Jacoby, Berlin. Herausgegeben von Priv. Doz. Dr. Albu, Berlin, Prof. Dr. R. du Bois-Reymond, Berlin, etc. Und unter Mitwirkung von J. Albarra, Paris, A. Bier, Berlin, H. Fenwick, London, A. von Frisch, Wien, H. Kümmell, Hamburg, H. Young, Baltimore. Redigiert von Prof. Dr. A. Kollmann, in Leipzig, und Dr. S. Jacoby, in Berlin. II. Jahrgang, Bericht über das Jahr 1906. Berlin: S. Karger, 1907. P. 452.

Bäder-Almanach. Mitteilungen der Bäder, Luftkurorte und Heilanstalten in Deutschland, Oesterreich, der Schweiz und den angrenzenden Gebieten für Aerzte und Heilbedürftige. Jubiläums-Ausgabe, Zehnte Ausgabe, 1882-1907. Mit Karte der Bäder, Kurorte und Heilanstalten. Berlin: Rudolf Mosse, 1907. Pp. 534.

A Manual of Orthopaedic Surgery. By Augustus Thorndike, M. D., Assistant in Orthopaedics at the Harvard Medical School, Visiting Surgeon to the House of the Good Samaritan, etc. With 191 Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. P. 401.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending November 1, 1907:

Places.	Date.	Cases, Deaths.
California—Los Angeles	Oct. 13-19	2
California—San Francisco	Oct. 6-12	1
Colorado—Eldorado	Oct. 6-12	1
Florida—Chicago	Oct. 16-20	1
Illinois—Springfield	Oct. 18-21	1
Massachusetts—Salem	Oct. 17-19	2
Massachusetts—Sturtevant	Oct. 20-26	2
Missouri—St. Joseph	Oct. 13-19	2
New Jersey—Newark	Oct. 13-19	1
Ohio—Three counties	Sept. 1-30	11
Vermont—Stokholm	Sept. 1-30	1
Wisconsin—Appleton	Oct. 6-12	2
Wisconsin—Milwaukee	Oct. 15-21	3

Abroad—Continued.

Algeria—Algiers	Sept. 1-30	2
Austria—Bohemia	Sept. 22-28	1
Austria—Vienna	Sept. 22-28	12

special temporary duty, upon completion of which to rejoin his station at Baltimore, Md.

Appointments.

LINN BRADLEY, appointed pharmacist of the third class, October 21, 1907.

Board Convened.

A board of medical officers was convened to meet at the Bureau, Washington, D. C., Monday, November 4, 1907, at 10 o'clock, a. m., for the purpose of examining certain officers of the service to determine their fitness for promotion. Detail for the board: Assistant Surgeon General W. J. PETTUS, chairman; Assistant Surgeon General J. W. KEER; and Surgeon L. L. WILLIAMS, recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending November 2, 1907:

BROWN, O. G., First Lieutenant and Assistant Surgeon. Ordered to Jefferson Barracks, Mo., for temporary duty.

HALLOCK, H. M., Major and Surgeon. Ordered to report in person to Brigadier General John M. K. Davis, United States Army, president of the Army Retiring Board, at Washington Barracks, D. C., on November 12, 1907, for examination by the board.

HOWELL, PARK, Captain and Assistant Surgeon. Granted leave of absence for one month.

SCOTT, G. H., Captain and Assistant Surgeon. Granted leave of absence for one month and fifteen days, about November 20, 1907.

WHITMORE, E. R., Captain and Assistant Surgeon. Relieved from further treatment and observation at the Army General Hospital, Presidio of San Francisco, Cal., and ordered to the Philippine Islands for duty, on transport sailing from San Francisco, Cal., December 5, 1907. He will report to the commanding general, Department of California, for temporary duty, pending departure of the transport.

The following named first lieutenants have been advanced to the rank of captain, to date from October 27, 1907: Assistant Surgeons J. A. CLARK, J. M. COFFIN, J. D. FIFE, J. W. HANNER, J. R. HARRIS, L. M. HATHAWAY, E. D. KILBOURNE, L. T. LEWALD, S. J. MORRIS, ALEXANDER MURRAY, W. A. POWELL, G. H. SCOTT, and E. M. TALBOTT.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending November 2, 1907:

BOLAND, M., Assistant Surgeon. Detached from duty at the naval hospital, Norfolk, Va., and ordered to take a course of instruction at the Naval Medical School, Washington, D. C.

CAMPBELL, R. A., Acting Assistant Surgeon. Ordered to the *Franklin*.

COHN, I. F., Assistant Surgeon. Detached from the *Elcano* and ordered to the naval station, Olongapo, P. I.

GRAYSON, C. T., Passed Assistant Surgeon. Detached from the Navy Yard, Washington, D. C., and ordered to the naval dispensary, Washington, D. C.

LEDDETER, R. E., Passed Assistant Surgeon. Ordered to the Navy Yard, Norfolk, Va.

MAY, H. A., Passed Assistant Surgeon. Commissioned a passed assistant surgeon, from April 22, 1907.

MCDONNELL, W. N., Assistant Surgeon. Detached from the *Yankee*, on November 5th, and ordered to the naval hospital, New York, N. Y.

ORVIS, R. T., Surgeon. Detached from the *Chattanooga* and ordered home.

PORTER, F. E., Assistant Surgeon. Detached from the *Franklin* and ordered to the Navy Yard, Washington, D. C.

SHEPARD, G. W., Assistant Surgeon. Appointed an assistant surgeon, from October 25, 1907.

STUART, A., Passed Assistant Surgeon. Ordered to the *Yankee*.

THOMPSON, J. C., Surgeon. Detached from the Naval Station, New York, N. Y., and ordered to the *Chattanooga*.

Births, Marriages, and Deaths.

Born.

TALMEY.—In New York, on Tuesday, October 22nd, to Dr. Max Talmev and Mrs. Talmev, a daughter.

Married.

BRATTON—SANDERS.—In New York, on Wednesday, October 30th, Dr. Lawrence Bratton and Miss Clara C. Sanders.

EDMUNDS—CONCANON.—In Richmond, Virginia, on Sunday, October 20th, Dr. Thomas W. Edmunds and Miss Masie L. Concanon.

GWATHMEY—ELLIS.—In Lloyds, Virginia, on Wednesday, October 30th, Dr. William Gwathmey and Miss Estelle Garnett Ellis.

HEINER—KINKAID.—In Philadelphia, on Saturday, November 2nd, Dr. Robert G. Heiner and Miss Helen G. Kinkaid.

LAWRENCE—BLABER.—In New York, on Wednesday, October 30th, Dr. George J. Lawrence and Miss Olivia Blaber.

MARGULIES—REISS.—In Brooklyn, N. Y., on Wednesday, October 30th, Dr. Irving Margulies and Miss Clara Reiss.

MOORHEAD—HOWELL.—In New York, on Thursday, October 31st, Dr. John Joseph Moorhead and Miss Helen Armstrong Howell.

MORSE—CUNNINGHAM.—In Abbeville, South Carolina, on Thursday, October 3rd, Dr. Charles E. Morse, United States Army, and Miss Sarah White Cunningham.

NEVIN—BAILEY.—In New York, on Wednesday, October 30th, Dr. Joseph Armstrong Nevin and Miss Helen Mabel Bailey.

SCHOELKOPF—ABBOTT.—In Corning, N. Y., on Thursday, October 24th, Dr. Frederick Schoelkopf, Jr., and Miss Alice Abbott.

THOMAS—TODD.—In Atlanta, Georgia, on Wednesday, October 23rd, Mr. Earl D. Thomas, Jr., and Miss Louise Todd, daughter of Dr. J. Scott Todd.

WEBER—SAUNDERS.—In New Albany, Indiana, on Saturday, October 26th, Dr. Louis Weber and Miss Anna Saunders.

WYGANT—HEFFENGER.—In Portsmouth, New Hampshire, on Saturday, October 19th, Lieutenant Benyaud B. Wygant, United States Navy, and Miss Katharine Lane Heffenger, daughter of Dr. Arthur C. Heffenger.

Died.

ANGELL.—In Los Angeles, California, on Friday, October 25th, Dr. Harry S. Angell, aged seventy-four years.

BRADLEY.—In Newport, Rhode Island, on Wednesday, October 23rd, Dr. Frederick Bradley, aged fifty-eight years.

CLOSE.—In New York, on Tuesday, October 29th, Dr. Seth D. Close, aged fifty-six years.

CONWAY.—In Kobe, Japan, on Wednesday, October 23rd, Dr. John B. Conway, of Philadelphia.

GEBBIE.—In Lowville, N. Y., on Thursday, October 24th, Dr. Alexander R. Gebbie, aged seventy-four years.

HILAND.—In Bar Harbor, Maine, on Tuesday, October 29th, Dr. Thomas Hiland, Medical Inspector in the United States Navy, retired, aged sixty-seven years.

LAWLOR.—In San Francisco, California, on Monday, October 21st, Dr. William Martin Lawlor, aged sixty-two years.

LOGAN.—In Rileville, Virginia, on Thursday, October 24th, Dr. H. M. Logan, aged forty-nine years.

MOHR.—In Philadelphia, on Thursday, October 31st, Dr. Charles Mohr, aged sixty-three years.

MOSS.—In Philadelphia, on Wednesday, October 30th, Dr. William Moss, aged seventy-four years.

NARDYZ.—In Scranton, Pennsylvania, on Tuesday, October 29th, Dr. Mark L. Nardyz, aged seventy years.

PALMER.—In Farmington, Maine, on Thursday, October 24th, Dr. H. B. Palmer, aged forty years.

PALMER.—In Philadelphia, on Wednesday, October 30th, Dr. William Palmer, aged fifty-five years.

SCHOOLFIELD.—In Bellevue, Ohio, on Wednesday, October 23rd, Dr. Douglas Schoolfield, aged fifty-five years.

TUTTLE.—In Clinton, Michigan, on Wednesday, October 23rd, Dr. J. L. Tuttle, Sr., aged sixty-five years.

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Original Communications.

RELIEF OF NUTRITIONAL DISORDERS BY DEVELOPING THE ABDOMINAL SUPPORTS.*

By J. MADISON TAYLOR, A. B., M. D.,
Philadelphia.

The most important single factor in overcoming many baffling disorders of metabolism is, in my opinion, to secure development in the supporting structures of the abdomen. Many forms of gastrointestinal disease, especially putrefactions, gouty phenomena, over and under nutrition, are caused in part, if not wholly, by displacements of the abdominal organs. Defective elaboration is not seldom due to errors in hydraulics as much as to other causes. These factors must at least always be reckoned with, to whatsoever else the origin is assigned.

The ebb and flow of fluids in the continuity of the tubular viscera, as well as in their structure, is regulated by the vasomotor mechanisms. Agencies which influence these should include drugs, diet, hygiene, etc., but must not fail to include those mechanical ones capable of exerting powerful auxiliary aids.

The object of this paper is to establish the efficacy of improving power and mobility in the supporting structures of the abdomen; hence enhancing their capacity to exert needed pressures on, and supporting reactions, in the viscera. This action is duplex, upon (1) the calibre of the organs directly, and (2) upon the regulative action of the bloodvessels. Thus are ultimate effects best attained. This mechanical factor is not adequately appreciated.

It is known that the internal organs demand suitable pressure regulation, but counter pressure is equally needed but not recognized. This fact is well known to surgeons. Physicians too often fail to utilize, in solving problems of internal medicine, principles which obtain in surgery. The torso is anatomically deficient in symmetrical support. Hence the contained organs are often subjected to over much or too little artificial pressure. The sedentary person is liable to become weak, whether the belly walls are over heavy or not. This is emphasized when, through acute illness or protracted disorders, either the governing forces of the nervous system become depleted, or that condition we call tissue tone is impaired, or both occur.

Oftentimes, before we can restore the balance of power by enhancing the circulatory mechanisms, through drugs or general hygienic measures, other

help is needed. This is readily supplied by artificial supports to the belly walls; in women by corsets, girdles, belts, or specially devised apparatus. In men the corset is impracticable. To both sexes the use of such artificial aids affords a reliable means of enhancing vigor in normal abdominal hydraulics.

I have called attention to this subject, and others have shown evidence to prove that by suitable devices much good can be accomplished.¹

However much of good these devices afford, they merely simulate, are only a meagre part of, the utility of securing radical improvements in the vigor, mobility and elasticity of the structures themselves. To achieve the most economic ultimate results it is necessary to compel the use of exercises of the degenerated muscles about the waist. Our difficulties here are often great, because few are willing to make the moderate exertion necessary. Active cooperation is required, but the end is well worth the trouble.

It has been my privilege to be entrusted with the care of certain persons who had submitted to excellent medical measures, in full accord with advanced teachings. Yet, they were unable to secure relief, much less cure. Recognizing the thoroughness of the agencies already employed, it became necessary for me to furnish resources in advance of those hitherto used, or to likewise fail. That I did not altogether fail was due to the fact that these persons sincerely desired to be restored to vigor and usefulness and were willing to cooperate both honestly and laboriously.

It is true that few are possessed of enough energy, faithfulness, and persistence to win out. Failures are chiefly among the majority who are inherently lazy.

The chief problem, when confronted with evidences of the more protracted disorders of nutrition, such as obesity, irregular gout, rheumatoid states, glycosuria, many slowly established derangements of the digestive tract, of the liver, kidneys, even of the heart and blood vessels, is how to restore the circulation, vasotonus, in the tissues of the abdominal organs. Until this is done the incubus remains; when accomplished, diverse obstinate derangements thereupon subside, and recovery ensues in proportion to the integrity of the tissues involved. Note the marked improvement which follows many analogous surgical procedures when these are demanded.

In many instances the supporting structures had never yet acquired adequate development; in others the original tone had become lost.

When the belly organs thus concerned in the

* Read at the meeting of the American Therapeutic Society at Washington, May 4, 1906.

¹ See *Medical and Surgical Appliances for the Abdomen*, New York, 1906, pp. 11-12, 116-117.

vegetative and reproductive functions, fail of their full duties the whole creature suffers. By far the largest part of the work of the general practitioner, and of many specialists, is directed to the repair of damage in those organs lying within the thorax, the abdomen and the pelvis. In pursuing the customary methods of relief it is essential also to restore the tone of the supporting structures, always defective in varying degrees. In the process of restoration, involving activation of long disused structures, existing lymph stasis, water logging is relieved. To keep these restored (after suitable education) continued use and exercise, will prevent recurrence of stasis.

We cannot expect organs to do their full duty unless they are maintained in their normal relationships. By this means the ebb and flow of blood and lymph is encouraged, innervation, motor activities, peristalsis, osmosis, diapedesis, etc., are amplified. The normal rhythm of many organs is through a large cycle. Frequently they move through definite excursions irregularly; notably so of the lungs, stomach, intestines, and, to a less degree, the large hollow viscera, the bladder, the uterus, etc.

Compression applied to the lungs, or heart, or the great vascular trunks, is always resented. If continued, a tolerance may be established, but at the expense, inevitably, first of function and later of structure. Not only so, but the contrary is exhibited when, by relief of these contractures by increased mobility, the normal ebb and flow being amplified, the whole nutritive cycle is restored, unless essential tissues have suffered degeneration.

To achieve elasticity in the ligaments of the thorax, often at fault, and in those of the spinal column is, to my mind, exceedingly important, as well also of the softer structures, muscles, bloodvessels, etc. This elasticity exerts a practical influence upon the vasomotor reflex.

The subject of the visceral postures has been actively presented of late years, thanks especially to Glénard's teachings. Many ailments are explained by appreciating those degenerations in tissue tone. They are caused more by developmental faults than by traumata, to which they are commonly ascribed. I have made my convictions plain elsewhere.² We do not need to seek the aid of the surgeon, except in rare instances, because, to stitch wandering, prolapsed, or dilated organs to relaxed belly walls, or, worse, to each other, is merely an uneconomic, unworkmanlike, ineffectual makeshift. The true remedy is to restore the integrity of all tissues involved, so that they shall be repaired *ab initio*. We should begin by (1), reawakening the vasomotor, the visceromotor integrity, reflexly through the paravertebral tissues innervated by the posterior primary divisions of the cord; next (2), by stretching the contracted structures, and, lastly (3), by motor education. When this is effected all the structures involved will contribute mutually to support.

Function is dependent for free economic performance upon suitable opportunities for accurate morphological adjustments, thereby encouraging normality of action and reaction.

The hollow viscera act through rhythmic peristalsis. In some this is rapid and regular, as of the

heart, in others it is occasional, as of the stomach and intestines, the bladder, the uterus, yet all exhibit the phenomenon. Motion constitutes a large and most important part of their duties. Unless they be able to exercise unhindered this motor function, chemical and vital acts cannot proceed satisfactorily.

The essential prerequisite to the maintenance of these active interrelationships is that the hollow viscera shall be permitted to exercise normality of excursions and unimpaired hydraulic opportunities for the connecting tubes.

Diseases of metabolism lie at the foundation and complicate a large part of human ailments at all periods of life. They arise, for the most part, in derangements of the digestive organs, especially when long continued, exerting a chronic alterative effect upon those centres in the cord in which the cell bodies lie, from which the organ or part is innervated through its vasomotor supply. When the impairment of the nutritive balance in these segmental centres is once established it tends to persist as a continued detriment to organic action, even when the originally causative factors arising in the viscera are removed. To be sure, the balance of function may, no doubt, become gradually adjusted, but freedom from visceral irritation cannot be assumed, hence other sources of reflex irritation occur, and there is established a central defect which demands correction. Our object, then, should be to estimate in all instances the recognizable sources of interference with visceral integrity and remove them permanently. The customary procedure is to assess the character and degree of organic disorder and correct these by drugs, diet, and rest.

We can do much by enforcing care in mastication, in selection of foods, general exercise, judicious medication, etc.; but when all this is done, and well done, there yet remain certain important considerations whereby we are well able not only to correct the immediate discomforts, but to proceed to achieve a relative perfection of metabolism.

The first and chief of these is to apply a clear appreciation of the potentialities of the great regulative mechanisms, the ductless glands, as so admirably elucidated by Sajous.

Until we recognize as forceful in all efforts at functional restoration the problem of tissue respiration, the basis of which is the balance of adrenal action upon the blood plasma, we cannot be sure of a complete conception, or intelligently apply medications. The factors in this essential measure are many, and it is the purpose of this paper to point out two especially:

First, the regulation of vasotonus, which can be accomplished most fundamentally and symmetrically by that auxiliary, yet radical measure so often emphasized by me, viz., the manipulative treatment of the paravertebral tissues, inducing vasoconstriction or dilation in the peripheral tissues, as demanded; and thereby compensatorily exciting an afflux or reflux of blood in the governing vertebral segments; and:

Second, by educating the voluntary muscles concerned in supporting and maintaining in their natural and necessary positions, the large, hollow viscera, on which attention will be focussed at this time.

As illustration of the importance of this normal-

² *Recurrent Treatment of the Visceral Postures*, New York Medical Journal, November 1, 1906.

ity-in visceral relationships can be cited the increasing interest displayed in visceroptosis.

It will be admitted that attention directed to the correction of these misplacements of the hollow viscera is abundantly justified. A vast array of disorders, many of which pass on to serious disease, directly forceful in impairing human activities and inviting disaster by assaulting the resisting powers of the organism, are initiated by the enteroptosis. I called attention elsewhere (*op. cit.*) to the fundamental fact, too often lost sight of, that these visceroptosis are in the main, if not wholly, due to early developmental faults. They should be recognized in their earliest incipience and corrected in the most radical fashion. Unless this is done a long array of damagements will inevitably result, in time becoming irremediable.

Obviously, to accomplish this problem is to make sure that the chief source of peril is removed, which is relaxation of the normal supports. What are these supports? First, that great muscle, the diaphragm, to which most of the inner supports are attached, and subject to perpetual, often severe, traction. Food is so diluted with varying amounts of water that a heavy weight is frequently thrown upon the diaphragm. It is important that the elimination of this fluid content should be expedited. This last factor is both direct and indirect, viz., that which is in the bowel, the viscera, the elaborating glands, also in the complex network of tubes, the lymph channels, etc.

Much of the support to the hollow viscera is afforded by tubes connecting them with the *prima via* and the bloodvessels. These can only perform their duties with ease and completeness, provided they are not called upon to exert a degree of support beyond their power, nor such as shall interfere with their highest activity. If they are submitted to such a degree of traction as shall interfere with their calibre it is plain that normal interchanges cannot take place. Again, unless those normal interrelationships alluded to as essential shall be maintained, there may arise torsions seriously interfering with function. Excessive attrition of the hollow viscera one upon another, or with the walls, induces reflex irritation of the nerves and their ganglia.

The peritonæum, in a sense a supporting structure, is admittedly a most important factor and itself subject to accidental disturbances, inflammatory and other, fibrous bands often forming unrecognized, inducing serious alterations in adjustment.

In no field of clinical endeavor has the groping about to find the essential thing in therapeutics been more evident than in efforts to cure visceroptosis. My attention was drawn to this subject from the first awakenings, and I passed through mental processes similar, doubtless, to others. The literature reveals a curious array of rational conjectures dealing, for the most part, with recommendations which, if capable of complete realization, would at best lead only to imperfect results. My attention was stimulated by the problem ever before me in a member of my own family. Also in my practice consisting largely of neuroathletes, a great number of visceroptosis are constantly under observation.

The brilliant promises of surgery, so simple, so prompt, so free from personal responsibility, encour-

ing in the main to a mere submission for a short period of time to operative measures, are far more attractive to the consciousness of the ordinary individual. The results are occasionally satisfactory; though compared to the measures I advocate, not nearly so thorough or permanent. When we turn to the measures ordinarily used by clinicians, the best constitute a dreary round of inefficient, irrational agencies. Among the most absurd of these is to cultivate omental fat. We might as well use a jelly fish for a pillow.

I will illustrate what seems to me an ideal line of procedure:

Let us aim to secure a slim, handsome waist. This is perfectly possible at all ages and under most conditions. An analysis of the facts derived from anatomy and physiology will make it plain that only those persons are in a condition to maintain full visceral, and hence general, health, who are equipped with a normal, symmetrical waist, in proportion to individual make up.

Let me enumerate the factors which combine to furnish the desired contour. A well proportioned torso involves a fairly straight backbone, exhibiting only the normal curves; free as possible from those exaggerations which are induced by bad habits or weakness, or both combined. The pelvis, designed to contain and protect the lower hollow viscera, should be carried practically on a level. This permits greater freedom of action of the thighs, encourages a better poise of the body; all which makes for functional competence. Observe especially the rôle of the thorax in this problem of maintaining poise. The key to a natural posture may be said to reside in a correct attitude of the thorax. Briefly, the whole body will assume natural attitudes in almost any position, standing or sitting, provided the ribs are maintained in their normal erectness, that is, at the top of their upward excursions. Then also a most important factor in normal abdominal support follows, viz., the lower ribs remain well above the pelvis. A slouching position, inducing a relaxation of the erector spine and other muscles, invites a sagging down of the viscera, which thus not only rest upon the pelvis unduly, but the impending weight of the upper structures bears hurtfully upon those within the pelvis and encourages disuse of the lower supports. This pressure long continued makes for a variety of derangements, among which are congestions, passive hyperemias, etc., etc. As illustration, note the fact that even rebellious constipation is often cured by remedying this one defect alone. Again, it has been well established, and Harlow Brooks, Joseph Collins, and others have repeatedly called attention to the fact that, in by far the largest proportion of cases showing arteriosclerosis, degenerative states of the bloodvessels are found in the viscera.

Henry Hulst, of Grand Rapids, has demonstrated conclusively from his x ray studies of the abdominal viscera, and tells me in a personal communication, that both normal and relaxed viscera are readily lifted from three to four or even six inches upward by a forceful maintenance of the erect posture. Even moderate education in acquiring right posture goes far toward curing a large variety of disorders, among which are conspicuous effects of enteroptosis, derangements of function, disor-

and genitourinary. I am confident we can thus ameliorate, prevent and possibly cure many forms of visceral arteriosclerosis.

In a future communication I hope to give a series of practical recommendations as to how these desiderata can be achieved.

1504 PINE STREET.

MODERN METHODS IN THE MEDICAL TREATMENT OF GASTRIC DISEASES.*

By A. ROSE, M. D.,
New York.

A rational therapy in the treatment of affections of the stomach presupposes an exact diagnosis. In order to arrive at an exact diagnosis in gastric as well as other diseases it is necessary to take the general conditions into consideration, notably of the circulatory and respiratory apparatus and the nervous system. There is, of course, nothing new in this; what is new, however, is the fact that increased importance is being attached to the influence of the nervous system upon digestion, since Pawlow's experiments became known, and, furthermore, that certain mechanical changes, namely, atonia gastrica, form an important factor in the nosological secretions of the stomach.

Physical and dietetic methods of treatment have more and more asserted themselves in modern times, not only in therapeutic measures generally, but also in the treatment of gastric and intestinal disorders in particular. In Germany a society of physicians has been formed to further the interests of physico-dietetic therapy, the society having published an organ of its own for the past nine years. The bitterest enemies of this society—and each step in the direction of scientific progress has to combat misocainia—must needs admit that the therapeutic successes of the new physico-dietetic methods have been brilliant. Now a new society, composed of most distinguished men of science to promote physical medicine, has been formed in Germany, and publishes also an organ of its own. During the days from October 13th to October 16th a congress for physical therapy has met in Rome.

Physiologicochemical exploration of the stomach and examination of its contents is certainly indispensable in many cases, but the opinion entertained for some length of time that neither a correct diagnosis nor a rational therapy was possible without an examination of the contents of the stomach, has proved an unfounded exaggeration, and the same holds good in regard to irrigations of the stomach. It is not so very long ago that in almost every conceivable case of gastric disorder the stomach was irrigated and that this perpetual lavage meant some physicians' daily bread. Here and there patients are still met with who boast of having acquired the knowledge and ability of daily washing out their own stomachs. The conditions have now been exactly defined where irrigation of the stomach is indicated, where it is superfluous, and where it is harmful.

As is the case in all nosological conditions, the examination commences with the anamnesis. This

is followed by the local history, for the establishment of which routine methods are described in every textbook.

The anamnesis is followed by the examination proper of the stomach, commencing with its inspection, which has been raised to a high degree of perfection by Knapp. After this follows palpation to establish sensitiveness to pain by pressure. The final act in palpation consists in finding out the presence and nature of splashing sounds and the importance they may bring to bear upon the case under examination. Percussion of the stomach serves to recognize its extension and the lower border of this organ. Finally, percussion may be followed by auscultation for the purpose of determining the noises discovered and described by Meltzer.

The physical examination is followed by chemical exploration of the gastric contents.

In the treatment of the affections of the digestive tract, diet of course, plays the most important part. In the two affections of hyperchlorhydria and achylia gastrica dietetic measures form in most cases the exclusive treatment, as has been masterfully exemplified by Illoway for the former and by Einhorn for the latter disorder. Illoway's essay on hyperchlorhydria and its exclusively dietetic treatment belong to the classical contributions to modern medical literature. Einhorn's merits concerning the exact knowledge of achylia gastrica and its rational exclusively dietetic treatment are known to every physician.

The axiom has now gained ground that the replacement of deficient gastric juice by the artificial article cannot constitute the scientific remedy. Physico-dietetic treatment, adapting the diet to the fact of absent and irreplaceable gastric juice in achylia gastrica; physico-dietetic treatment and above all the consideration of the causative factor supplied by nervous disturbances in hyperchlorhydria; these are the measures that constitute the most material advance in the domain of gastrotherapy.

The fact that hyperchlorhydria depends on anomalous nervous conditions has been established by the experiments of Pawlow. The whole physiology of digestion is at present controlled by the results of these experiments. New is, also, the knowledge of the relation of mechanical conditions—relaxation of the abdominal muscles; atonia gastrica—to gastric secretion.

In the textbooks on anatomy we read that the action of the abdominal muscles consists in compressing the abdominal viscera, that they constrict the cavity of the abdomen, and that by this means the fetus is expelled from the uterus, the feces from the rectum, the urine from the bladder, the ingesta from the stomach in vomiting. These, however, are only occasional actions of the muscles; they have most important tasks to perform, of which nothing is said in the textbooks. First of all they have to preserve the physiological position of the abdominal viscera. When these muscles become atonic—that means relaxed—ptosis of the viscera will occur. They also exert a significant influence on abdominal innervation, and control the distribution of the fluids in the abdomen, both in abdominal viscera and abdominal tissues.

The relaxation of the abdominal muscles may be the cause of many nervous disorders which again

* Read before the Medical Association of the Greater City of New York at its meeting, October 24, 1907.

produce gastric symptoms, among others anomalies of gastric secretion, and if we do not consider this mechanical cause of the gastric affections and remove this cause first of all, our purely medicamentous treatment will be unscientific.

My friend, Dr. Kemp, in his clinic at the Manhattan State Hospital, has made exact observations how

is possible without a proper understanding of what atony really means.

Atony and dilatation are identical, a relaxed muscle fibre being at the same time elongated. This fact was disputed some time ago by a well known physiologist when I submitted the same to a medical society, he probably identifying in his thoughts motor insufficiency with atony, an error committed by many others. Modern therapy of the stomach is in a large measure unscientific, because the facts in reference to the relation of mechanical conditions, of atonia gastrica, to disturbances of gastric secretion, are set at naught.

Matters have a more favorable aspect in reference to the relation of nervous disorders to anomalies of gastric secretion.

Pawlow has a factory in his laboratory for the supply of real gastric juice taken from dogs. In a row on a long table there are six large dogs imprisoned in crates. Each dog has a stomach fistula, and the œsophagus is cut in two about the middle of the neck. The dogs swallow with avidity pieces

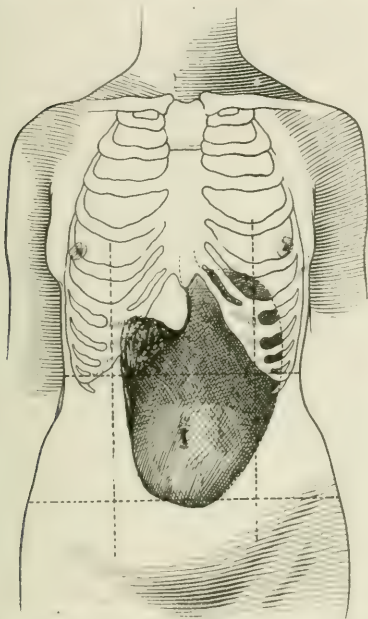


FIG. 1.—Case I. Dilatation of the stomach. Transillumination with fluorescein before application of Rose's belt.

the support of relaxed abdominal muscles improves the position of the sunken down stomach and how this support affects gastric secretion. I have asked him to present some pictures taken as the stomach presented itself through his circumscribing gastrodiaaphane before and after the application of the abdominal plaster belt.

The distinguished Berlin leaders among the specialists in gastrology, such as Ewald and Boas, have endeavored to explain the meaning of the word atony, and many others have tried to explain the nature of atony according to their own individual views; all have succeeded in circumphrasing the word in the most comical manner, not one having contented himself with its simple translation. Surely, atony means nothing but relaxation pure and simple. If we take the trouble of looking over medical textbooks and recent contributions to medical journals, we find that much scientific nonsense—as Kant would have expressed himself—has been written concerning atony. Whosoever inclines to the opinion that this statement smacks of exaggeration may test the question for himself by simply replacing the word atony by relaxation wherever the subject deals with gastric or intestinal atony. It is proper to chronicle at this juncture the fact of its being so, for no rational therapy of gastric disorders

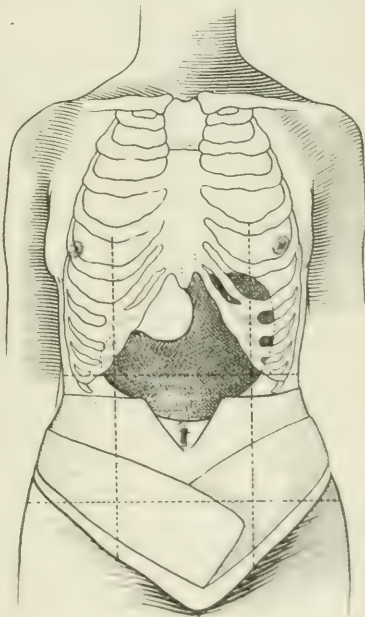


FIG. 2.—Dilatation of the stomach. Same patient (Case I.), transillumination with fluorescein after application of Rose's belt. By accurate measurement the stomach lies lower and smaller, and the lower border is four inches higher than it was before the belt was applied. The lower border now lies above the umbilicus.

of meat placed before them in basins, but the œsophagus being cut, the meat falls back into the basin, to be swallowed over and over again. Simultaneously the fistula in the stomach yields abundant quantities of an acid, limpid, gastric juice, of which these factory dogs produce almost a litre in the course of one forenoon.

When the mucous membrane of the stomach is irritated by the mechanical touch of a glass rod or a goose-quill, or the men finger, the resulting secrete

tion is merely a slightly alkaline mucus, may the stomach be maltreated ever so long. *Mechanical irritation of the stomach does not produce gastric juice.* But when the animal is fed, the morsels, of course, falling out again through the severed œsophagus, never reaching the stomach, there will be after a lapse of five or six minutes a proper secretion of a limpid gastric juice, containing 0.5 to 0.6 per cent. of hydrochloric acid. But it is not even necessary to let the dog chew the meat; the fact of his merely seeing the meat itself or the cutting of it on a side table is sufficient to incite the production of juice after the same lapse of time. "Psychic gastric juice," or "appetite juice," is the name by which Pawlow designates the product gained under these circumstances.

The experiment shows the nervous connection between the higher mental organs and the stomach. The centrifugal course of conduction of this system is formed by the vagus, after the severance of which the psychical secretion of juice is inhibited.

An exceedingly sorry spectacle is presented by dogs which have both nervi vagi cut and are therefore entirely minus psychical gastric juice. They perish soon, the food rotting in their stomach; naturally enough, for here we have achylia and stagnation in consequence of the cutting of the vagi.

Modern gastrotherapy is to be based, as far as anomalies of gastric secretions are concerned, on the consideration of nervous and mechanical conditions.

This, of course, does not exhaust all I would say on modern gastrotherapy, but it appears to me that it represents the most characteristic points of the progress made during this century.

126 EAST THIRTY-FOURTH STREET.

PROSTATIC HYPERTROPHY AND ITS TREATMENT.*

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Complete extirpation of the enlarged prostate is the procedure recognized as the necessary operation for the relief of the progressive and distressing symptoms of this disease.

The prostate gland is approached in two ways, suprapubically and through the perinæum.

It is the aim of the writer to advance the plea that the route of operation should invariably and always be one of choice, such choice being influenced mainly by the condition of the patient, the site of the tumor, the capacity of the bladder, and the safety of the procedure.

A consideration of the anatomy and pathology of the region will be briefly alluded to in a manner such as would have a bearing on the methods to be adopted in the proposed operative treatment. A brief history of the early work will be sketched, and the technique of the present operations described in detail.

The prostate gland is developed from outgrowths of the epithelium lining the urogenital sinus. In the development of the gland, fusion of the two lobes takes place behind the urethra up to the level of the common ejaculatory ducts. The growth ex-

tends laterally and forward around the sides of the urethra, meeting in the middle line in front, to form the so called median lobe. The frequency of the apparent absence of the third lobe has led several anatomists to dispute its existence.

However, Griffiths (1) has shown from extensive investigations, that in many instances the median lobe exists during early adult life, is well defined, having ducts of its own, opening into the posterior wall of the urethra. The stroma of the prostate consists of muscular fibre cells, arranged concentrically around the alveoli, and of a framework of muscular and fibrous tissue. "The capsule of the prostate is a firm envelope, which is everywhere intimately connected to the stroma of the organ on its inner surface, and it is also connected, though not so intimately, on its outer surface with the fascial sheath of the prostate." (W. G. Richardson).

Prostatic hypertrophy may involve all the gland or any part; the growth may be benign or malignant. The vast majority of diseased prostates removed at operation are shown to be adenomatous.

"Cuthbert Wallace (2) states that the so called total prostatectomy is performed by finding a plane of cleavage between the layers of the fibromuscular sheath. He says that there is always left behind a definite laminated envelope derived from the outer expanded portion of the organ, and that the amount of this tissue removed with the tumor depends on the depth at which the enucleating finger cleaves the envelope. And, further, that although it is possible to remove an adenomatous mass from the lateral part of the prostate without extensively injuring the urethra, yet this canal is removed in toto when the adenomatous growths are extirpated in their envelope, and the lateral walls come away adhering to the adenomata when these are of considerable size." (Bingham 3.)

The foundation for modern operative interference with the prostate was laid by McGill, of Leeds, in 1886, who suprapubically removed portions of the gland in fragments. Belfield, of Chicago, modified this operation by performing an additional perineal urethrotomy, to aid in the drainage. Shortly after this Nicoll, of Glasgow, began to perform the operation by the perineal method. He opened the bladder suprapubically, however, in order to press the prostate towards the perineal wound, and then cut through the presenting external capsule of the gland, and enucleated it from between the urethra and the external capsule. This was accomplished without opening either the urethra or bladder from below.

Wishard, of Indianapolis, and Goodfellow, of San Francisco, were the first to remove the gland through the prostatic urethra. This method was the accepted technique for some time until it was gradually modified by Syms, Guiters, Young, Ferguson, Murphy, and others in the use of bladder depressors. The depressors of Syms and Young are of especial value in rendering the prostate accessible, thereby markedly shortening the perineal operation, and adding to its safety. This operation also permits in selected cases, of the removal of the hypertrophy without serious damage to the urthra or to the ejaculatory ducts.

The suprapubic operation of McGill was also from time to time modified by Fuller, Freyer, and others,

*This address was delivered at the annual meeting of the Massachusetts Medical Association, October 11, 1907.

the chief points of modification being pressure from the fist on the perineum to elevate the prostate towards the enucleating finger above, as practised by Fuller; and, pressure and elevation of the gland from one or two fingers inserted into the rectum, as recommended by Freyer.

These two routes, then, the perineal and the suprapubic, are the two avenues of approach for the removal of the prostate. Before considering the relative value of these two methods, it will be well to discuss the treatment of that class of cases that will permit of temporizing procedures only. I refer to very old men, men with advanced arteriosclerosis, and those suffering from cardiac, renal, or pulmonary disease. For such cases, treatment by the methods of Bottini and Chetwood are advisable and will bring relief in some instances for a long period of time.

Bottini's method is multiple galvanocautery incisions into the prostate by means of a long urethral galvanocautery incisor. The patient is anesthetized with chloroform, or if advisable, owing to extreme poor condition, the urethra throughout is simply cocaineized, and scopolamine gr. 1/100 and morphine gr. 1/3 is given hypodermically. The instrument is introduced tightly closed into the urethra, and passed carefully over the obstruction into the bladder, the beak of the instrument is then turned downward and hooked against the prostate by making traction on the handle. The first finger of the left hand inserted into the rectum should verify the position of the point, the electric circuit should then be established and the blade extruded from one to one and a half inches, when it should be returned to its socket and the current closed. This requires from one to two minutes. Other incisions are now made in a similar manner as needed. A catheter is tied in the bladder for a few days, and the parts are submitted to general and local medication, with frequent irrigations of boric acid solution.

Chetwood's procedure is to first do a perineal cystotomy, and then through this opening to divide the obstruction with his galvanoprosthetic incisor. The bladder is then kept clean by boric acid injections through a perineal tube which is kept in place four or five days. Chetwood (4) has lately recommended his method as a preliminary operation to precede a complete perineal prostatectomy in advanced and doubtful cases. He first, through a perineal wound, explores the prostate and enlarges the orifice with a median galvanocautery incision, and inserts a drainage tube. When the patient's general condition is improved and the character of the urine is better, then the radical operation may be done through the same wound.

In regard to the choice of operations one should first consider their comparative safety. It is generally admitted that the mortality of the suprapubic operation is higher than that of the perineal operation.

The following statistics as compiled by Cunningham (5) and others are illustrative:

	Cases.	Mortality.	
			Per cent.
Young	150	150	4.6
Ferguson	103	103	3.6
Alberrans	73	73	4.0
Hartmann	56	56	9.0
Panchev	53	53	7.0
Leguen	45	45	8.8
Morphy	51	51	8.9
Rabin	32	32	6.2
Total perineal prostatectomy	563	563	6.2
Total number of cases	563	563	
Average mortality			5.5

Watson's (6) series of cases published in June, 1904, shows a mortality of 11.3 per cent. for the suprapubic method, and 6.2 per cent. for the perineal route.

Hugh H. Young (7) reports fifty cases of perineal prostatectomy without any deaths.

Freyer (8) reported in 1905 195 cases of suprapubic prostatectomy; the mortality of the first 110 cases was 10 per cent; in the second eighty-five cases the mortality was 5.8 per cent. Freyer has since reported many cases with a lessened mortality.

Whiteside (9), after a critical study of 238 cases, states that perineal prostatectomy is considered by the majority of surgeons as the best operation in most cases.

M. Tuffer (10) asserts that the suprapubic operation is easier and quicker to perform than the perineal. He states, however, that the mortality is lower by the perineal operation.

Dr. Tenney and Dr. Chase (11) recently tabulated 2,342 patients operated upon through the perineum with an average mortality of 7.9, and 667 cases operated upon suprapubically with an average mortality of 13.2.

Taking into consideration the results as shown by these most carefully compiled statistics, one must accept the apparent fact that of the two operations the perineal route is the safest. In looking over the literature on the subject one cannot help but feel that there is a great tendency among surgeons to do one of the operations to the exclusion of the other. This is due, probably, to the fact that they have helped to perfect the method they have chosen, and by constant practice of one mode of operating, and having obtained excellent results thereby, have gradually formed the idea that their particular procedure is the proper one in nearly all cases, and the only one to adopt.

For example, Young (12), Syms (13), and Ferguson (14) strongly recommend their modifications of the perineal operation, and on the other hand the suprapubic route is as strongly endorsed by Freyer (15), Deaver (16), and Guiteras (17).

In a study of the details of both operations, and taking into consideration the tissues involved in the dissection, and the immediate and ultimate results to be obtained, one at once concludes that there are many points of advantage as well as many disadvantages in either procedure.

It would seem to me that one should deliberately weigh the good and the bad, and keep in mind the element of safety, choose the operation that will promise the most favorable result in the individual case.

Again, a prospective prostatectomy should present itself to the surgeon as does a prospective hysterectomy. In some instances it is wise to perform an abdominal hysterectomy, at other times one may do a vaginal hysterectomy, and meet all requirements.

	Cases	Mortality.	
			Per cent.
Suprapubic prostatectomy...	244	244	12.0
	264	264	11.4
	164	164	18.0
	396	396	9.8
	205	205	7.3
Total number of cases	1,273	1,273	
Average mortality			12.8

with a higher degree of safety. Reasoning in this way one could say that therefore the operator should be as familiar with both the infrapubic and suprapubic methods of prostatectomy as with any other two methods of operating for one condition, and make his selection of route accordingly. That means, he should make the case fit the operation, rather than to make the operation fit the case.

The advantages and disadvantages of the two operations might be summed up as follows:

Advantages of Perineal Prostatectomy.—Low mortality; better drainage; shorter convalescence; ease of removing small hard prostates and of tumors that grow downwards; safer method in fat patients; comparative freedom from infection of surrounding tissues; hæmorrhage easily controlled; less danger of removing prostatic urethra.

Disadvantages of Perineal Prostatectomy.—Danger of injuring urethral tissue; resulting obstruction of bladder from stricture; danger of destroying ejaculatory ducts; difficulty of operating through small incision; danger of injuring neck of bladder and resulting incontinence; danger of injury to the rectum; possible perineal fistula.

Advantages of Suprapubic Prostatectomy.—Large incision; aid of inspection and absolute exploration of bladder; ease of removing large high growths; complications such as calculi may be easily dealt with.

Disadvantages of Suprapubic Prostatectomy.—Higher mortality; longer convalescence; difficult drainage; danger of infection space of Retzius; hæmorrhage not easily controlled; danger of removing prostatic urethra and resulting stricture.

When to Operate and the Conditions Requiring a Prostatectomy.—Cathelin (18) says that prostatectomy is indicated in recurring acute retention, but not in the first attack of retention. It is also advisable in cases of chronic retention, and it becomes absolutely necessary when there are also stones in the bladder.

W. J. Mayo (19) states that we should operate as soon as recurring retention or beginning infection shows that the period of toleration is past, and not to wait for those threatening symptoms which add so greatly to the mortality. Dr. Mayo also adds that "in malignant tumors of the prostate if removed early some cures are to be expected. The late operations for malignancy are not worth the patient's while."

The course of the disease of a patient suffering from prostatism may be pictured as follows: A man fifty to seventy years of age commences with frequency of urination, the act gradually becoming more difficult and prolonged. The stream starts slowly and sometimes dribbles. This condition is followed by a sense of fulness and distress. These symptoms gradually become more and more pronounced, and partial or absolute retention may or may not intervene. Also there may or may not develop residual urine with or without incontinence.

If the catheter has been resorted to for the relief of these complaints cystitis is almost sure to develop regardless of all precautions. This in turn leads up to chronic changes in the bladder, ureters, and kidneys. The habitual use of the catheter should be denounced no matter who is the user.

It stands to reason that one should not defer the

operation until secondary changes have taken place, for a prostatectomy performed before sepsis is present is of slight gravity as compared with one performed in an emergency or as a last resort.

However, in some of the most complicated cases, where atony or contraction of the bladder is more or less extreme and where there is marked secondary involvement, a successful prostatectomy will bring relief, the kidneys will be benefitted and the bladder will nearly always regain its function.

Anteoperative Treatment.—The preliminary treatment is of most importance. It should begin as soon as a careful examination has been made. The skin, kidneys, and bowels must be attended to. If possible the bladder should be cystoscoped. Change in the urine should be combatted vigorously, and quinine and hexamethylenamine given as routine treatment. Other measures, such as frequent antiseptic irrigations, should be resorted to if necessary. In the more severe septic cases a perineal urethrotomy should be done and drainage established as a preliminary measure in the treatment. That is, the prostatectomy is divided into two stages, one of drainage and preparation, and one of enucleation.

Technique of the Perineal Operation.—The method of Young (7) has been my operation of choice for some little time for the infrapubic route.

The patient is placed in the exaggerated lithotomy position, and a wide curved or an inverted V incision is made and carried down to the prostatic capsule. The membranous urethra is incised longitudinally and through this opening Young's tractor is introduced and passed into the bladder. The blades of the instrument are then opened and gradual traction made upon the gland. The prostate is further exposed by blunt dissection, and lateral incisions are made through the capsule at either side of the median line outside the ejaculatory ducts. The tumor is freed from its bed by dissection with the finger or blunt instrument, the gland being held and guided by the metal tractor. The complete dissection and enucleation of the lobes is further aided by Young's forceps, which very materially aid delivery. If the prostate is found surrounded by a well defined capsule, there being little periprostatis then the extirpation is accomplished with little damage to surrounding tissues, the ejaculatory ducts wholly escaping injury. This leaves the patient competent, a most important consideration.

When the tumor has been removed the wound should be irrigated with normal salt solution, a large drainage tube introduced into and retained in the bladder, and the wound partially sutured and packed with gauze. The tube is removed in from three to five days, and the patient is allowed to sit up as soon as possible. The bladder function is restored early, and the wound is usually completely healed in from three to five weeks.

Technique of the Suprapubic Operation.—The modifications of this operation by Guiteras (17) is probably the most complete in detail and the one to be adopted. A description of his operation in abstract is as follows: A rectal bag is inserted into the rectum and a catheter into the urethra. The bladder is filled with from 10 to 20 oz. of boric acid solution, introduced by a piston syringe. The patient is then placed in full Trendelenburg posture, and 8 to 10 oz. of fluid are injected into the rectal bag. The in-

cision is then made from the symphysis pubis upwards in the median line. The peritonæum is pushed up from the bladder, and the bladder wall is caught by forceps at this point, and an incision is made from the forceps to the pubis. Traction sutures are then to be inserted on either side, and the rectal bag is removed. Two fingers of the gloved left hand are now inserted into the rectum and the prostate pushed towards the abdominal incision. The prostate is grasped with bullet forceps, one blade being in the urethra and the other in the base of the prostate. A vertical incision is then to be made over each lateral lobe of the gland. The patient should now be lowered to the half Trendelenburg position. The right forefinger is then to be inserted into one of the incisions made through the bladder wall, and one lateral lobe is to be enucleated and then the other through the remaining incision. The half Trendelenburg position makes the enucleating part of the operation easier. If the middle lobe does not come away with the lateral lobes it can be removed with the aid of the curved scissors or forceps. A large catheter is to be inserted into the bladder through the suprapubic incision and its end is to be attached with a bit of fine catgut to the end of the catheter in the urethra. The incision is then to be closed around the tube, and a small piece of gauze should be placed along the side of the tube down to the bladder wall. The tube is retained in position by a plain catgut suture attaching the edge of the tube to the skin. The infrapubic catheter is clamped, and the bladder is to be drained by syphonage through the suprapubic tube. The bladder should be washed out three or four times daily with hot boric acid solution, the flushing being done either from above or below, as may be necessary. When the urine ceases to be bloody the suprapubic tube is to be removed, and continued drainage is to be established through the urethral catheter until the bladder wound has healed. A catheter of smaller size can be substituted for the urethral catheter after a few days. This tube is usually necessary for two weeks. After the wound in the bladder ceases to leak, the urethral catheter may be plugged and the urine withdrawn about every two hours. This catheter should be changed daily and retained until the bladder functions properly. The diet should be carefully regulated, and urinary correctives given as may be necessary. The patient is out of bed in about two weeks, and is usually able to be discharged from the hospital in from three to four weeks. The very troublesome hæmorrhage that sometimes follows removal of the prostate suprapubically can be controlled by the use of special tampons, those devised by Keyes and Cabot being of especial service.

Conclusions.

1. If the tumor upon examination is found presenting towards the perinæum, then in view of the lesser mortality the infrapubic operation should be performed.
2. If the prostatic enlargement extends high into the bladder, and if there is a large amount of residual urine, or if calculi coexist, then if the patient is not obese the suprapubic operation should be done.
3. If the urine is septic and if secondary changes have taken place in the bladder and kidneys then, as a preliminary measure, perineal drainage should antedate the enucleation.

4. If the patient is in extreme condition from senile and pathological complications then the palliative operations of Bottini or Chetwood should be resorted to, preferably under local anæsthesia.

5. Disappointing results sometimes follow, such as stricture of the urethra and fistulæ, which may require operative relief.

6. Interference with the sexual function may result.

7. The bulk of the gland should be removed in individual lobes without making an effort to remove absolutely all the prostatic tissue, for one should remember that the prostate cannot be removed in one mass, without also removing with it the prostatic urethra.

8. The proper and early treatment of a patient suffering from prostatism is most essential. Prostatotomy may be often controverted by proper hygiene and local treatment. The catheter should never be used habitually, and if its use becomes necessary in relieving acute retention then the most scrupulous asepsis should be observed.

9. The time for operation is before toleration and infection, and should be performed as soon as retention indicates the progression of the disease.

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613 ELM. STREET.

THE PROTECTION OF THE ROENTGENOLOGIST.*

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The powerful physiological action of the Röntgen rays has been demonstrated by clinical experience in its therapeutical application and by serious accidents to patients and operators. The care essential to the protection of patients has been carefully studied, and diagnosis and therapy have been rendered safe in the hands of experts. Accidents are now no more frequent, when this agent is employed by those fitted to use it, than those from any other therapeutical agent of equal potency. Rules and limits of safety have been determined which render accidents rare, and the more serious are now only found in the

* Read before the Association of Roentgenologists at a meeting held at the University of Pennsylvania, Philadelphia, 1907.

hands of students, and this includes many practitioners who are attempting to employ this powerful agent, whose potency they cannot comprehend, with little theoretical and no practical knowledge or experience. This is the grave danger of Röntgen therapy at the present time. Its mysterious and powerful action, its brilliant results are leading many practitioners to attempt its employment in their own practices. The majority acquire no theoretical knowledge, and their clinical experience is limited by their own cases suitable for experimentation. Their results are necessarily poor and injure the name of Röntgen therapeutics. The practitioner should be warned against the employment of this agent unless he is willing to devote sufficient time to acquire technical knowledge and clinical experience. The general medical public should be warned not to entrust their patients to those inexperienced in employing it safely and effectively.

The novice is fearful of producing ill effects and hence produces none. He prefers to employ inefficient dosage protracted over long courses of treatment rather than court invisible dangers.

The insidious manner in which it acts upon metabolism and by repeated though minute doses lowers the vitality and sets up retrograde changes in the operator seem impossible to him. A seeming disbelief renders more experienced operators careless. They imagine they are immune to its action; it may be dangerous for others, but not for them; because they cannot see immediate effects they cannot appreciate that any injury is being done. The earlier operators had the excuse of an ignorance which was common to the whole scientific world. They exposed themselves freely for experiment and scientific research. The injuries they suffered were not manifested for four or more years. The operator of to-day who has had only four or five years' experience and has in a measure protected himself feels certain he will suffer no ill effects. His dose has been less powerful, it probably will not manifest its ill effects so speedily, but if he continues to expose himself to repeated though minute doses, the injury, though slow in appearing, may be more chronic in course and more resistant to treatment.

The warning of past experience has not been heeded. Accidents to operator continue to be reported, though fortunately they are less severe. It is true that rules and limits that will insure safety should be determined. That the consensus of opinion by experienced operators should be expressed, so that the inexperienced and the careless expert may follow and their protection be certain.

Many Röntgenologists have determined rules and methods of protection which seem sufficient. Many devices are offered by the manufacturers that are apparently safe, others are of questionable value, while others are totally valueless and by engendering a false sense of security lead the operator into grave danger. One of the most notorious of these fallacies was the statement made at one time that a static machine could not produce a "burn."

Before discussing the various methods and means of protection, the earlier symptoms that should warn the Röntgenologist of his danger ought to be mentioned. The clinical picture of the operator's later sufferings has been depicted and not exaggerated by writers in this and other countries. Perhaps the

earliest manifestation is the trophic dermic changes that take place in and about the nails. These become ridged and brittle, breaking when an attempt is made to cut them. The skin becomes glazed and pink about the matrix and on the dorsum of the fingers extending to the back of the hand. The skin becomes thickened and deeply wrinkled. About the joints the wrinkles deepen into cracks and finally form indolent, unhealthy ulcers with grayish base and no tendency to form healthy granulations. In the later stages the margins of these ulcers, if subjected to further irritation, may take on a hypertrophic growth becoming swollen, thickened, and tender. Callous cornlike patches appear at points which seem symmetrical in various individuals.

The prophylactic treatment by protection and prevention is by far the most valuable. The nature of these lesions has not, however, been rightly appreciated and the treatment applied has often increased and aggravated the injury. The serious results have perhaps not been due so much to the pathological character of the primary lesion produced by the Röntgen rays as to the irritation of treatment. They are in a great measure, if not wholly, due to meddlesome surgery and the ill advised prescribing of sufferers and their solicitous friends. The Röntgen lesion is trophic, one of lowered vitality incapable of reacting to ordinary stimuli or of renewed growth and healing. The visible lesion is a localized area surrounded by tissues of such low vitality that any added trauma results in their death. The folly of attempting to heal such lesions by methods and means used in areas capable of reacting and surrounded by healthy tissues is self evident. Many a sufferer has, however, yielded to the curette, to excision, and to skin grafts upon unhealthy devitalized tissue. There is no excuse but ignorance of the nature of the lesion for such surgery. Is it to be wondered at that these half dead tissues refused to react, that the ulcerated area increased, and that hyperplastic growths often engrafted themselves upon its margins. The Röntgen rays certainly provided the predisposing cause, but the surgeon has too frequently added the irritating stimulus that caused or at least hastened the development. The same can be as truly said of the many ointments, powders, cauterants, and lotions that have been prescribed. They have all added their quota to intensify the irritation and increase the devitalization. The pain suffered by the patient has been temporarily relieved by drugs that increased the injury done to the nerves. It seems impossible that these further results and injuries to such devitalized tissues should have been offered by thinking clinicians with any expectation that healing and recovery could follow.

It is to be hoped that the chronic character of these lesions will point out to the profession their trophic nature so that they will refrain hereafter from further injuring in any attempt to induce immediate healing.

A realization of the trophic nature of these injuries and that the tissues that surround them are devitalized and deficient in blood supply, leads naturally to the first principle of rational treatment. Do nothing that will further injure the terminal trophic nerves or further exhaust them by calling for increased action. Until the larger areas, as well as the visible lesion recover from the injury to their

nutrition they are incapable of reacting and healing. Protective measures with asepsis and possibly mild antiseptics are indicated. Letting Nature alone is the surest if not the speediest method of securing a return to normal vitality and repair. The hands should be protected and kept warm. The aseptic dressing should never be tight, as this obstructs circulation and causes pain. Immersing in hot water as hot as can be borne, two or three times a day, will relieve pain and increase the circulation. Ointments to soften the skin should only be applied sparingly, as their extensive use will lead to ulcerations beneath the callous areas. Particularly should ointment be avoided that contain coal tar derivatives having local anæsthetic properties, especially those containing acetanilid, antipyrine, or of unknown chemical composition. The temporary relief from pain does not compensate for the further injury done to the nerves. Relief from pressure and hot soakings are more valuable in relieving pain and are not injurious. These precautions apply equally to the earlier and later stages. The use of rubber gloves prevents the irritation of photographic chemicals and antiseptics, while care should be used in selecting toilet soaps employed. Those containing an excess of animal fat are most soothing.

The best therapeutical measures are the prophylactic. This is particularly true of these injuries, and it is with the purpose of determining through discussion what are the best methods of protecting the operator that this subject is brought before you. The invisible therapeutical activity of the Röntgen rays is potent for harm as well as good. The Röntgenologist should most carefully guard against the injurious action of oft repeated minute doses. It is possible that only some of its serious effects have been so far demonstrated.

It is impossible for the author to enter in detail into a discussion of all the means of protection, nor is it his province to discuss the relative value and merits of protective methods and devices which have been brought forward. The principles which should underlie the protection of patient and operator will be discussed, while various devices which he has employed will be alluded to and that which seem to him most satisfactory will be described. The variations in form of apparatus and the requirements of the individual practitioner are so manifold that forms adaptable to the needs of each are necessary, but the underlying essential principles of complete protection for patient and operator can be so clearly determined by open discussion that they will form a guide by which operators and students can protect themselves from the dangers consequent to the employment of this powerful yet invisible therapeutical agent.

Since the source of danger is the active Röntgen tube and the active agent is the rays emitted from it, or the secondary rays produced within it, the first principle of protection seems to be to limit the field of emission of these rays. As the source of rays has been approximately determined to be a point within the tube, the nearer the media limiting the radiation is brought to their source the smaller it can be and consequently the thicker for a given amount of material. Substances, however, that limit these radiations to any great extent are uniformly weighty and are also conductors of electricity and hence in a

high potential field must be insulated by air space. The protecting shield must therefore be at a distance greater than the equivalent air resistance of the tube, or where shields are introduced within the tube they must not decrease its internal resistance. Unfortunately the introduction of efficient shields within the tube is made difficult because of the impossibility of properly exhausting the occluded gases from the metal composing them. Thus the problem practically resolves itself into effective protection outside the tube as close to it as practical when its variations in resistance are considered. The substance which is the most obstructive to the rays is lead, which is of great specific gravity. It is possible to stop the majority of rays by reasonably thin sheets of this material, by bismuth, and by materials containing salts of these metals. Unfortunately we do not know the effects of the more penetrating rays or whether they are or are not injurious. It is, therefore, necessary for complete protection to employ lead of considerable thickness. Perhaps it is safe to cut off only the less penetrating rays but it is certainly safer to cut off all that it is possible, till the more penetrating have been proved to be innocuous.

The secondary, and what have been termed vagabond rays, have shown their effects upon the photographic plate, and it is therefore necessary to safety that both operator and patient should be protected from their action. The protecting shield must therefore encompass the entire active hemisphere of the tube. This must include the area above the cathode and, because of the vagabond rays, practically the entire tube. The practice of some operators of working behind a lead screen with an open or semiprotected tube is unsafe, because familiarity breeds carelessness, and while the occasional exposure may not result in visible injury such exposures will certainly become more frequent with results that are certain to be serious. Such precautions and observations of the tube from a distance by means of suitably arranged mirrors are valuable methods in addition to properly protected tubes, but should not be depended upon to protect the operator, and do not in any way limit the area irradiated and thus protect the patient. The necessity of limiting the area of irradiation in patients under examination has been made evident by the serious results produced, especially in cases of faulty metabolism, by exposing too great an area to the influence of this agent.

These considerations make it evident that both for the protection of the operator and the patient *the field of Röntgen radiation ought to be confined to the part to be examined or treated.* The limiting of this field by the introduction of shields within the tube has only been accomplished by decreasing the efficiency and life of the tube. The same can be said of shields that fit closely to the tube, for by confining the radiations they increase the heat within the tube and render its resistance variable. Tubes are manufactured of lead glass with translucent windows. They are open to the objection common to all shields of lead glass, that is, they are transparent to rays that will enter a photographic plate.

A Röntgen ray of such a tube shines inside and cathode, as well as areas of increasing density depending upon the varying thickness of the bulb as projected on the plate. They, perhaps, should have

a use in therapeutical work where only rays of low penetration are employed. They cannot, however be considered absolutely safe, and when employed by the author are always surrounded by other means for intercepting the rays.

The author's experimentations in the line of protection of the operator have thus led him to conclude that the only safe protection is metallic lead of at least a thickness commercially known as six pounds to the square foot over the active hemisphere of the tube. He employs in addition a protecting screen of equal thickness covering the switches, interrupter, etc., so that the tube cannot be made active while the operator is within its field of irradiation. The tube is observed in mirrors placed in convenient positions. The tube is placed within a box of metallic lead closed on all but the upper side and one end, the anodal end. This sheet lead is three pounds to the square foot and double over the active hemisphere. The box is twenty inches in length, twelve inches deep, and twelve inches wide. This permits an air insulation of six inches, giving a possible variation in vacuum sufficient for practical purposes. The bottom is made of the same thickness of lead with diaphragms of convenient size. The entire tube, including the spark gaps of self regulating tubes, as of the Queen or Müller tube, is enclosed within the box. Connections to the secondary circuit are made by means of springs, so that tubes can be readily changed without attaching wires. The entire box weighs a little over fifteen pounds, and is suspended by double pulleys and a counterbalancing weight from an overhead track. This adjustment permits it to be readily placed in any position over the recumbent patient and to be raised or lowered at will. Its weight insures steadiness and excludes all vibration. The diaphragms cut off all secondary and vagrant rays and increase definition. Its chief defect is its weight, but this is counterbalanced by the safety which it insures.

Conclusions.

The conclusions arrived at by the author are therefore:

1. That much of the seriousness of Röntgen operators' lesions has been due to meddlesome surgery and medication.
2. That this has resulted from an inappreciation of the character of these lesions.
3. That their course and clinical character as well as experiment have shown that they are due to injury to trophic nerve, decreased nutrition, and blood supply.
4. That the area involved extends wide of the visible lesion and hence reparative processes cannot follow local surgical interference or stimulant medication.
5. That the first principle of treatment is to avoid all further depression and injury to local nutrition and increase systemic tone.
6. That the best local treatment is to let the lesions alone and protect them from further irritation.
7. That the best treatment is prophylactic and therefore the protection of the operator should be carefully studied.
8. That the best method of protecting both operator and patient is to confine the radiations to the area to be examined or treated.

9. That this can best be accomplished by surrounding the tube or source of all radiations by sheet lead of sufficient thickness or the weight known as six pounds to the square foot over the active hemisphere of the tube.

10. That the entire tube should be enclosed in a box of sheet lead having diaphragms of varying size through which alone the rays are permitted to pass.

11. That this material can be employed by having an air insulation of four inches on each side of the tube or a total of six inches, which gives a sufficient working variation for the internal resistance of the tube.

112 SOUTH TWENTIETH STREET.

AMŒBIC DYSENTERY (CHRONIC), A SURGICAL DISEASE.

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For the sake of brevity in the title of my paper, I have left something to be added in these opening lines, and in order that there may be no misconception of the ground I take, this title could be considered as modified, even though somewhat cumbersome, to read—Amœbic Dysentery, with Lesions Above the Sigmoid, Chronic for Over One Year, Resistent to Colonic Irrigations, Then Becoming a Surgical Disease.

It will thus be seen that I do not take the broad and untenable ground that amœbic dysentery is a surgical disease, or even that *chronic amœbic dysentery* is a surgical disease, but I *do* assert that all cases which fall within my classification, are, without exception, surgical cases. That of course presupposes that the patient is in as good a physical condition as would be demanded for a similar abdominal case, as, for example, an appendectomy.

Cases where the lesions are above the sigmoid are specified, as below that point they are usually amenable to the irrigation treatment, or to local applications, or both combined.

As to a time limit, before classing a case as chronic I would suggest about one year, during that time giving the patient the benefit of a thorough course of colonic irrigations, preferably administered by the physician himself. In other words, given a case of amœbic dysentery having persisted a year or more, with *Amœba coli* still demonstrable in the stools, where the sigmoidoscope reveals no ulcers, all such cases should be given the benefit of surgical treatment, either appendicostomy or colostomy, rather than have the patient drag out a miserable existence of semi-invalidism during the remainder of his natural life.

While solutions of quinine brought in contact with *Amœba coli* destroys them in cases where the lesions or ulcers are higher up than the sigmoid, a sufficiently large quantity of quinine solution cannot be accommodated by the colon, and that solution cannot be retained long enough at a time to successfully reach and destroy all amœba in all cases. As an example, one of my cases would tolerate as much as 5,000 c.c., or 5 quarts of a 1 to 750 solution of quinine bisulphate, and retain it for three quarters of an hour before expelling it. Yet in this case surgical treatment was not considered for one minute

until long after one year, during which period colonic irrigation was faithfully and patiently practised daily. It does not require much elasticity of imagination to appreciate the remark that "the treatment was worse than the disease," meaning, of course, the treatment by colonic irrigation.

Since it has been the fortune of the United States to acquire the Philippine Islands, amoebic dysentery has assumed an important place before the profession of this country, and in cases of persistent or recurrent diarrhoea, systematic microscopical examination of the stools for *Amœba coli* should be practiced repeatedly.

J. P. Tuttle has reported cases of amoebic dysentery in persons never outside of New York city. If that is possible on the Atlantic coast, what has the future in store for the Pacific coast, which receives the majority of the unfortunates who return from the Philippines with amoebic dysentery? What is true of the Pacific coast is true to a lesser degree of localities scattered all over this country, where other unfortunates make their way after having their health undermined, as they naturally gravitate toward their former homes. To a certain degree, these patients are a source of danger to their several communities in a way similar to a typhoid fever case.

While on duty at the United States Marine Hospital in San Francisco I noted that some of the garden truck farms were conducted by Chinese. Then the question naturally presented: Do these Chinese use human excreta as fertilizer, as they do in the Orient? Is there a city ordinance in San Francisco prohibiting such practices? And if so, is that ordinance enforced? It can be readily seen that under certain conditions it would be possible to have amoebic dysentery slowly but surely distributed to people who had never been outside of the county of San Francisco. Under the same favoring conditions, what would be true of San Francisco could be true of any other Pacific coast city supplied with vegetables from Chinese truck farms. Does Astoria or Portland receive any vegetables from Chinese truck farms? Is there any prohibition in our cities against the use of human excreta as fertilizer? Are there any undiscovered cases of amoebic dysentery ever within our borders, which might unconsciously furnish the infecting organisms? I saw one such possible case which gave the typical history so characteristic of the disease, and so striking to one familiar with its manifestations. These are all questions of peculiar significance and importance to all health officers.

In the Philippine Islands of all deaths and disabilities among the whites, more than one half are due to amoebic dysentery, as against all other diseases combined.

Whether the white man is more susceptible to the invasion of the amoeba or not, I am unprepared to say, but the fact that such a large number are infected, together with their unpreparedness, physically for tropical residence, seems to suggest such a probability. I have been asked many times: "Do the Filipinos have the disease? Are they immune?" My opinion is that they are infected in large numbers, but I regret that while I was detailed for duty in the Philippines, I was not so situated that I could substantiate the before mentioned opinion by clinical and microscopical data. Most of the Filipinos

are poorly nourished and indifferent about matters of health, and if one did not feel as animated as usual, it would simply be a matter of idling about a little more than under ordinary circumstances. And anyone who knows the ordinary Filipino, knows what that is.

Since the completion of this paper I have received the 1906 Report of the Bureau of Health for the Philippine Islands, of which Passed Assistant Surgeon Victor G. Heiser, United States Public Health and Marine Hospital Service, is the director. On page 57 he states: "Dysentery is widespread, and is due to water almost invariably. Examinations of a great number of stools of Filipinos show that it is the exception to find on one that *does not contain* the eggs or embryos of at least one of the following: *Tricocephalus dispar*, *Ankylstoma duodenalis*, *Ascaris lumbricoides*, *Strongyloides intestinalis*, *Amœba dysenteriae*, *Oxyuris vermicularis*; *Tricocephalus dispar*, *ankylstoma*, *ascarides*, *oxyuris*, and *amœba* are quite common, and are all frequently seen in one stool." Again on page 52 we read:

"Amoebic dysentery still easily retains first place as that disease which is the white man's worst enemy in the tropics. More permanent disability is caused, more time is lost, more persons are compelled to give up their residence in the islands and seek the temperate zone than from all the other tropical diseases combined.

Although the prophylaxis is so simple, yet the sources of infection are so numerous and so constant that it is not strange that it prevails to such a great extent;

While water is the principal source of infection, and the majority of cases can be traced indirectly to the use of unsterilized water, the danger of handling or eating green vegetables and fruits must not be overlooked. The city water supply contains a large number of protozoa and amoebae, and should not be used for drinking purposes until it is sterilized; but it is practically impossible to observe this injunction, as all sources of infection cannot be shut off (italics mine). This disease affords another excellent example of the amount of good that is constantly accomplished by modern prophylactic medicine when systematically applied. A study of the morbidity statistics showed that for several years a great number of cases of dysentery occurred among the guests of a certain leading hotel in the city. On investigation it was found that all water for the table, although said to be previously boiled, was then passed through a stone filter. A biological examination of some of the contents of the filter showed it to be swarming with amoebae. The use of the filter was discontinued, and for more than eight months nothing but distilled water has been used on the table, and no cases of dysentery have been reported from the hotel since."

From these extracts of Dr. Heiser's report, it will be seen that my opinion as to the prevalence of dysentery among the Filipinos is well supported by the facts.

Undoubtedly some whites are more susceptible than others. As some individuals are more susceptible than others to gastrointestinal disorders, or more particularly to intestinal disorders, even in temperate climates, such as the well known passing mild catarrhal enteritis due to mere change in drinking water from one locality to another. So I was led to believe such individuals would be the ones most likely to fall victims to amoebic infection, no matter how carefully they guarded everything they put in their mouth. Believing this to have been more than a mere coincidence in the cases coming under

my observation, I made particular inquiry as to this matter, of all medical men I met in the Philippines, or, since returning to the States, of medical men who had had experience with the disease in the islands. Their observations in this particular confirmed my own. Now as to a practical application of this last observation, in passing, it might be suggested that persons who are subject to catarrhal enteritis on slight provocation should not be sent nor advised to go to the Philippines.

Inasmuch as there is much that has still to be explained about amoebic dysentery, and much more still to be learned, the disease may be considered practically a new one, especially in this country.

While on duty in Honolulu, Hawaii, I observed for the first time the Oriental method of fertilization with human excreta. As you may know, the matter is diluted with water and agitated until a solution is effected, then the latter is sprinkled over the tops of the vegetables with an old brush or a bunch of twigs. In that way are treated our lettuce, celery, radishes, cabbages, and the like, and although these things are mechanically cleansed before being brought to market, they of course are not sterile, and where the vegetable is consumed in the uncooked state, the *Amaba coli* readily finds its way to its new victim. Just so long as a single case of amoebic dysentery reaches Honolulu from Manila, and the Oriental method of fertilization is practised there, just so long will there be an open invitation for the spread of the Philippine scourge in fair Hawaii. And what is true of Honolulu is true of any part of the United States where these two factors exist.

Given an acute case of amoebic dysentery, treatment should be begun at the earliest possible moment. All irritating elements should be eliminated from the diet. The patient should cease work and assume the recumbent position until the acute symptoms have subsided. After that I do not believe it always absolutely necessary to remain in bed, but the patient should keep off his feet as much as possible, perhaps all the time, but he may sit up to relieve the monotony of close confinement to bed. Colonic irrigation should be instituted as early as possible, *always* in the knee chest position, and if quinine is employed, the strength of the solution can be rapidly increased from 1 in 3,000 to a 1 in 500 solution, according to the tolerance of the patient. Beginning with a pint or more of the solution at first, the quantity should also be increased as rapidly as the patient's bowel will tolerate the foreign body. The third point, that of time, which the solution must be retained before expulsion, should also be increased as rapidly as possible, and just here is where the patient can demonstrate the greatest amount of determination in combatting the disease. At first the amount injected in the bowel can be retained for a few moments only, but the bowel rapidly becomes tolerant (especially with a gritty patient), and the injection can be retained for the greater part of an hour before being expelled.

Before leaving the question of treatment by irrigation I wish to emphasize as positively as possible the necessity for having the irrigation conducted by the physician, or at least in his presence. I know of one hospital where the irrigations were administered by a colored attendant, the patient laying upon

his back, and after receiving a small amount of solution, was left alone to relieve his irritated rectum as soon or as early as his own judgment or tenesmus dictated. Such a practice is open to question in any hospital, but that is a question of hospital administration. The irrigation cannot be rationally administered unless the hips are elevated, to encourage the free flow of the solution through the sigmoid to the descending colon, and then by changing the level of first one hip and then the other, the solution can be encouraged to flow through the transverse colon toward the cæcum, although it is an open question as to how far in this direction it is possible to have any rectal injection make its way. Then, considering the symptoms of the patient, if severe ulceration of the intestine is suspected, with consequent thinning and weakening of the gut wall, care and judgment are most certainly needed to avoid over distending the impaired intestinal wall; and I take it that it is obvious that any attendant short of the medical attendant himself is not qualified to officiate when such serious possibilities are in any way involved. Perforation of the intestines may be a rare occurrence in amoebic dysentery, but the possibility should never be lost sight of. Undue muscular exertion should be absolutely prohibited, especially as the patient is not completely incapacitated and has a tendency to think lightly of his condition. One case of perforation has come under my observation, in the person of an East Indian sailor, who was moribund on arrival in port, and died within twenty-four hours of admission to hospital. Autopsy was had, as is the practice in all United States Marine Hospitals, and the entire hepatic flexure of the colon was gangrenous, where perforation had occurred, evidently prior to the time his vessel arrived in port. In this case the remaining colon was full of ulcerations, and furthermore, the *lower part of the small intestine was the seat of ulceration*, an occurrence of sufficient rarity to be recorded at this time.

Colonic irrigation having been given a fair trial daily for one year, and amoeba still being present in the stools, I hold that it is futile, and a waste of a good opportunity, the best opportunity, the best avenue, to escape from a treatment that is worse than the disease, if the patient does not avail himself of the means of deliverance to be had at the hands of the surgeon. It is fair to assume that if the disease cannot be eradicated within one year by the irrigation treatment, it probably never will be so eradicated; and there seems no question as to the wisdom of classing these cases as exclusively surgical after their chronicity is thoroughly established. To flush the colon from end to end, from above downward, through the appendix, thus having the whole surface of the bowel easily accessible, seems the ideal way of grappling with this problem. In fact, the suggestion held so much of promise as to have the operation applied with success to other chronic inflammatory conditions of the colon, nonamoebic, and is now strongly advocated by several writers. Of the commissioned officers of the Public Health and Marine Hospital Service of the United States who suffered infection while on duty in the Philippines, safeguarding the national health by prophylactic measures instituted in the islands, 100 per cent. of them have had an appendicostomy performed, with a complete recovery in every instance.

The operation is not much more serious than an interval operation for appendicitis, and unless there are contraindications, should be advised in every case.

I have three cases to report, two operated on by myself and the third by Emmett Rixford, of San Francisco, through whose kindness I am permitted to include his case with the three mentioned. One case had existed for two years prior to operation; one for four years, and one for nine years. Recovery followed in each case. We are indebted to R. F. Weir, of New York, for suggesting the utilization of the despised appendix vermiformis as a flush pipe, to introduce medicated solutions into the upper part of the colon, and permit them to escape through the rectum. No longer can it be said that the appendix is a useless anatomical remnant.

The gridiron opening is best adapted, as the wound is not completely closed at the time of operation. The appendix is freed from its mesentery, its vessels carefully spared for future nourishment to the parts, is then brought up through the incision until its base and the adjacent cæcal surface are flush with the parietal peritonæum, where two or more anchor sutures hold it *in situ*. Other anchor sutures are introduced at the skin level of the wound, and the entire wound closed about the appendix, the tip of which is left protruding through the sutured wound. Some operators have advocated removing the tip of the appendix at once in order to determine whether or not the appendix is patent, and if not, the cæcum may be stitched up to the edges of the incision, converting the operation into a cæcostomy, a choice second to appendicostomy. Personally I would condemn this procedure as being an unnecessary danger, and having no advantages over opening the tip of the appendix after forty-eight hours, when adhesions have formed, effectually sealing the peritoneal cavity from possible infection through an appendix opened and left open at the time of original operation.

After forty-eight hours, even if the appendix will not permit the introduction of the smallest rubber catheter, a small whale bone bougie could be introduced, and an operation similar to an internal urethrotomy would enlarge the opening sufficiently to permit the introduction of a No. 12 or No. 14 French rubber catheter.

In one of my three cases the appendix was so slender that, after forty-eight hours, when the extra-abdominal appendicular tip was clipped off, the calibre of the appendix was so small that the finest silver probe could not be introduced, and it was only after the second or third dressing that introduction was finally accomplished. Gentle manipulation only was practised, as the abdominal wound was of so recent origin.

In another one of my cases, after the extra-abdominal portion of the appendix was clipped off, the remaining portion of the appendicular wall began to slough, because of insufficient blood supply, and I began to wonder where the sloughing would cease. I dressed the case daily, dressing off as much as possible of the dead tissue with hydrogen peroxide, and draining the wound freely. This patient was fifty-five years old, and all his tissues were poorly nourished. Even had the sloughing extended down to the cæcum, there would have been no interrup-

toneal leak, as the peritoneal surface of the cæcum about the base of the appendix had been scarified before the anchor sutures had been introduced in order to encourage adhesion of the cæcum to the parietal peritonæum. I would have kept the canal occupied by the sloughed appendix, open by packing, and would have had a better result than if a colostomy had been done.

Closing the appendicular sinus after amœbæ have disappeared from the stools, need give one no concern, as it is a very simple matter. The trouble has been that the opening closes only too readily if the small rubber catheter is not kept in all the time. There need be no haste in permitting the opening to close. Maintaining it is a matter of but trifling inconvenience, requiring attention only about once a week, while having it in readiness for use, gives us control over the entire mucous membrane of the lower bowel.

To recapitulate, then, I would advocate surgical treatment for all cases of amœbic dysentery, where amœbæ persist in the stools after one year's patient trial of irrigation through the rectum, and where the amœbic ulceration is higher up the intestine than the sigmoid flexure.

In closing, anticipating the possible objection that this is too radical treatment, I would ask: What can be gained by waiting? If a year of rectal irrigation ends with amœbæ still present, amœbæ will very likely remain indefinitely. While they remain, the patient is always liable to acute exacerbations; he is a semi-invalid; he is not fit for a full day's work of ordinary activity; and all the while he is sacrificing more and more of the lining of his colon to the insatiable appetites of countless amœbæ, and has with him the ever present possibility of intestinal perforation.

ARTERIAL THROMBOSIS AND GANGRENE FOLLOWING TYPHOID FEVER.

*With Report of Two Cases.**

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CASE I.—T. Di G., age forty-one, rag picker. Diagnosis, arterial thrombosis and gangrene of both legs. He was admitted to the Pennsylvania Hospital on May 20, 1897, and died on July 8, 1897. He did not speak English.

Previous history: Patient was four years in this country. He stated that he drank beer in moderation. In January, 1896, while working in a ditch full of water, he had his right side and arm frozen and was treated at the Philadelphia Hospital, where he remained until April 27th.

Present illness: He complained of pain in the back on the night before admission, but this disappeared when he went to bed. The following morning on arising and attempting to walk he experienced sharp pains in the hips which travelled down both legs posteriorly. Shortly after, he attempted to walk on the street, and fell because of extreme pain in the calves of the legs, and was brought to the Pennsylvania Hospital in a patrol wagon. On admission his breathing was rapid and his lips cyanosed. He was suffering severe pain in the calves.

* Read before the Medical Society, College of Physicians, Philadelphia.

and the muscles of the legs were hard and contracted. The surface temperature was normal, though his right foot was pale, and the left leg cyanosed, especially the toes. It was impossible to demonstrate any pulsation in the tibial or popliteal vessels in either leg. The right foot and leg were anæsthetic, while the left foot and leg seemed hyperæsthetic. Reflexes of both legs were normal.

Physical examination: Pupils were equal; tongue clean; and pulse weak, rapid, and irregular. A blowing systolic murmur was heard over the apex, and a systolic thrill was also felt. Impulse of apex was diffuse. Urine, specific gravity 1.036, albumin was present, quantity of pale and dark granules and hyaline casts could be seen, while some red blood cells were also present.

May 30th. Patient had had less pain; though still suffering greatly. Toes of both feet were blue, and the feet were cold. Color and temperature varied greatly in both legs; at times both, or either, regained almost a normal color and temperature. Urine contained a heavy precipitate of albumin.

June 10th. Legs remained very cold. No pulsation could be felt in either femoral artery.

June 27th. Both legs were gangrenous to a point just below the knees, and the odor had become very bad. Condition septic.

July 2nd. Patient was very much weaker. The bone now showed through at the heels.

July 5th. Several gangrenous areas appeared on both buttocks and about gluteal folds.

July 8th. Patient died.

Post mortem examination. Heart: Auricles were rather full of blood; ventricles quite empty. Tricuspid orifice admitted four fingers. Valves, endocardium, and walls of right ventricle were normal. Mitral orifice was funnel shaped, admitting only the tip of the index finger. The chordæ tendineæ were very short and thick. Mitral leaflets were thickened, opaque, and welded at the edges. On the ventricular surface of the middle aortic leaflet were two vegetations about 2 mm. high, capped with fibrin, which may readily be removed.

Spleen was very large, heavy, and dark; on section there were many large white infarcts. The splenic artery was filled with a dark thrombus. The abdominal aorta was filled with a firm clot from the level of the renal arteries down. Stomach and intestines were normal and showed no evidences of ulceration or gangrene. The inferior mesenteric artery was filled with a firm clot. Both kidneys were large, firm, and heavy, and contained many yellowish white hæmorrhagic infarcts. Pancreas and suprarenals were normal. Hepatic artery was thrombosed. The liver was large, pale, and decidedly fatty. No infarcts were present. Iliac arteries were also completely thrombosed.

It was thought from the history that the patient had had typhoid previously in the Philadelphia Hospital, but, unfortunately, the notes could not be obtained.

CASE II.—S. T., 40 (?) years of age. Patient was admitted at the Philadelphia Hospital on January 24, 1907. Diagnosis: Arterial thrombosis and gangrene of left leg, following typhoid. He died March 16, 1907.

Patient had been recovering from a mild attack of typhoid fever, followed by an ear discharge. On admission an abraded contusion was noted on the outer surface of the left leg (below the middle).

February 12th. Patient first complained of coldness and pain in the left foot. Hot water bottles were applied.

February 14th. Patient was placed on a soft diet and sitting up in bed, though still complaining of needle sticking pains, and coldness in the left foot.

February 17th. Patient was placed on full diet, and sent back to bed, as he still complained of pain in the left foot.

February 20th. He cried a great deal and referred

to pain in the same foot. Great toe was of yellowish green color and cold to the touch. Foot was cedematous over arch of the instep, and this area was mottled and purplish in color. Tactile sense was lost. Pulsation in popliteal and femoral arteries was absent.

February 22nd. Discoloration on dorsum of foot were more marked, but the discolored area was not increased. The great and second toes were cold and green and very dry. Inner aspect of left foot was purple and cold and pitted on pressure. Lower half of leg was subnormal in temperature. Some blebs were present on the outer aspect of the leg, and there was tenderness along the course of the arteries. Temperature was elevated and patient was becoming very weak.

March 2nd. Discoloration, loss of sensation, and coldness all increased in area from day to day; the toes became dry and shrivelled, and the characteristic odor of gangrene was present.

March 16th. Patient became weaker, delirious, and was in a more or less septic state. The line of demarcation eventually reached a point just below the knee, when the man died of exhaustion and septicæmia. There was no attempt at the formation of a line of separation. Urine contained a trace of albumin, but no casts. Blood culture was negative. Autopsy was not obtained.

In regard to Case I, though it had not been possible to obtain the old history at the Philadelphia Hospital, there was an impression at the time that the patient had had typhoid fever at the Philadelphia Hospital prior to his admission at the Pennsylvania. Case II had a mild attack of typhoid fever, and had scarcely entered into his convalescence when the thrombotic change began.

Both cases denied specific history.

A blood culture was not made in Case I, while in Case II it gave a negative result. Case I had an acute and severe endocarditis, while Case II had little or no cardiac derangement.

The fundamental pathology of the condition seems to have been a widespread endarteritis, with clotting of the blood within the vessels. It is to be regretted that the blood also was not studied with a view to discovering if it may have in some degree contributed to the result by being more coagulable than normal.

The condition of gangrene following typhoid fever is a rare one and yet sufficiently common to merit more mention in the textbooks.

Hölscher, reporting 2,000 fatal cases of typhoid, does not mention a case of gangrene, while Bettke, in 1,420 cases of typhoid, found but four of gangrene, all limited to the toes. Since 1876 Westcott collected seventy-six cases of gangrene following typhoid fever, and in addition has tabulated twenty-one cases of arterial thrombosis not followed by gangrene.

Estlander reports forty-three cases of spontaneous gangrene following typhoid and typhus, during an epidemic in Ireland in 1866 to 1868. J. C. Wilson states that gangrene is much less common in typhoid than in typhus, while J. Chalmers Da Costa reports it as more frequent after typhoid.

The extremities are more commonly involved in this process than other parts of the body, as is shown by figures derived from Keen's *Toner Lectures*, where, out of 126 cases reported, the gangrene was present seventy-seven times in the extremities. Keen also demonstrates that gangrene is distributed with equal frequency on either side when the origin is arterial, though such is not the case when the

condition is due to venous obstruction. The commonest time of occurrence of the gangrene, according to Keen, is in the second or third week, during which period 39.2 per cent. of his collected cases appeared. Vulpeau reports a case occurring some days after convalescence set in. J. Chalmers Da Costa says that gangrene may develop well on during convalescence, and Ricketts mentions a case of Estlander's, where the gangrene followed a slow progressive occlusion of the artery one year after the attack of typhoid.

James A. Rooth reports two cases of symmetrical gangrene following typhoid, and concludes that such cases can only be explained by some primary cause acting on an enfeebled constitution. Exposure to cold and frost bite are, in his judgment, important ætiological factors. In one of the writer's cases there was a history of severe illness due to freezing of the patient's right arm and side. Troup also speaks of the possibility of frost bite in a case of his own, which in turn followed typhoid fever. A. Montini reports a case of gangrene following typhoid in which the patient gave a history of injury to the part affected.

Barie distinguishes two varieties of the affection, namely, acute obliterating arteritis, and acute parietal arteritis; the first invariably followed by dry gangrene, while the second variety is not accompanied by clot formation and consequently terminates in recovery without gangrene. The same writer believes that the two principal factors in the pathogenesis of the affection are, first, local and lasting irritation of the walls of the arteries induced by the bacillus typhosus, and, secondly, profound disturbances of vasomotor innervation, or vasomotor spasm. He also states that the complication is much more common in the lower extremities than elsewhere, and the arteries involved in the order of frequency are, the posterior tibial, femoral, dorsal of the foot, popliteal, and anterior tibial.

As the earliest signs of gangrene from thrombotic obstruction of a limb, appear either in the fingers or toes, according to the limb involved, i. e., the most distant point—it is difficult, from this symptom, to form any early opinion in regard to the site of the thrombus. If, however, the gangrene should be present in the toes of both feet it is likely that the abdominal aorta, and perhaps the arterial trunks all the way down are affected. In the writer's cases it was not possible to form any opinion as to what vessel was originally involved. The picture, however, was that of a widespread lesion, probably simultaneously involving the great arterial trunks.

A few isolated cases were found in the literature showing a very wide geographical range: One case from Italy, two from Winnipeg, two from South Africa, one from Delaware, and others.

The prognosis in all such cases is, of course, unfavorable unless the smaller arteries are involved and the gangrene becomes localized. Amputation of the leg cannot be performed with much hope of success when there is evidence of total occlusion of the femoral. In Case II the writer discussed with a surgeon in consultation the advisability of laying open the femoral artery and removing as much clot as possible, but such action was not performed, as the surgeon was unwilling to undertake it.

Apart from the possibility of surgical interfer-

ence there is no treatment other than palliative measures for this serious complication of enteric fever.

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 252 SOUTH SIXTEENTH STREET.

ACUTE IDIOPATHIC PULMONARY ŒDEMA.*

By S. W. NEWMAYER, M. D.,
 Philadelphia.

Reports on acute pulmonary Œdema by American writers have been rare, and with the exception of occasional scattered cases, mainly by foreign physicians, little attention has been paid to the general subject of pulmonary Œdema. Most of the recent textbooks give a few lines, generally a mere definition of the term. Dr. Riesman (*American Journal of the Medical Sciences*, January, 1907) recently in a very complete paper gathered together the scattered cases, including the various theories of causation advanced, and added a report of six cases.

The affections associated with Œdema of the lung, according to Riesman, are: (1) Arteriosclerosis; (2) Bright's disease; (3) heart disease, angina pectoris, myocarditis, valvular affections; (4) asthma; (5) acute infections, typhoid fever, measles, rheumatic fever, influenza, pneumonia, etc.; (6) pregnancy; (7) paracentesis of thorax and of abdomen; (8) angioneurotic Œdema; and (9) obscure conditions of questionable causal relationship (hysteria, tabes dorsalis, and ether anæsthesia).

The three cases which are included in this report are of that morbid condition arising primarily, and not in consequence of some other disease or injury. Two of them occurred in previously healthy adults, and the third in a child suffering from whooping cough, Œdema following a paroxysm of coughing. Two of the cases followed overexertion, and one fright and shock.

CASE I.—Mr. E. R., age forty-seven years, had been previous to present attack healthy, except an attack of malaria two years before. He resided in Texas and was on a short visit to Philadelphia. At night, during coitus, he was seized with intense dyspnoea, vertigo, slight cough, and gush from the mouth and nostrils of a large quantity of very frothy pink, bloody fluid. I saw the patient a half hour after the beginning of the attack, and he was still bringing up in mouthfuls the serosanguinous fluid, without much effort, and slight cough. He was livid, lips cyanotic, eyes bulging and starry, skin cold and later followed by profuse perspiration. Pulse was of high tension, respirations were irregular. His entire chest was filled with bubbling rales. Temperature was subnormal. The quantity of fluid discharged in the attack was about two litres. There was no signs of arteriosclerosis, and no valvular lesion of the heart. The attack lasted about an hour.

* Read at a meeting of the Philadelphia County Medical Society, February 13, 1907.

Under hypodermics of morphine and atropine, and dry cupping over chest, the dyspnoea subsided sufficient to allow patient to recline in semirecumbent position. Urine, voided soon after attack, showed albumin one fourth by bulk, blood and epithelial casts, and considerable free corpuscles. Twenty-four hours later the bubbling râles subsided throughout the chest, but remained posteriorly at the bases of both lungs. Dyspnoea was absent, breathing regular, temperature 99.2° F. Examination of urine showed small quantity of albumin, few blood and hyaline casts, and few red corpuscles. In three days the patient was apparently well and returned home to Texas, where he had a similar, but mild attack, one month later.

CASE II.—M. R., boy, age six years, had been sick for one month with whooping cough, having ten paroxysms a day. Following one of these paroxysms during the night he suddenly became pale, and with little effort ejected from the mouth about eight ounces of a frothy, bloody, watery fluid; dyspnoea and cyanosis were present; chest was filled with bubbling râles; temperature was normal, but heart weak and rapid. Hypodermics of aromatic spirits of ammonia, followed by strychnine, were administered; ice was applied to the præcordia, and dry cups to the chest. The attack lasted about half an hour, but the dyspnoea about twenty-four hours. No urine examination was made. Following this attack the number of paroxysms and the severity of the pertussis was reduced, and at the end of a week the child had only a slight bronchitic cough.

CASE III.—Mrs. F. C., age fifty years, had had no previous illness. On receiving news that her child was seriously ill in a hospital, she collapsed and became semiconscious, pallor was present, pulse was weak and rapid, respirations were rapid, and moderate dyspnoea appeared. There was no cough, but a white frothy fluid appeared at the mouth, followed by a gush of a frothy blood stained fluid. Bubbling râles throughout the chest could be heard at some distance. Hypodermic injections of strychnine and digitalin were given, and ice was applied to the chest. In about fifteen minutes patient became conscious, with flushed face and profuse perspiration; but was somewhat delirious. Hypodermic injections of morphine and atropine were then administered. Râles and a slight discharge of fluid remained for two days.

The theory of causation which seems to explain all of these three cases is that overexertion is the cause of an immediate loss of nerve power in the intracardiac ganglia or in the vagus, an increased and uncontrolled working force of the heart. This gives an enormous pulmonary hypertension and sudden enfeeblement of the right ventricle due to this hypertension. This back pressure in the lungs causes a serosanguinous transudation into both lungs. This explains the suddenness of the attack, the alarming dyspnoea and cyanosis, as also the discharge of frothy serum and blood, the sudden filling of the air vesicles and tissues with this fluid causing bilateral subcrepitant and bubbling râles. In Case II, that of the child with pertussis, there may have been added vascular disease, the alveolar capillaries having been weakened by the infection and continued strain of paroxysmal coughing. This may have made the walls more permeable. It is of interest to note, in this case, the marked improvement on the infection following the œdema.

Jores has found by experiments that disturbances of gas interchanges have no influence on the development of œdema of the lung by direct injury to the capillaries of the lungs; but he induced œdema of the lungs in animals by irritation of the peripheral stump of the vagus.

The symptomatology of acute idiopathic pulmonary œdema is: A previously healthy person is suddenly seized with an alarming dyspnoea or orthopnoea, a slight cough, fear of suffocation, a gushing from the mouth and nostrils of a frothy, serosanguinous fluid. This fluid, when allowed to stand, separates into two or three layers, an upper frothy and largest one, a lower pinkish, serous layer, and occasionally a very small third layer, darker sedimentary mucus, and blood layer. Breathing is labored, and the bubbling râles can be heard some distance from the chest. Blood pressure is generally high, but it may be weak. The countenances are generally flushed, and followed by profuse perspiration. Examination of the lungs shows both filled with subcrepitant and bubbling râles. These begin to clear up in a few hours after the attack, and in a few days disappear, the bases of the lungs posteriorly being the last to clear. Percussion shows dulness at the base of the lungs, and a hyperresonance above. Temperature remains normal or subnormal. Acute œdema in most cases reported occurs at night. There is most often a history of overexertion, or it may follow fright and shock, as in Case III. Examination of the urine immediately after the attack may show a moderate amount of albumin, blood and epithelial casts, and free blood corpuscles. This disappears entirely from the urine in three or four days, unless the kidneys should be secondarily affected. The patient is subject to recurrences.

Examination of the sputum was made in Case I. It separated into three layers, an upper frothy, the largest layer; a middle, pale, pinkish, or serous one; and a very small, darker sedimentary layer. The reaction was alkaline. Examination under the microscope showed a ground work of mucoid material, some alveolar epithelium, and a few squamous epithelia (possibly washed from the upper air passages), and red blood corpuscles. On staining a few pneumococci were found. A small quantity of albumin was found in the middle layer.

Diagnosis.—Acute idiopathic pulmonary œdema is distinguished from similar conditions by the previous history of good health, a possible overexertion or shock, the suddenness of the attack, and gush of a frothy serosanguinous fluid; both lungs filled with subcrepitant and bubbling râles; marked dyspnoea or orthopnoea; absence of fever or subnormal temperature. Acute dilatation of the heart which it most resembles has not such alarming dyspnoea, there is not the gush of frothy fluid, and the bubbling râles are absent from the lungs.

Treatment must be prompt. Venesection is indicated if the pulse is of high tension. The heart must be sustained by stimulants. Hypodermic injections of strychnine, ammonia, nitroglycerin, or digitalis. Atropine is sometimes useful. Dry cups are to be applied to the chest. Later morphine and atropine are useful to quiet the patient. Care should be taken to make frequent examinations of the urine, after the attack. Counterirritants may be applied to the loins. Diuretics, such as caffeine and digitalis, and the iodides, are useful to hasten recovery.

I would also call attention to the great value of applying ice bags to the præcordia. I believe it exerts a marked influence in quieting the heart, and still acting as an efficient stimulant to that organ.

1300 PINE STREET.

ON THE OCCURRENCE OF INDICAN, ALBUMIN, AND CASTS IN THE URINE.

By JOHN R. WILLIAMS, M. D.,
Rochester, N. Y.

More or less attention has been given by clinicians of late to the examination of the urine for indican. That indican in itself is prejudicial to the welfare of the individual is open to question, but its diagnostic value as an indicator of intestinal putrefaction is very generally conceded. The relationship of absorbed intestinal toxines, of which indican is a type to disturbances of the kidney, is not as yet clearly established. Therefore a comparative study of the excretion of indican with that of albumin and casts should be of interest, the more especially since the literature affords very little data on the subject. The writer submits the results of 600 urine examinations made in office practice during the past year.

It should be stated by way of explanation that while the various tests employed were qualitative, they were also roughly quantitative. The intensity of reaction in each test was recorded on a scale of ten. As, for example, a mere trace of albumin was indicated by the figure 1, while a very pronounced reaction was marked 10, and the varying degrees of intensity between the minimum and maximum were represented by corresponding figures. The reactions for indican, were likewise recorded. In this study the mere traces found in nearly all normal urines are unnoticed, and only abnormal reactions considered. For purposes of expedience in comparison, however, they are grouped into three divisions, according to intensity of reaction and designated as slight, moderate or marked.

Of the 600 specimens, 310 contained some one or more pathological elements. Pus was present in forty specimens and sugar in nine; these, however, are not included in this study except when they contained the pathological elements under consideration. The following table summarizes the analyses as to frequency of occurrence:

	Per cent.
Albumin, alone.....	44 or 7.3
Albumin, and casts.....	36 or 6.0
Albumin, casts, and indican.....	24 or 3.7
Casts, alone.....	10 or 1.6
Casts, and indican.....	9 or 1.5
Indican, alone.....	87 or 14.5
Indican and albumin.....	34 or 5.7
Indican and albumin.....	6 or 1.0
Indican and with other elements.....	28 or 4.6
Pus, alone.....	20 or 3.3
Pus and indican.....	6 or 1.0

Summarized as to intensity of reaction: Albumin was present in 160 specimens, or 26.6 per cent.

It was present as a mere trace in 53 specimens, or 8.8 per cent. In moderate amount in 84 specimens, or 14.0 per cent. It was marked in 23 specimens, or 3.8 per cent.

Indican (blue) was present in 147 specimens, or 24.5 per cent.

It gave a slight reaction in 70 specimens, or 11.7 per cent. A moderate reaction in 37 specimens, or 6.1 per cent. A marked reaction in 40 specimens, or 6.7 per cent.

Indican red was present in 34 specimens, or 5.7 per cent.; in 14 of these the reaction was marked.

For purposes of comparison the data in the foregoing are tabulated together and in detail:

Albumin reaction.	No. of specimens.	Indican negative.	Indican slight.	Indican moderate.	Indican marked.	Indican red.	Indican yellow.
Negative.....	33	39	2	2	2	2	1
Slight.....	53	29	9	2	5	6	3
Moderate.....	84	38	14	8	7	13	4
Marked.....	23	8	6	3	2	4	0
Albumin absent.							
Cast present.	19	10	2	2	2	2	1

Conclusions.—One is scarcely warranted in drawing hard and fast conclusions from so limited a study, however the data presented suggests to the writer the following:

Indican is present in a large percentage of urines of those who present themselves for office treatment. It was found in considerable amount in twelve per cent. of all urines, and in marked amount in thirteen per cent.

It was present in considerable amount in ninety-three cases, or fifteen per cent., in which albumin was absent.

Marked indicanuria occurred about twice as often in the absence of albumen as in its presence.

Approximately half of the cases of albuminuria had an associated indicanuria, which apparently increased in frequency with the severity of the albuminuria.

It is the writer's observation, and the general experience, that in cases of this type, the albuminuria rapidly diminishes when appropriate treatment is directed to the source of indican production.

290 MONROE AVENUE.

MICROSCOPIC TRAUMATIC GANGRENE.

By J. WALLACE BEVERIDGE, M. D.,
New York.

Ever since aseptic surgery has entered the field of medicine, the student, the scientist, and the operating surgeon have all endeavored to create a condition wherein the chances of infection from a pyogenic germ are so small that the formation of pus is practically an unknown factor in the dangers of a modern operation when the technique is carefully observed.

But, notwithstanding that perfect asepsis may be carried out during an operation, i. e., without the slightest infraction of technique, we occasionally have to deal with what has been termed a "sporadic case of pus in a supposedly clean case," in which it baffles the mind of the surgeon to discover the lapse of technique.

The imperfect sterilization of the sutures is invariably thought to be the cause of the infection; or perhaps a careless moment on the part of the assisting nurse.

These cases have given great worry and thought to the surgeon, because it is indeed very sad to have a successful operation, the patient doing well, and primary union looked for, and then have a breakdown in the adipose tissue with a formation of pus.

I shall now endeavor to explain these apparently uncalled for occurrences of "wound infection," in actual cases of which I have been collecting data for the past three years.

We know without a doubt that when the tissues of the body have received a laceration or contusion from an accidental trauma, at once a cellular change takes place in the arteries, arterioles, the capillaries, the peripheral nerves, the nerves, the lymphatics.

the muscles, and the adipose tissue. If the trauma is very severe and the circulation injured beyond repair, sloughing of the tissues, that are supplied by the damaged vessels ensues, and a traumatic gangrene sets in, which is a very difficult condition to overcome.

Now we will say, as an example, that a laparotomy is required for a complete hysterectomy in the case of a woman, thirty-five years of age, with considerable adipose tissue overlying the abdominal muscles. On incision the case is found to be quite complicated, many adhesions with numerous cysts existing, a circumstance which prevents a rapid operation. The result is that the layers of adipose tissue which have been separated by the incision lie exposed for two hours or more. The capillaries and the lymphatics are constantly being drained; fat cells and the connective tissue cells that lie in the immediate path of the knife breakdown and disintegrate; the small amount of circulation which is present in adipose tissue has been severely taxed. A condition is at once created so minute as to be microscopic in its character, but nevertheless present, wherein a continuation of breaking down of the fat cells and the connective tissue cells continues for a long period.

The wound is sewed up and primary union looked for. The patient does well, the skin unites. On about the third day a little rise in temperature may be observed, and some restlessness on the part of the patient. The wound is examined, and strange to relate, a little drop of what might be termed pus exudes from one of the little orifices made by the suture needle. At once the wound is opened and a pocket of pus is found to lie directly between the abdominal muscles and the skin, with considerable breaking down of the intermediate adipose tissue. The surgeon begins to blame the method of sterilization, or the head operating nurse, and there is a most disagreeable few moments for every one concerned.

In this case no one has been at fault. The sutures were sterilized for over three quarters of an hour, the technique was absolutely perfect, the asepsis during the operation was perfect. No fault could be found anywhere; it was not due to any external pyogenic germ. The formation of pus in such a case could not be called the fault of any one in the operating room.

The reason why the primary union did not take place and the pocket of pus was found is due to the condition created by the operating surgeon in causing an incision trauma wherein the wound surfaces were either held by retractors for too long a period, or the drainage of the lymphatics and capillaries was permitted to cover a time that was inadequate to the recovery of the minute cellular circulation. The result is a continuous breakdown of the cells of the adipose tissue, i. e., traumatic microscopic gangrene, and, on their breakdown, a pathological formation of sterile pus ensues.

This case cited is only one given as an example, but from statistics collected by me from St. Vincent's Hospital, New York; St. Francis Hospital, Colorado Springs, Colo.; Bellevue Hospital, New York; and in private practice, it has been almost the invariable rule that in major operations last-

ing over two hours from the time the first incision was made until the closure of the wound, pus would be found under the line of incision. It seems that it takes about two hours or a little over for the adipose tissue to receive damage severe enough to cause a minute gangrene to set in. This pathological change does not take place in the muscular tissues, as the blood supply and nerve supply is much stronger.

The cause of the slight rise in temperature is a toxine formed from the dead fat cells, connective tissue cells, and epithelial cells, an action the same as that of a toxine from dead bacilli.

The cultures on plates of agar, gelatin, and blood serum give negative results, showing that it is a sterile pus; and, therefore, its presence can be explained only in one way, and that is by death of the tissues due to the destruction caused by the trauma of the surgeon's knife, together with the consequent manipulation and long exposure of operation lasting two hours and more. And this condition may be termed microscopic traumatic gangrene.

33 EAST THIRTIETH STREET.

AN IMPROVED RAPID METHOD OF IMBEDDING HISTOPATHOLOGICAL SPECIMENS IN PARAFFIN.

By A. M. POND, M. D.,
Dubuque, Iowa.

Laboratory methods of diagnosis have become within the past few years so universal that it is quite the exception not to find a microscope and accessories and a well equipped work table in the office of the modern physician.

Any method of technique, therefore, which economizes energy and time or simplifies in detail the procedure without sacrificing the reliability of the findings is always welcomed by this increasing body of laboratory workers.

The chief objection heretofore advanced against the use of paraffin as embedding material was the length of time required to properly harden, dehydrate, and clear the tissue in preparation for the impregnation of paraffin; this process usually requiring from thirty-six to seventy-two hours. From every other standpoint, however, paraffin has had the preference.

The apparatus necessary for successful paraffin embedding consists of an incubator, a centigrade thermometer, a few small glass beakers, and some medium size seamless tins, the ordinary ointment boxes answering every purpose admirably.

The tissue to be examined is cut into small pieces about one centimetre square and not over three millimetres in thickness.

The water chamber of the incubator is filled and brought to a temperature of about 50° C. The pieces of tissue are now placed in a small glass beaker containing a 10 per cent. formalin solution and placed in the incubator for from five to fifteen minutes; for the same length of time in 95 per cent. alcohol; then in absolute alcohol for not less than ten minutes and not more than twenty; then in aniline oil for from ten to twenty minutes. All this is done with the tem-

perature approximating 56° C., care to be taken that it is at no time lower.

The temperature is now increased to 60° C., and the tissue is placed in xylol; this fluid should be changed every five minutes for three times, the last change remaining from five to twenty minutes, or until the tissue is perfectly cleared. The sections are now placed in melted paraffin for from ten to thirty minutes, and the tissue will be found cleared and perfectly mounted, giving a uniform ideal section which stains perfectly.

The paraffin may be shaved thin and of sufficient amount to fill the small pressed tin or ointment box and placed in the incubator from the time that the tissue is placed in the first solution, viz., that of formalin. When the tissues have passed through the successive steps as outlined, the paraffin is then ready to receive them.

The small squares of tissue should be so arranged in the melted paraffin that a sufficient space surrounds each piece, in order that they may have enough of the paraffin surrounding them to mount well on the blocks of cork, vulcanite, or wood, whichever is used.

As the tissue sections are then cut by the microscope they are treated in exactly the same manner as in the ordinary methods of staining and mounting the paraffin embedded tissue.

The time for the complete procedure is about one hour and a half.

A NEW TREATMENT OF DIABETES MELLITUS.

By S. G. SOULES, M. D.,

Stanbridge East, Quebec, Canada.

Formerly Counselor for the Massachusetts Medical Society, etc.

Three years and a half ago I resolved for various reasons to devote the remainder of my life to investigations along the lines indicated by the nature of this paper, and I am happily able at this date to make the following very pleasing, and, I believe, very important report as to the result of my somewhat toilsome work. My method has been, and is, roughly stated to mentally formulate a theory of the aetiology of the disease in question, and, while holding it tentatively, to endeavor to meet the indications of this condition, therapeutically. Many other facts have had more or less bearing on my work, but this statement covers roughly the general plan which has been followed and which has brought about these important results. I report the following case in the third person singular for obvious reasons, believing that the reader will know the personality of the patient without any further remarks:

CASE. S., a physician, sixty-two years of age, weight 160 pounds, height 5 feet 7 inches, citizen of the United States, graduate of the New York University. His habits were fairly good, and there was no history of diabetes in his family previously. I have treated this patient for diabetes mellitus eight years, or since its inception. I have been quite thorough in all my experiments, giving the remedy in large and small doses, which caused at times quite severe physiological symptoms, so much so that it was necessary to rest the stomach, which had given out by reason of over medication. This patient had the disease in a severe form, the sugar often reaching ten per cent., while a moderate starchy diet was

being taken, and its average was four per cent when the patient was on an antidiabetic diet. One tooth had dropped out and he also had hemiplegia, which at the time of the present writing is of five years' duration, with steppage very pronounced. The first two years of my experimental treatment of this case gave no results worth recording, but on the beginning of the third year the following facts were brought out, which I deem of sufficient importance to put them on record. Capsicum annum pulverized and given in doses of grs. xxx, t. i. d. (preferably in capsules) reduced the sugar about one half, and its effect in this regard lasted for several weeks. Grindelia robusta did nearly the same. Dose $\mathfrak{z}\text{ij}$, t. i. d. fluid extract saw palmetto in doses $\mathfrak{z}\text{ij}$, t. i. d., about the same. However, these agents seem to be of very little consequence compared to chimaphila, which, in doses of $\mathfrak{z}\text{ij}$ fluidextract at each meal time taken in a glass of milk, well stirred immediately before its ingestion, proved a veritable nugget of the purest gold from the mines of therapeutics, and banished the sugar completely in twenty-three days exactly. It, however, returned in ten days, after eating a large quantity of starchy food and reducing the remedy to $\mathfrak{z}\text{i}$ of the fluid extract. This taught me a lesson, and I ordered him immediately on a diet and returned to the full dose, when the sugar disappeared in twenty-four hours. After much thought, I attempted to cure the disease while the patient was taking a moderately starchy diet and spent two months in this endeavor, but failed in this time to accomplish any results worthy of notice. My theory of the disease being such at this time, that a powerful germicide added to the dose of chimaphila would probably be beneficial to the patient, and this fact induced me to experiment in this line. Amongst other therapeutical agents of this kind, arsenic in medicinal doses was chosen, and it was the only one which gave satisfactory results. This was continued in rather small medicinal doses for a period of about two months and proved satisfactory as near as I could judge under the circumstances. The sugar has entirely vanished, the patient is eating a small amount of carbohydrate food at each meal; he has gained ten pounds in weight, sleeps well, and has a fair appetite. His paralysis is of course no better, but I believe the diabetes to be cured.

Now, in summing up, allow me to make the following suggestions as to the treatment of the disease under consideration. I have found less than $\mathfrak{z}\text{ij}$ of the fluid extract of chimaphila insufficient to eliminate all the sugar from the urine. Under this dose it disappeared in less than a month. As soon as the sugar disappears, arsenic in small doses should be added to the treatment and gradually increased to a medium dose. This should be continued for two months at least, and if the sugar does not appear in that time, starchy diet should be resumed very gradually. If the sugar should at any time appear, starchy diet should be dropped at once, and the antidiabetic diet resumed, together with a full dose of the medicine, which I neglected to say should have been reduced one half at the time of the commencement of a starchy diet. After a few weeks (two or three) starchy diet may be cautiously tried again, and so on, until the patient is cured. I give this as the result of my experience, although, without a doubt, improvements will be made in this respect. One more thought occurs to me and that is, that although the fluid extract of chimaphila is not difficult to take for the average patient, it may be for some. In this case the active principle should be used. The fluid extract as made to-day contains ten per cent. of glycerin, the milk in which it is taken contains

sugar, notwithstanding these facts, the medicine has proved sufficiently powerful as an antidiabetic to free the urine entirely from sugar and to cause other improvements as well, even to the cure of the patient, although this statement sounds bombastic to a degree.

A few days after commencing this treatment the urine becomes dark. Timid patients should be cautioned of this fact. Also a few days after the arsenic is added if the fermentation test be used, about half of the yeast will rise to top of the vertical tube of Einhorn's saccharometer, and is with difficulty dislodged. This fact is certainly suggestive, and the urine should be examined microscopically at this time. Tests for albumen and sugar are negative at present.

A CASE OF HEROINISM.

By C. M. FAUNTLEROY, M. D.,
Charlottesville, Va.

Owing to the infrequency of reported cases of addiction to the use of heroin, the case in question attracted special interest, and I desire to report in detail the following instance of habitual use of the drug in excessive amounts:

CASE.—C. Y., white, male, married, age twenty-six years, was a banker by occupation.

Family history: Mother and father both died of phthisis.

Previous medical history: Patient had had usual children's diseases, but was otherwise healthy. He stated that from early childhood until he was almost grown, he was continually warned by anxious friends and by physicians of the likelihood of his contracting tuberculosis, and dying as his parents had done of phthisis. So firmly had this thought become fixed in his mind that only quite recently he had been able to throw it off. As a result of months and years of worry and introspection, the patient became a profound hypochondriac by the time he was grown. Bottle after bottle of "consumption cures" were taken, which only made matters worse. Finally, in this condition he began the hypodermic use of heroin hydrochloride, about four years ago, gradually increasing the amount up to the time he was admitted to Moore's Brook Sanatorium, in Virginia, several months ago, at which time he acknowledged to taking from eight to ten grains a day.

Physical examination: Patient was a small, undeveloped, poorly nourished man; complexion was extremely sallow; tongue was coated with a thick white fur and breath very foetid. The chest findings were negative; there was no cough or expectoration. The examination of the heart was negative. The pupils were slightly dilated and equal. Appetite was very poor; the bowels were constipated. Sleep was poor.

Patient was given hypodermic injections of heroin hydrochloride every three hours. The total amount given in twenty-four hours was eight grains, at first. A gradual scale of reduction was followed, and strychnine was given for its stimulating and tonic effects. The heroin was entirely removed at the end of seven weeks. The patient experienced very little discomfort until the drug was stopped, and although he was getting only one eighth of a grain a day, he suffered with excruciating pains in the lower extremities, head, and back. There was profuse diarrhoea, nausea and vomiting, chilly sensations, various nervous manifestations, and complete loss of appetite and sleep. All these symptoms disappeared within six days following the removal of the drug, and the patient's general condition began to improve almost at once.

Therapeutical Notes.

Solution of Radium Bromide in Cancer of the Liver.—H. Domenici, in an illustrated article on the application of radium in therapeutics (*Bulletin général de thérapeutique*, September 30), describes several forms of apparatus which have been devised for utilizing the emanation, by inhalation, of air passing over a solution of radium bromide. Three methods of administering the emanation are described: (1) The inhalation of the emanation mixed with air; (2) the concentration of the emanation in a liquid used as a vehicle for administration; and (3) the radioactivity of water subjected to a constant source of emanation. Radium acts upon the body directly and indirectly. In the latter case the emanation, which is absorbed by the tissues, and confers upon them an induced radioactivity. However small may be the doses of radium introduced into the organism, they readily manifest their activity. Thus, after an injection of five centimetres of gray oil (40 per cent.) bearing emanations from the radium bromide, it has been proved that the urines are extremely radioactive during a period of from four days to one month. Notwithstanding its activity, it has been observed that the use of radium is inoffensive even when used in comparatively large doses. The following case will illustrate: An exploratory laparotomy was performed November 1, 1906, on a patient, by Dr. Ricard, at the Hospital St. Louis, who found a cancer of the liver. This patient was treated consecutively by injections of the radium bromide in the hepatic tissue, and by the ingestion of a solution of the same salt (containing one hundredth of a milligramme in each cubic centimetre). The patient left the hospital on November 28, in a considerably improved condition. She carried with her to her village home 100 c.c. of a solution of the radium bromide, of the strength indicated, of which she was taking fifteen centigrammes daily. In April she reported for examination, and was found to have still more improved. She again departed, taking with her this time 200 c.c. of a solution containing one thousandth of a milligramme to the cubic centimetre. In July this patient, who six months before had a very marked cachexia, found herself in relatively a very satisfactory state of health. She had gained fourteen pounds in weight, and had been engaged in the fatiguing work of managing a large farm. Whatever therapeutical interpretation may be placed upon this case, it at least demonstrates that it is possible to inject, and to cause to be swallowed, a considerable quantity of radium bromide without bad results.

Ointment for Hæmorrhoids.—Vaquez (*Journal de médecine de Paris*, August 25, 1907) prescribes the following, to be applied several times daily:

- R Cocaine hydrochloride, 0.03 gramme;
- Adrenalin solution (1. to 1000), gtt, xxx;
- Petrolatum, 30.0 grammes.

M. S. For hæmorrhoids.

Treatment of Acne.—Kapp prescribes for cases of acne powders of

- R Precipitated sulphur, 1.0 gramme;
- Menthol, 0.25 gramme.

To be taken two or three times a day.

(*Journal de médecine de Paris*, August 25, 1907).

Pilocarpine in Syphilis.—Robinson gives pilocarpine hydrochloride in syphilis at the same time with mercury, and also in the interval between two mercurial treatments. He prescribes it in solution or in pills in the dose of from two to eight milligrammes (gr. $\frac{1}{32}$ to $\frac{1}{8}$) repeated two or three times a day. By this means he asserts to have succeeded in causing the disappearance of lesions, which hitherto has resisted the mercurials alone. This agent he has also found useful in the treatment of mercurial stomatitis.—*Journal de médecine de Paris*, August 25, 1907.

Methylene Blue in Mercurial Stomatitis.—Herbert and Lamoureux (*Journal de médecine de Paris*, August 25, 1907), in cases of mercurial inflammation of the gums, use a powder of methylene blue, which is deposited upon the affected parts with a powder blower. The application should be made freely. Rinsing of the mouth will remove an excess of the remedy. The treatment is continued by frequent washing of the mouth with a solution of potassium chlorate (20 parts to 1000) and cleaning the teeth by removal of tartar and debris of food. The only contraindication to this treatment is the presence of albumin in the urine.

Hypodermic Administration of Quinine to Children.—In the treatment of malaria in children, Crespin, of Algiers, considers the large single dose as the most effective and prefers giving the remedy hypodermically. He gives quinine hydrochloride dissolved in sterilized water (1 c.c. containing 0.25 gramme of quinine), or, as suggested by Laveran, antipyrine can be added thus:

℞ Quinine bichlorhydride,	3.0 grammes;
Antipyrine,	2.0 grammes;
Distilled water,	10.0 c.c.

M.

Children bear relatively larger doses of quinine than adults, as the rule, but the dose should not be larger than fifty centigrammes for a child below two years of age; one gramme between two and five years; one gramme and a half between five and ten years; and two grammes between ten and fifteen years.

Osteomalacia and Rachitis Treated Successfully with Suprarenal Extract.—L. M. Bossi (*Policlinico*, through *Le Bulletin médical*, September 4, 1907) having determined that removal of the suprarenal capsules produced osteoporosis in all the animals experimented upon, with alterations most marked in the pelvis, proceeded to treat cases of osteomalacia with injections of adrenalin. He found that there was produced not only a relief of the cachexia and disappearance of pain, but also an ossification of the softened pelvic bones. In two cases of rachitis he also obtained such encouraging results that he desired to call attention to this matter. Tanturri (*Gazzetta degli ospedali e delle Cliniche*, July 7, 1907) also reports a serious case of osteomalacia which he has treated with success by this means. He made nine injections of 0.50 c.c.m. of the solution of adrenalin (1-1000) in the course of six days. The diminution of the pain and amelioration of the general condition was manifest even after the first injection. At the present time the patient is considered cured.

Potassium Permanganate as a Styptic.—In the *Vratchebnaya Gazeta* No. 32 (through *Le Bulletin médical*, August 31, 1907) Dzirne describes a process for checking capillary oozing in operating upon parenchymatous organs. The procedure consists in applying to the orifice of the bleeding vessel a small crystal of potassium permanganate held with forceps. If there is general oozing from the surface he recommends making pressure with a compress of gauze dipped in crystals of permanganate. At the point of contact an eschar is formed upon the wounded surface and the bleeding stops. The crystals are preferred to the powdered permanganate, because a smaller quantity can be used to produce the desired effect. The author has used this method successfully in fifty operations upon the brain, one hundred and twenty on the intestines, and forty upon the bones. He has never observed any injurious effect from the permanganate.

Patches of Desquamation on the Tongue.—The condition known as lichenoid state of the tongue, lingual intertrigo, marginal enfoliative glossitis, epithelial desquamation of the tongue, geographical tongue, tiger tongue, aberrant desquamation in spots, etc., has been recently studied by Bonnet of Antiquaille. In his opinion there have been grouped under a common designation a number of cases differing in their nature, etiology, and their evolution, and really having nothing in common except a certain superficial resemblance in the lesions which they produce. Careful examination, however, will enable us to recognize considerable difference clinically between them. The author discriminates between the following: (1) In young infants the lesion is usually a temporary affair due to transitory malady; in other cases, on the contrary, the disorder is due to a morbid state which may persist almost indefinitely. (2) The causes are incompletely known and are variable. It has been alleged by Weill that it is due to infection, and probably streptococci, as it accompanies an epidemic of *perlèche* (cracking of the corners of the mouth accompanied by infection). In a certain number of cases the disease begins in childhood and lasts indefinitely, coexisting with a tongue lesion (scrotal tongue), and is possibly due to heredity. In this case it may be due to a congenital deformity of the lingual epithelium. Dyspepsia has been assigned as a cause, and arthritism (lithæmia) is a common factor. Some cases, possibly, have etiological relations with eczema, but this would be only exceptionally true. In many no cause can be assigned.—*Le Bulletin médical*, August 31, 1907.

Treatment of Infectious Catarrhal Conjunctivitis. Mallet reports (*Le Bulletin médical de Paris*) the best results from the following:

℞ Yellow oxide of mercury,	0.40 gramme;
Liquid acetous ,	6.0 grammes.
Water, per part,	14.0 grammes.

M.

To be applied to the conjunctiva and followed with light palpebral massage.

If used for diphtheritic or gonorrhœal conjunctivitis, it should only be towards the end when the secretion has almost ceased.

The Treatment of Chorea in Pregnancy.—

When chorea appears in a pregnant woman, Rudaux advises (*La Clinique*, August 30, 1907) to immediately apply a rigorous antitoxic treatment similar to that advised for albuminuria, viz.: (1) Absolute or partial milk diet; (2) evacuation of the intestine by a purgative and antiseptic, then continue with small doses of calomel, and by large injections into the intestine (irrigations); (3) watch the urine, both quantitatively and qualitatively. This is the treatment for the cause; but the condition of hyperexcitability of the nervous system should also be treated. The preferred agent is chloral hydrate in large doses (4.0 to 10.0 grammes in twenty-four hours), which can be given in syrup or in milk, or given in an enema.

- R Chloral hydrate,4.0 grammes;
Yolk of one egg,
Milk,100.0 grammes.

M. S.: For an injection into the rectum, to be retained.

The quantity of chloral may be increased, up to 8 or 10 grammes, and then to be reduced as the symptoms improve. The remedy should be continued as long as the symptoms persist. The question of artificial labor or abortion should only be considered if the patient's life appears to be in danger.

Serotherapy for Hæmophilia.—Emile Weil, in a discussion on hæmophilia (*Le Bulletin médical*, October 16, 1907), said that the method of injecting fresh blood serum for hæmophilia had given him uniform success in eleven cases that he had treated during the last two years. He had used it as a preventive measure, in order to prevent operative hæmorrhage, and also as a curative means, to stop bleeding. Seven of the cases were of spontaneous hæmophilia, and four had a strong family tendency to hæmophilia. The effects of the serum were shown in from twelve to twenty-four hours, after subcutaneous or intravenous injection, and persisted for a period of one or two months. Besides the general effects, the serum has a local action, which may be utilized in cases of external hæmorrhage. The technique to follow is the same as that of using antitoxine. A single injection of 20 cubic centimetres of fresh horse serum usually suffices, when made the day before an expected surgical operation. The antitoxic sera can be utilized provided they are of recent preparation. The method is not simply palliative; it apparently also modifies the humoral defect underlying hæmophilia.

Ointment for Psoriasis.—Daulos (*Journal de médecine de Paris*, October 16, 1907) recommends:

- R Oil of cade,8 parts;
Talcum powder,2 parts;
Powdered zinc oxide,10 parts.

M.

This is to be applied to the skin and renewed every two days. It is superior to other applications, as it does not soil the clothes.

Effects of Sodium Salicylate Upon Infants.—Martinet (*Journal de médecine de Paris*, October 6, 1907), who has recently made a clinical study of sodium salicylate, states that in infants it sometimes provokes the appearance of a clinical syndrome resembling diabetic coma (prostration, dyspnoea, coma, acetonaemia). The toxic dose is variable and seems to depend especially (outside of individual idiosyn-

crasy) upon the state of constipation of the bowels. Acetone can be found in the urine and in the expired air. Its presence is one of the first symptoms of toxic action and may be regarded as an "alarm signal." To avoid this danger the acidity of the urine should be reduced by the administration of large doses of sodium bicarbonate, and the bowels should be thoroughly purged.

Pills of Mercury.—

- R Protiodide of mercury,3.0 grammes;
Powdered gentian,3.0 grammes;
Powdered opium,0.60 gramme.
Glycerin, q. s.

M. Divide in pil No. 60.

These pills, according to Daulos, do not harden with age, and are always absorbable.

To Abort a Furuncle.—

- R Powdered salicylic acid, }2 parts;
Soap plaster, }
Diachylon plaster,4 parts.

M. S.: Spread on kid or muslin, cut the proper size, and apply to surface.

—*Journal de médecine de Paris*, October 13, 1907.

Cocaine Nitrite for Asthma.—Einhorn (*Münchener medizinische Wochenschrift*, Nos. 27 and 28, 1907) has prepared cocaine nitrite and atropine nitrite, both of which are very soluble in water. He uses the following mixture, in the atomizer, in cases of nervous asthma:

- R Cocaine nitrite,1.028 per cent.;
Atropine nitrite,0.581 per cent.;
Glycerin,32.16 per cent.;
Water,66.33 per cent.

This solution is to be sprayed into the nasal chambers at the moment that the asthmatic attack begins. If it does not succeed it should be repeated in the course of half an hour to one hour. The atomizer should be of the kind that is used for oil. The quantities of the drug are excessively small, so that there is no danger of a toxic effect.

A New Therapeutics of Tuberculosis Based on the Antitoxic Action of the Liver.—At a recent meeting of the Académie de médecine of Paris (*La Clinique*, October 11, 1907), Lemoine and Gérard reported the results of their experiments upon the antitoxic action of ethereal extracts of bile against the tuberculous poison. These experiments, made first upon rabbits, were afterwards repeated upon man. The product obtained from the liver, which they called *paratoxine*, was used subcutaneously. The results obtained were reported to be very encouraging, not only with regard to effects upon general condition, but also with regard to the physical signs and functional disorders, obtained as well in advanced cases of tuberculosis as in the incipient cases. This was notably manifested in the diminution of sweats, the awakening of appetite, and in decided augmentation in weight.

Sodium Nitrite for Hæmoptysis.—A. Campani reported to the Société médico-chirurgicale, of Modena, the results of his clinical experiments with sodium nitrite in certain tuberculous cases with hæmoptysis and high arterial tension. It had been already favorably mentioned by Mircoli, whose good opinion is endorsed by Campani. He advises the use of small doses of 25 centigrammes (gr. vi) per diem, preferably given in combination with sodium bicarbonate and potassium nitrate.

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LABORATORY METHODS IN THE TEACH- ING OF MEDICAL AND SURGICAL DIAGNOSIS AND TREATMENT.

No one will deny that laboratory instruction and experimental demonstrations have improved the teaching of human physiology. These methods of study are as necessary as are anatomical dissection, chemical analysis, the cultivation and staining of bacteria, and the interpretation of microscopical findings in histological sections and blood specimens. Up to the time when a medical student finishes his second year at least, and in some schools until he is well on in his third year, he has been taught the essentials of various sciences needed as a preparation for the study of disease and its treatment in man. The method of instruction has been similar in all departments. When he enters the field of clinical subjects, the study of the theory and practice of medicine and surgery, he is confronted with theories based upon the opinion or judgment uncontrolled by exact measures for experimental proof, instead of continuing in the manner of his previous work, where each theory was based on demonstrated fact and where he had been able of his own cognizance to accept or test each statement of his teacher.

In medicine and surgery, lectures, recitations, and examinations of dispensary and hospital patients are the means commonly employed to give the student, fresh from personal contact with concrete facts, his first understanding of the varied subject of disease in the suffering human body. He

eagerly seizes upon the patient for whom he has waited through his period of probation. He hears half a dozen physicians or surgeons explain the same clinical picture of dissimilar theories of disease, and he sees as many different plans of treatment, either equally successful or equally futile in their results. Skepticism as to the wisdom of his teachers or pessimism often concerning his own ability either to diagnosticate or treat disease follows, if they are not replaced by what is really worse, the blind acceptance of some one man's system of medicine and a conviction that what was good enough for his professor will do for him.

Two years ago, at the Johns Hopkins Medical School and at the College of Physicians and Surgeons of Columbia University, laboratory courses devoted to the production of certain types of functional and organic errors commonly seen in medical and surgical practice were offered as optional courses to medical students. In the first instance the course was under the auspices of the department of pathology, and in the other under the departments of surgery and physiology. At the present time experimental laboratory methods are being used in the teaching of the principles of physical diagnosis in the Cornell University Medical School. Up to the present time the matter has been one of individual effort, supplemented or not by the department under which the work was done. If we are to duplicate the illuminating teaching of medicine and surgery as it is offered by the German physicians, Friedrich Müller, Kraus, and Krehl, we must add to the wide experience and thoughtful care of our American teachers in clinical medicine something of the demonstrable facts concerning the causes of disease and its treatment as they are explained by laboratory study. McCallum and Thayer have successfully studied cardiac murmurs by the experimental method; Maury has found the students eager to verify and test the teaching they have received in the matters of surgical sutures, anesthesia, and aseptic technique and operative procedures. Opie offers in his studies of experimental pleurisy with effusion a fertile field for the verification of physical signs in this interesting and often baffling disease.

Under the auspices of the Graduate School of Columbia University there is to be offered this winter at the College of Physicians and Surgeons a course which is intended to give a chance for those interested in the essential circulatory changes occurring in many disease processes to study them by the laboratory methods used in exact research. The basis of treatment for general circulatory and respiratory embarrassments of various kinds is especially susceptible to record and exact measurement.

It is safe to say that few medical students of the closing year know the use of any apparatus for estimating the blood pressure in man, and yet they have all watched with interest and intelligence the kymographic records of carotid blood pressure as it is affected by splanchnic stimulation or cardiac inhibition. Insurance companies, gymnasia, and schools appreciate the value of records of blood pressure, and yet there is little or no instruction in the use of clinical instruments for its measurement as an aid in diagnosis or a guide to treatment. Such an understanding of the value of detailed study of blood pressure as is necessary for the intelligent treatment of disease cannot be had by clinical tests and didactic teaching alone, but must be preceded and supplemented by an artificial reproduction of disease processes where they can be recorded and demonstrated free from the confusion of a complicated clinical picture.

Until Pässler and Romberg studied the circulatory effects of the toxins of pneumonia and diphtheria, the prevalent opinion was that heart failure was the cause of death in the majority of the fatal cases of these diseases. Now that they have shown that vasomotor paresis is the essential error, it is to be hoped that whipping the heart to unnecessary exertion will be a less prevalent mistake in treatment.

There is much written and spoken of the causes of temporary or persistent low or high blood pressure and its results, and the best way of obtaining a return to normal pressures, and yet there is little besides clinical study to support or refute the usual conclusions. How rarely does the question appear or is the suggestion made that high arterial pressure is usually a physiological response, and not in itself a cause of disease! To the laboratory observer the reflex adjustment of the circulation and its ability to meet infinitely varied demands are the most striking things about cardiovascular relations. Before the student can appreciate the importance of a hard pulse, a blanched surface, and a laboring heart, he should see such conditions produced by the use of adrenalin experimentally, where he is not confused by the variations of a many lesioned patient.

When the ambulance surgeon has to distinguish between the coma of a depressed fracture and that of alcoholism or of the morphine suicide, he would make his diagnosis more certain by the use of his sphygmomanometer if he had seen the experimental picture which Cushing has elaborated in his studies of intracranial pressure. The danger from rapid intravenous infusion should not be learned first in the operating room, where the patient pays

the penalty of the lack of training on the part of the staff physician, but at the laboratory table, where the rapid drop in carotid pressure, the dilated right auricle, and the tumultuous heart's action can all be seen to follow directly the infusion of saline solution into the jugular vein. Each surgeon should not have to decide after painful experience how best to secure drainage or accomplish irrigation of the abdominal cavity, but as a student he should have had the opportunity to see for himself the difference in the absorption of saline solution from the peritoneal cavity according to pressures existing above and below the diaphragm. A few simple demonstrations of artificial respiration with a normal heart and bloodvessels would soon dissipate the prevalent cloudiness of the teaching as to how and when it is to be used and what we may expect from its application. Such records as are continually being repeated in experimental laboratory work, if seen by the student of medicine, would soon create a demand for an artificial respiration apparatus in every emergency ward or operating room in our hospitals.

The teaching of medicine and surgery, especially diagnosis and treatment, needs a preparation by the fundamental allied sciences and application of the same methods of analytical study of symptoms, therapeutical results, and the physiology of the altered functions as are usually effective in the study of physiology and in physiological chemistry. May we not look forward to the time when, added to the corps of clinical and didactic teachers in the departments of medicine and surgery and applied therapeutics, there will be at least an assistant who may record the variations from normal, and whose control of the hoped for results of treatment will put teacher and student in possession of facts, instead of allowing the latter to absorb the impressions, brilliant though they often may be, of a clinical teacher which are not supported by exact analysis of the functional records, as well as of the urinary and stomach findings? Our teachers of the applied branches of medical science should add the methods of teaching which their students have learned to respect, and add to the force of the spoken word illustrations of the comparative picture of altered function produced and controlled by experimental methods. Such courses as have been mentioned might be incorporated in the teaching of medicine, surgery, and applied therapeutics without adding to the well filled curriculum, save the student and teacher much doubt in the explanation of disease, and add strength to convictions when they are finally accepted, both for student and for teacher.

THE SMALL MEDICAL COLLEGES.

A notable introductory address, entitled Educational Democracy, was delivered at the opening of the seventy-seventh session of the Albany Medical College by Dr. Willis G. Tucker, professor of chemistry and toxicology in the college. It is published in the November number of the *Albany Medical Annals*. "Our smaller colleges," says Professor Tucker, "deserve and should receive fuller recognition and better support." We agree entirely with the speaker. We have never been able to discover that any physician was at all more excellent by reason of his having been graduated by a great university, and we are heartily tired of having it dinned into our ears that such and such a man must be superior on account of the greater number of years spent by him in undergraduate study. We always feel like retorting that it takes longer to gild a dolt than to educate a bright man.

We have heard too much of late years about the necessity of lengthening the medical course and raising the preliminary requirements. As regards the preliminaries, there are, says Professor Tucker, those who would "reduce everything to a strict numerical expression. They pursue their investigations with a foot rule and hourglass." They measure the floor spaces of the recitation rooms and laboratories in which the candidate has been instructed, and appraise the cash value of the apparatus employed. As well estimate a man by his vocabulary, as the faddists generally do! Our forefathers had no enforced preliminaries, yet there was far less illiteracy in the medical profession fifty years ago than there is to-day. In spite of the present requirements, Professor Tucker says: "Men who spell wretchedly and make bad work with simple arithmetical calculations still enter, armed with State credentials, and last year in this school more first year men were conditioned than in any previous year within my recollection." He adds that he is not inclined to believe that the average reputable American physician to-day is in any recognizable degree superior to his predecessor of a quarter of a century ago as a result of State supervision.

Where were our great men of the past in medicine graduated? Who cares to know what the institutions are or were (for some of them are defunct) upon which credit has been shed by such men as Rush, Bard, the Warrens, the Nathan Smiths, Bartlett, Jackson, Drake, McDowell, Hodgen, Pancoast, Gross, Sims, Eve, March, Bon-tecou, Mott, Parker, Clark, Bigelow, Hodge, Meigs, Thomas, Van Buren, Flint, and Barker. We have had enough of snobbery hanging on the source of the degree or on the State requirements

for the license. Let us encourage the less pretentious of our schools.

"OPTOLOGISM."

The physicians of Brooklyn have received only lately a circular from an "optologist"—what that is we really do not know, but surmise from the contents of the letter that it is a special kind of optician. The word seems to be coined in a way analogous to optometer (*ὄπτρος*, visible). The author of the circular begins with the following, verbatim copied, sentence: "We invite your attention to a notable case of strabismus due to hyperopia (far sight). . . ." So kind of the writer to define for his reader, a physician, the word hyperopia! This "optologist" must really think that the practitioner's knowledge of the meaning of ophthalmic terms is commensurate with his own scientific capability of forming new words. "Optologist" is as beautiful as optist, which, we hope, has been buried. We fear that the title "tonsorial artist" has made this "strabismocorrectionist" rather jealous.

Our Brooklyn "optologist" then continues, stating that the case of strabismus due to hyperopia "was completely relieved in one month after wearing the glasses which we prescribed." It is too bad that the amended section of the penal code of the State of New York, signed by the governor June 5, 1907, which went into effect on September 1, cannot be applied to this "optologist," who says, furthermore: "Our work does not interfere in the slightest degree with that of the regular oculist, whose legitimate work is the treatment of diseased conditions of the eye, but is supplemental to that of the regular medical practitioner in so far as we correct by means of glasses all mechanical defects of the eye and its controlling muscles, thus *relieving* eye strain and *incidentally curing* headaches and other nervous derangements when they arise from this cause." But this exactly copied sample will suffice. And what is the duty of the ophthalmologist?

MEDICAL MEN AS MUNICIPAL OFFICERS.

We have always advocated a freer participation of our professional brethren in political matters. It is not beneath anybody's dignity; otherwise the late Professor Virchow and the late Professor Robin would not have been found in the legislative bodies of Germany and France. And it is not national offices alone to which physicians may properly aspire. We are glad to see indications that this is getting to be realized; in the recent election seven cities of New Jersey—Trenton, Paterson, Rahway, Summit, Washington, Atlantic Highlands, and Frenchtown—chose medical men for their mayors.

SUBJECTS OF "MINOR IMPORTANCE."

In an article published not long ago in the *New York Herald*, on the difficulty of procuring competent office boys for business houses, a letter is given purporting to come from a New York high school graduate applying for such a position. After enumerating the various subjects in which he is proficient—Latin, mathematics, English literature, French, German, etc.—the applicant winds up by mentioning "such subjects of minor importance as physiology and hygiene."

Old traditions in education die hard, but it seems to us that in a curriculum admittedly designed to enable the student subsequently to earn a living in the modern business world, where health and vigor are of such prime importance, physiology and hygiene should not be taught as being of almost negligible value in comparison with ancient literature and high mathematics, treasures to be sure, but so much rattling junk in the mental equipment of boys like the writer of the mentioned letter.

News Items.

Changes of Address.—Dr. A. M. Fernandez de Ybarra, to 187 East Sixty-fourth Street, New York; Dr. Samuel Barlow Moore, to 263 West Eighty-first Street, New York.

An Epidemic of Typhoid Fever is present in the neighborhood of Trenton, N. J. Thirty-two cases are under treatment in the local hospitals.

The Middle Tennessee Medical Association.—The semi-annual meeting of this association will be held in Nashville on November 21st and 22d.

The University of Manila.—The Medical department of this university was opened in September. It is proposed to devote special attention to the study of tropical medicine.

Kings County Hospital Alumni Association.—The annual dinner of this association will be given at the Hamilton Club, Brooklyn, on Wednesday evening, November 20th.

The St. Louis Medical Science Club.—After ten years of existence, this club has disbanded, and the members will hereafter lend their energies to the work of the St. Louis Medical Society.

Medical Reciprocity.—Reciprocal relations between the States of Ohio and New York have recently been arranged by the State Board of Medical Examination and Registration of Ohio.

A Medical Night School.—A night school for the study of medicine has been organized in St. Louis, and lectures and clinics are being given regularly to a class of about thirty-five members.

The Medical Library of the University of Pennsylvania has received a gift of fifty thousand volumes from Dr. Emilen Hutchinson as a memorial of his son, Dr. Henry S. Hutchinson.

The Herter Lectures before the medical department of Johns Hopkins University will be given this season by Edward A. Schäfer, LL.D., F.R.S., professor of physiology in the University of Edinburgh.

The Pennsylvania Society for the Prevention of Tuberculosis will open an exhibition of models and drawings on November 20th. The exhibition will continue until December 1st, Sundays included.

The Society of Physicians of the Village of Canandaigua. At a meeting of this society held on Thursday evening, November 14th, as guest of Dr. F. E. McClellan, a paper on the Causes of Appendicitis was read by Dr. A. W. Armstrong.

St. Mark's Hospital, New York.—The annual Thanksgiving concert in aid of this hospital will be held in Carnegie Hall on Friday evening, November 29th, under the direction of Mr. Victor Herbert.

Carnegie Medal for a Physician.—Dr. Lochlin M. Winn, of Anniston, Ala., has been awarded a silver medal by the Carnegie Hero Fund Commission for saving three persons from drowning in Clayton, Ala.

Typhoid Epidemic in Hastings-on-the-Hudson.—It is reported that an epidemic of typhoid fever has appeared in Hastings-on-the-Hudson, and that the disease is spreading rapidly to various sections of Westchester County.

A New College of Medicine.—It is announced that a college of medicine has been organized by the University of Wisconsin, at which only the first two years of the medical course will be given. Dr. C. R. Bardeen is the dean.

The Portland, Me., Medical Club.—At a meeting of this club, as guest of Dr. C. W. Bray, held on Thursday evening, November 7th, the paper of the evening was by Dr. Francis W. Lamb, on Tuberculosis of the Upper Air Passages.

In Memoriam.—A memorial meeting in honor of the late Dr. James Carroll was held by the Johns Hopkins Club on October 14th, at which addresses were delivered by Dr. William H. Welch, Dr. Howard A. Kelly, and Dr. William S. Thayer.

Surgeon of Snug Harbor Resigns.—Medical Director J. Rufus Tyron, United States Navy, retired, has resigned his position as surgeon in chief of the Sailors' Snug Harbor, Staten Island, N. Y., the resignation to take effect from November 1, 1907.

The Louisiana State Board of Medical Examiners.—This board has been reorganized, with the following officers: President, Dr. F. M. Thornhill, of Arcadia; vice-president, Dr. C. D. Simmons, of Baton Rouge; secretary and treasurer, Dr. F. A. Larue, of New Orleans.

The Tri-State Medical Association of Mississippi, Arkansas, and Tennessee.—The annual meeting of this association will be held in Memphis, Tenn., on November 19th, 20th, and 21st. A programme of unusual interest has been prepared, and a good attendance is expected.

The Southern Surgical and Gynecological Association.—The next annual meeting of this association will be held in New Orleans on December 10 to 12, 1907. Dr. Howard A. Kelly, of Baltimore, is president of the association, and Dr. W. D. Haggard, of Nashville, is secretary.

The Treatment of Contagious Diseases in New York.—Thomas Darlington, commissioner of health of New York, has received an appropriation of \$60,000 from the Board of Estimate and Apportionment to be devoted to the care of patients suffering from contagious diseases in New York and at Otisville.

The Buffalo Academy of Medicine.—The regular meeting of the Section in Medicine of this academy was held on Tuesday evening, November 12th. The following papers were read: Care of the Infant During the First Week of Life, by Dr. De Witt H. Sherman; Recurrent Empyema, by Dr. John H. Pryor.

Richmond County Medical Society.—The regular monthly meeting of this society was held at the Staten Island Academy of Medicine, on Wednesday evening, November 13th. Dr. Henry S. Patterson, of New York, read a paper entitled Some Unusual Manifestations of Usual Cardiac Lesions.

Hampshire District Medical Society.—A meeting of this society was held in Northampton, Mass., on Thursday, November 14th, at which the subject of Medical Expert Testimony was discussed. The legal side of the question was presented by Judge W. G. Bassett, and the medical side by Dr. George W. Gay.

Dr. Theresa Bannan, of Syracuse, N. Y., has been invited by the committee on lectures and addresses of the Onondaga County Historical Association to prepare a history of the early Irish settlers of Onondaga County. When Dr. Bannan finishes her work, she will present the history to the association in the form of an address.

National Association for the Study of Epilepsy.—At the regular annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics, held recently in Richmond, Va., the following officers were elected for the ensuing year: President, Dr.

H. M. Weeks, of the New Jersey Village for Epileptics; first vice-president, Dr. F. Drewry, of the Central State Hospital, Petersburg, Va.; second vice-president, Dr. Thomas C. Fitzsimmons, of the Pennsylvania State Epileptic Colony; secretary and treasurer, Dr. J. F. Munson, of Sonyea, N. Y.

Women Physicians in London.—Within the past year eighteen students of the London School of Medicine for Women passed the M. B. degree of the University of London, which is the highest degree obtainable in England. Four took the M. D. degree, and one the M. S. degree, which is the hardest examination given in surgery.

The Medical Profession in Brooklyn.—According to the latest Official Register, there are 1,589 practicing physicians in Brooklyn. Of these, 137 belong to the homœopathic school, 22 are eclectics, and the remainder are regulars. There are 67 female physicians in Brooklyn, 39 of whom are regulars, 22 homœopaths, and 6 eclectics.

The Second Harvey Lecture.—The second lecture in the Harvey Course will be delivered by Professor James Ewing, of the Cornell Medical College, on Saturday, November 16th, at 8.30 p. m., at the New York Academy of Medicine, the subject being *The Etiology of Tumors*. All interested are cordially invited to be present.

Bristol, Mass., South District Medical Society.—The semi-annual meeting of this society was held in Fall River on Thursday afternoon, November 14th. The subject for discussion was Diseases of the Gallbladder and Bile Ducts, on which papers were read by Dr. H. D. Prescott, Dr. C. F. Connor, Dr. R. W. Jackson, and Dr. P. E. Truesdale.

Health of the Panama Canal Zone.—It is reported that health conditions in the canal territory are highly satisfactory. There has not been a case of yellow fever in the last five months, and while malaria still exists, the swamps in which it originates are being drained and steps taken to destroy the larvæ of the mosquito conveying the disease.

Springfield, Mass., Association for the Prevention of Tuberculosis.—The annual meeting of this association was held on Monday evening, November 4th. Dr. H. C. Emerson, president of the association, submitted his report, and papers on subjects relating to tuberculosis were read by Dr. Charles P. Hooker, Dr. D. E. Keefe, and Dr. E. A. Bates.

Ferryboat Sanatorium a Success.—The committee on the prevention of tuberculosis of the Charity Organization Society announce that the first season of the old Staten Island ferryboat Southfield as a hospital for the treatment of tuberculosis patients was a success. The hospital was in operation from June 13th to October 31st, and during that time 242 patients were treated.

Presentation to Dr. K. W. Millican.—Dr. Kenneth W. Millican, formerly editor of the *St. Louis Medical Review*, was the guest of honor at a dinner at the Columbian Club, St. Louis, by a number of his professional friends in that city. Dr. W. B. Outten acted as toastmaster, and at the close of the dinner a watch was presented to Dr. Millican, Dr. C. H. Hughes making the presentation speech.

The Society of Medical Jurisprudence of New York held its two hundred and eighth regular meeting on Monday evening, November 11th, at the Academy of Medicine. The paper of the evening was read by James Taylor Lewis, Esq., counsel to the Medical Society of the State of New York, on the Influence of Organized Malpractice Defense Upon Litigant and Lawyer. Nominations were made for officers to be filled at the annual election in December.

Banquet to Dr. Bloodgood.—At a recent meeting of the Syracuse Academy of Medicine, Dr. Joseph C. Bloodgood, professor of surgery at the Johns Hopkins School of Medicine, delivered a lecture on Diseases of the Thyroid Gland, which was illustrated with stereoscopic views. At the close of the meeting a reception and banquet were given Dr. Bloodgood, at which he gave a short talk on the Advantages of Experimenting in Medicine and Surgery.

Insanity in New York State.—According to the report of the New York State Commission in Lunacy, the total number of insane patients in New York State institutions for the year ending September 30, 1906, was 26,187, or about one for every 300 of the population. The report shows that insanity has been steadily increasing in the State since the year 1897, and that insanity is more prevalent among persons of foreign birth than among natives.

Massachusetts State Hospital for Tuberculous Prisoners which is situated in Rutland, was recently opened to receive patients. It is provided that the prison commissioners may remove to this institution any male prisoner in the State prison, the Massachusetts reformatory, the State farm, or any jail or house of correction, who appears by the certificate of the prison physician to be suffering from tuberculosis or any disease of a tuberculous nature.

Philadelphia County Medical Society.—At the meeting of this society, held on Wednesday evening, November 13th, Dr. C. A. Veasy read a paper on the Treatment of Trachoma; Dr. Alfred Gordon read a paper on the Pathogenesis of Stump Hallucination, apropos of a case of twenty-seven years' duration; Dr. Hobart A. Hare reported some Investigations Which Place Well Known Therapeutic Measures upon a Scientific Basis; and Dr. J. G. Beardley read a paper on the Toxic Effects of Urotropin.

Dr. Howard A. Kelly, of Johns Hopkins University, Baltimore, was tendered a reception at the home of Dr. George H. Noble, of Atlanta, Ga., on Friday evening, November 1st. A large number of prominent physicians in Atlanta were present, and several interesting addresses were given. On Saturday morning Dr. Kelly held a clinic at the Atlanta College of Physicians and Surgeons, and in the afternoon he held another at the Atlanta School of Medicine.

New York Pathological Society.—The regular meeting of this society was held in the New York Academy of Medicine on Wednesday evening, November 13th. The following papers were read: A Case of Arteriosclerosis of the Pulmonary Vessels, by Dr. Harlow Brooks; A Case of Hypernephroma of the Adrenal Gland, a Case of Pernicious Malaria, and a Case of Angiosarcoma, of the Foot, by Dr. G. R. Satterlee; and A Case of Chancere of the Female Breast, by Dr. Frank Erdwurm.

Philadelphia College of Physicians.—At a meeting of the Section in General Medicine of the College of Physicians, Philadelphia, held on Monday evening, November 11th, Dr. George M. Piersol read a paper on Observations on the Venous Pulse. Dr. Joseph Sailer read a paper on Trypsin as a Therapeutic Agent. Dr. Alfred Stengel read a paper on the Nervous Manifestations of Arteriosclerosis. Dr. J. Dutton Steele read a paper on the Clinical Significance of Fæcal Bacteria with Especial Reference to Intestinal Antisepsis. Dr. Arthur Newlin read a paper on Congenital Torticollis.

The Lutheran Hospital Association held a meeting in Philadelphia on Friday, November 8th, and adopted a charter and elected a board of directors. Measures were taken to raise \$50,000 within the next five years, at the rate of \$10,000 a year. A committee was appointed to determine on an appropriate site for the hospital buildings. Among the directors of the new hospital are Dr. Allen J. Smith, Dr. Luther B. Peter, and Dr. Charles Baun.

The Philadelphia Pathological Society.—At the meeting of this society, held on Thursday evening, November 14th, microscopic slides and gross specimens illustrating leukemia were exhibited by Dr. W. M. L. Coplin, Dr. R. C. Rosenberger, Dr. A. O. J. Kelly, Dr. William Pepper and Dr. J. C. Da Costa, Jr. Dr. B. Franklin Royer read a paper entitled *A Study of Phagocytosis in Diphtheria*; Mr. Paul G. Weston demonstrated lantern slides of the charts, and there was a demonstration of microscopic slides showing phagocytosis by Mr. G. F. Clark. The discussion was opened by Dr. A. C. Abbott and Dr. E. M. L'Engle. Dr. Joseph Walsh read a paper entitled *The Classification of Nephritis*.

Philadelphia Pædiatric Society.—At the regular meeting of the Philadelphia Pædiatric Society, held Tuesday evening, November 12th, Dr. Herbert B. Carpenter showed an infant of thirteen months with ulcer of the frenum linguae; Dr. J. C. Gittings and Dr. S. S. Woody reported two cases of anterior poliomyelitis; Dr. E. E. Graham exhibited two cretins and an infant of five months with heart disease; Dr. J. T. Rich showed a case of congenital dislocation of the knee in a baby ten months old; and Dr. James K. Young exhibited a case of wry neck from external injury. Dr. G. W. Schram read a paper on Pernicious Nephritis, and Dr. Robert S. McClellan, reading a paper on the Pathology of Acute Nephritis.

The Medical Association of the Greater City of New York.—The regular monthly meeting of this association will be held on the New York Academy of Medicine on Monday evening, November 18th. The following papers

will be read: Gallstone Disease from a Surgical Point of View, by Dr. Forbes Hawkes; Diseases of the Liver Amenable to Surgical Treatment, by Dr. Clarence A. McWilliams; Medical Treatment of Gallstone Disease, by Dr. Reynold Webb Wilcox; Surgical Technique in Diseases of the Liver and Biliary Passages, by Dr. John F. Erdmann. The association announces that during the present season it will hold a series of special meetings, in addition to the regular monthly meetings. These meetings will be held in the boroughs of the Bronx, Brooklyn, Queens, and Richmond, and will be under the direction of the chairman for the borough in which the meeting occurs.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the week ending November 9, 1907:

	November 9.	Cases.	Deaths.
Typhoid fever	107	22	..
Smallpox	91	..	..
Varicella	203	5	..
Measles	231	9	..
Scarlet fever	15	3	..
Whooping cough	283	32	..
Diphtheria	317	155	..
Tuberculosis pulmonalis	3	3	..
Cerebrospinal meningitis	1,250	229	..
Totals			

Scientific Society Meetings in Philadelphia for the Week Ending November 23d, 1907.—*Monday, November 18th*, Northeast Branch, Philadelphia County Medical Society. *Tuesday, November 19th*, Section in Ophthalmology, College of Physicians; Dermatological Society; Academy of Natural Sciences; North Branch, Philadelphia County Medical Society. *Wednesday, November 20th*, Section in Otolaryngology and Laryngology, College of Physicians; Association of Clinical Assistants of Wills Hospital; Franklin Institute. *Thursday, November 21st*, Section Meeting Franklin Institute; Medical Society of the Woman's Hospital. *Friday, November 22d*, South Branch, Philadelphia County Medical Society; Section in Medical History, College of Physicians.

Philadelphia Personals.—Dr. Samuel G. Dixon, Commissioner of Health of Pennsylvania, has been appointed delegate to the third international sanitary convention of the American Republics, which will be held in the City of Mexico, December 2d.

Dr. Henry M. Weeks, Medical Director of the New Jersey Epileptic Village, has been selected as the superintendent of the Pennsylvania State Hospital for Feeble Minded and Epileptics, at Spring City, Pa.

Dr. William L. Werner, of Wheeling, W. Va.; Dr. Sieta K. Knapp, of Nevada, Ohio; Dr. H. C. Crawford, of Crafton Station, Pittsburgh, Pa.; and Dr. William H. Tucker, of Eldorado, Ohio, are registered at the Philadelphia Polytechnic and College for Graduates in Medicine.

Conference on the Betterment of Living Conditions.—The twenty-fifth anniversary of the Charity Organization Society of the City of New York will be held on November 19th, 20th and 21st. The conference will be opened in Carnegie Hall on Tuesday evening, November 19th, when addresses will be made by the Hon. Charles E. Hughes, Governor of the State of New York; the Hon. George B. McClellan, Mayor of the City of New York; Dr. Emil Muensterberg, president of the Department of Public Charities of Berlin, and others. The remaining sessions will be held in the Assembly Hall of the United Charities Building. The session on Wednesday morning will be devoted to a discussion of the changes in social conditions in New York and their effect on philanthropic work, and on Wednesday evening the charity organization movement will be the topic for discussion. On Thursday morning there will be a conference on the social education of the community, and on Thursday afternoon the charity organization extension movement will be discussed.

Physicians Elected Mayors.—A pleasing indication of the widespread interest which physicians are properly taking in the affairs of the community in which they live is shown in the returns from the elections held throughout the country this month. In the State of New Jersey a feature of the election was the unusual number of physicians who were elected to office. The following is a partial list: Atlantic Highlands, Dr. John H. Vandewater; Paterson, Dr. Andrew F. McBride; Rahway, Dr. Charles B. Holmes; Salem, Dr. N. S. Hires; Washington, Dr. C. B. Smith. Medical mayors were also elected in the cities

of Frenchtown and Summit. It should be noted that the city of Yonkers, N. Y., elected a physician to the mayoralty under circumstances that appeared to make his defeat certain, Dr. Nathan A. Warren, a Republican in politics, being chosen Mayor in a Democratic community by a majority of 500.

Charitable Bequests.—By the will of Marian T. Whitney, the following Boston institutions will receive \$3,000 each: Boston Nursery for Blind Children, the New England Peabody Home for Crippled Children, the Boston Home for Incurables, the Boston Floating Hospital, and the Society for the Prevention of Cruelty to Animals.

By the will of Stephen Clougherty, the Boston Free Home for Consumptives, and the Carney Hospital, Boston, will each receive \$1,000.

By the will of Isaac Herzberger, the Federation of Jewish Charities, and the Jewish Maternity Hospital, Philadelphia, will receive \$1,000 each.

By the will of Henrietta Graff, the Orphans' Home, and the Asylum for the Aged and Infirm of the Lutheran Church, Germantown, Philadelphia, each receive \$300.

By the will of Mary A. Stilson, Christ Church Hospital, Philadelphia, will receive \$500.

By the will of Elizabeth R. Weeks, the Episcopal Hospital of Philadelphia will receive \$5,000 for the establishment and maintenance of a bed to be known as the Dr. Alfred Weeks Bed.

Personals.—Dr. F. W. Thyrig has been appointed Bullard Fellow in Embryology at the Harvard Medical School, and will devote himself to researches on the anatomy of the human embryo and on the comparative embryology of the pancreas.

Dr. Albert E. Leach, formerly of the Massachusetts Board of Health, has been appointed chief of the new United States Food Inspection Laboratory which is to be established in Denver.

Dr. William Gaertner, of Buffalo, was an official delegate from the local body to the National German-American Alliance, which recently held its convention in New York.

Dr. Carl Beck, of 37 East Thirty-first Street, New York, has been appointed corresponding member of the newly founded German Urological Society. This society held its first annual congress in Vienna recently.

Dr. Henry M. Hurd, superintendent of the Johns Hopkins Hospital, who has been traveling in Europe since February, returned to Baltimore last week. He was accompanied by his wife and three daughters.

Mr. William Whitford, of Chicago, medical reporter, was elected president of the National Shorthand Reporters' Association at the ninth annual meeting, which was held in Asheville, N. C., recently.

Society Meetings for the Coming Week:

MONDAY, November 18th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Hartford, Conn., Medical Society.

TUESDAY, November 19th.—New York Academy of Medicine (Section in Medicine); Buffalo Academy of Medicine (Section in Pathology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings, N. Y.; Binghamton, N. Y., Academy of Medicine; Clinical Society of the Elizabeth, N. J., General Hospital; Syracuse, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association.

WEDNESDAY, November 20th.—New York Academy of Medicine (Section in Genitourinary Diseases); New York Society of Dermatology and Genitourinary Surgery; Woman's Medical Association of New York City (New York Academy of Medicine); Medicolegal Society, New York; New Jersey Academy of Medicine (Jersey City); Buffalo Medical Club; New Haven, Conn., Medical Association; New York Society of Internal Medicine; Northwestern Medical and Surgical Society of New York.

THURSDAY, November 21st.—New York Academy of Medicine; German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society; Aesculapian Club of Buffalo, N. Y.

FRIDAY, November 22d.—Academy of Pathological Science, New York; New York Society of German Physicians; New York Clinical Society.

SATURDAY, November 23d.—West End Medical Society; New York Medical and Surgical Society; Lenox Medical and Surgical Society, New York.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

November 7, 1907.

1. Experience with Opsonins and Bacterial Vaccines in the Treatment of Tuberculous and Nontuberculous Arthritis, By CHARLES F. PAINTER.
2. The Serum Treatment of Exophthalmic Goitre. A Review of the Literature, By FRANK S. BULKELEY.
3. Syphilis and Gonorrhoea in Internal Medicine, By ROBERT N. WILLSON.
4. Anatomical and Physiological Rest of the Peritonæum in Peritonitis, By BYRON ROBINSON.
5. Tarsal Injuries, By JOHN G. W. KNOWLTON.

1. **Experience with Opsonins and Bacterial Vaccines in the Treatment of Tuberculous and Nontuberculous Arthritis.**—Painter has investigated the question: Do the clinical results with opsonins and bacterial vaccines in the treatment of arthritis correspond with the laboratory findings? The literature on opsonins and bacterial vaccines is getting to be quite voluminous, but the greater part of it is concerned with laboratory technique and theoretical considerations of the processes by which immunity may be brought about. A very few reports of clinical experience are on record, and many of these are valueless because of the paucity of data recorded, or because of the obvious inaccuracies of the observations. Clinical experience must be the court of last resort in matters of this sort for many years to come. The human being is not a chemical retort into which reagents may be injected and results obtained which are identical with those we look for when experimenting in the laboratory upon the lower orders of animal life. Wonderful as have been the advances made, rational conservatism must be the prevailing state of mind of those who would not be carried away by their enthusiasm. The author has, therefore, made a thorough study of the literature on this subject. He finds that in a series of eleven cases, four were not benefited at all. Two patients were apparently most extraordinarily improved, and still another experienced an improvement which, considering the gravity of the symptoms, may fairly be classed as attributable, in large measure, to his vaccines. Two have died and a third is dying. It is an open question whether another has not been made temporarily worse by the treatment. If we take out the two patients who have died, and it is fair to do this because they were cases in which the surgical measures employed may have imposed more of an infection upon the patients than it was reasonable to suppose any vaccination could take care of, there are only two patients left to speak positively in favor of the employment of tuberculin in the treatment of bone and joint disease. If the outcome of vaccine treatment has not been brilliant in tuberculous lesions it has been even less so in the case of nontuberculous lesions. In chronic polyarthritis it would be the greatest possible boon if the opsonic test could be employed to discriminate between types of infection. If this could be accomplished with any degree of certainty, the next step, that of making a bacterial vaccine for purposes of treatment, should be a comparatively easy one. In the earlier part of his experience with opsonic work there seemed to be considerable to suggest the possibility of a solution of the problems in the diagnosis

and treatment of chronic polyarthritis. When, says the author, one regards the cases through a long perspective, there is not much to give encouragement at the present time. In acute infectious lesions of joints, such as gonorrhoeal arthritis, encouraging reports are coming from such reliable sources as Johns Hopkins Hospital and the Loomis Laboratory in New York, but the chronic problem seems to be a very different one. Schüler, in Germany, has isolated from a very large proportion of the cases in which he has operated a bacillus which he regards as the specific organism of chronic progressive polyarthritis. This bacillus has also been found in the Tufts Pathological Laboratory. All that can be said as a result of practically a year's experience with the application of the opsonic test for this bacillus is that they have been able to obtain a characteristic serum reaction in the blood of nearly all the patients who were possessed of the clinical signs of this type of polyarthritis. When it has come to treatment it is fair to say that there has been no considerable degree of improvement in any case, at least none which is not frequently seen in cases treated by other methods. The fact that there has been such a uniformity in the opsonic findings in cases that are clinically of one type, together with this further observed fact, that when inoculated with a vaccine made from this organism they reacted locally, just as tuberculous joints will react locally to too large an injection of tuberculin, it would seem that a lead had been given which it is worth while to follow.

2. **The Serum Treatment of Exophthalmic Goitre.**—Bulkeley reviews the literature on this subject and remarks that in the majority of cases reported not enough detail is given to allow one to judge of the probability of cure, or of the permanency of results. Nearly all the writers report improvement, and the statement made by Elsner and Wisemann might be accepted that the palliative action of the serum seems certain and a cure might be possible. From this the author takes exception, as he does not think, from his own experience, that the palliative action of the serum is certain, however probable it may seem. Osborne states that there is no doubt that the proper treatment of exophthalmic goitre is by antithyroid preparations, but he is not certain whether the treatment can be pushed or prolonged with safety. The assertion has been made that the sera occupy the same relation to exophthalmic goitre that thyroid extract does to myxœdema, but such a statement can hardly be accepted on the evidence at hand. A contrast of the different sera offers little of value. Two observers report four cases in which rodagén was useless, although other reports are favorable to it. The other sera seem to have given uniformly good palliative effects. Practically all the writers quoted report improvement, far too many to have it seem coincidence. It seems as if the treatment is at least worthy of a trial in every case.

4. **Anatomical and Physiological Rest of the Peritonæum in Peritonitis.**—Byron Robinson concludes that the great principles gained by anatomical and physiological rest are: (1) The lymph stream, especially in the peritonæum, is slowed, the muscular action required to force it with sepsis in the general system being practically absent. (2) Pain is diminished by checking muscular action, and

especially peristalsis. (3) In peritonitis, peristalsis not only enhances the lymph stream, but mechanically distributes germs over extensive areas in the abdominal cavity. (4) Anatomical and physiological rest aids to circumscribe infection and save the patient from operation and death. (5) Anatomical and physiological rest is one of the most excellent therapeutical agents to prepare patients for safe and successful surgical procedures.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
November 9, 1907.

1. The Treatment of Trifacial Neuralgia by Deep Injections of Alcohol, By HUGH T. PATRICK.
2. The Methods and Technique of Deep Alcohol Injections for Trifacial Neuralgia, By D'ORSAY HECHT.
3. Treatment of Diabetes Mellitus, By JAMES TYSON.
4. The Physician's Connection with Proprietary Remedies, By H. W. WILEY.
5. Some Needs of Institution Children, By JOHN RUHRAH.
6. Adenoids in Infancy, By JOHN LOVETT MORSE.
7. Contagion as a Factor in the Spread of Typhoid Fever in the Military Service, By CHARLES F. MASON.
8. First Pictures of Surgical Operations Extant, By JAMES J. WALSH.
9. Tardy Malnutrition: Its Treatment by Diet and Rest, By CHARLES G. KERLEY.
10. A Case of Congenital Hour Glass Stomach with Accessory Pancreas, By JOHN PATTERSON GARDINER.
11. Ocular Symptoms of Nasal Origin, By O. A. GRIFFIN.

1 and 2. Treatment of Trifacial Neuralgia by Means of Deep Injections of Alcohol.—Patrick answers questions, which he had been asked, in the following way: How many injections are necessary for relief? This depends entirely on the accuracy with which the alcohol is placed. He believes that a single injection within the nerve sheath will stop the pain at once. A number of trials may be necessary before this can be accomplished. How frequently may the operation be repeated? He has reinjected the same branch within twenty-four hours without unpleasant consequences. When there is no cause for hurry he prefers to wait five to seven days. There always is some reaction and it seems reasonable to allow this to subside before injecting again. A different branch may be injected after two or three days, and as ordinarily it is advisable to do more than one branch he alternates them every two to four days. If there is no relief he does not wait so long. It is not necessary to make the injection with absolute accuracy into the nerve. He thinks this is rarely accomplished. When the alcohol is injected near the nerve it undoubtedly diffuses sufficiently to reach it. In such case the relief comes after some minutes or hours and does not last long. Consequently he believes it is wise to continue the injections, even though the patient is having no pain, until the characteristic sensory phenomena announce marked action on the nerve. In many instances the patient, as soon as relieved from his suffering, is quite satisfied and objects to further treatment. In a number of cases, after relief from the characteristic severe pains, the patient has experienced slight, instantaneous twinges or jabs or tweaks of pain. The author thinks that, in some cases at least, these are irritation symptoms of the injection. They have nearly always disappeared spontaneously. How long may the relief be expected to last? This question cannot be definitely answered at this time. He believes

that the most important factors in determining the period of relief are the accuracy of the injection and the virulence of the case. That some cases are more severe, more rebellious, and more prone to relapse cannot be doubted. It might be said that when the pathological process, whatever that may be, is located in the Gasserian ganglion, these injections can accomplish but little. For the present this purely theoretical consideration may be put aside. So far as experience goes, we know that the deep injections have procured relief for more than two years. Some cases relapse in a few months or even weeks, but he is satisfied that these are instances of incomplete injection. When the neuralgia does recur, is there any objection to repetition of the treatment, and are these injections, which may be called secondary, successful? So far as he knows, the secondary injections are successful and there is no objection to them.—Hecht summarizes his article as follows: 1. With the pathology of trigeminal neuralgia still undetermined and gasserectomy expedient only in desperate cases as a last resort, interest has been revived in the intraneural injection of pain deadening and nerve destroying substances. 2. Alcohol in strengths of 70, 80, and 90 per cent. in the laboratory and clinical trials appeared to the best advantage in alleviating the pain paroxysms of tic douloureux. 3. The method contemplates reaching the large divisions of the fifth nerve at their basal exits from the skull, the foramina ovale and rotundum, and the orbit. 4. The anatomical relations permit of reaching the nerves at these points by an intrabuccal and extrabuccal route. 5. The original advocates of these respective routes are Schüssler, Ostwald, Lévy, and Baudouin. 6. A somewhat extensive inquiry into the several methods leads him to believe that, all things considered, the extrabuccal method practised by Lévy and Baudouin is the most feasible. 7. The inferior maxillary nerve is perhaps the easiest of access; the superior maxillary rendered more difficult because of the bony anomalies likely to obstruct the needle; the ophthalmic most difficult because of its divisions and orbital location. 8. The method requires a syringe with a capacity for 2 c.c., a needle preferably of special design, a solution of alcohol in ascending strengths of 70, 80, and 90 per cent. admixed with cocaine and a few drops of anæsthetic chloroform. 9. Cadaver operations and clinical experience lead him to endorse the method. 10. The prognosis for cure in a permanent sense from a single injection is not good. The prognosis in the sense of complete palliation after one or several injections is excellent. Recurrences may be expected in anywhere from six months to one year, but each succeeding relapse is made more mild by the consecutive injections until ultimately the paroxysms may disappear. 11. The deep alcohol injections also seem to be indicated for the relief of exceptional and severe forms of neuralgia, affecting nerves other than the bifacial.

10. A Case of Congenital Hour Glass Stomach with Accessory Pancreas.—Gardiner reports such a case of a child, three months old. The autopsy showed a stomach approximately normal in capacity, but with a constriction about its middle. The cardiac end was the size of a tennis ball, holding 56 c.c. of water; the walls were normal, but

grew thick as they approached the constriction. The greater curvature, marked by the epiploic vessels, rose from its normal position at the left end of the cardia, but soon passed in a semicircular course to the lower half of its posterior surface, and was lost in the tissue at the constriction. It was seen again emerging from the right edge of the constriction at the middle of the posterior surface, and passed on to within 2 cm. of the pylorus, where it curved to its normal position. The pyloric half of the stomach resembled a tube which began at the constriction; here it admitted only two fingers, at its middle three, and at the pyloric orifice it was normal, barely admitting the tip of the little finger. Opening off from the posterior wall of this so called tube, there was a large sacculcation, like the dilated finger of a glove, lying parallel with the greater length of the stomach, and so curved to the left and on itself that, except for 1 cm. at the tip, the anterior wall was lacking, due to the opening of the sacculcation, which comfortably admitted the middle and index fingers. The tip of this sacculcation was markedly thickened and bound down by fibrous tissue at the right edge of the constriction, where the vessels marking the greater curvature passed. In the two portions separated by the constriction, the mucous membrane appeared normal, but at the constriction it lay in closely compact layers of rugæ; at no place was there any erosion or absence of the mucous membrane. In the sacculcation on its posterior wall two rugæ were prominent, but lost their distinctness on reaching the superior and inferior walls. On the outside of this sac indentations were present, corresponding to the rugæ. Hanging down from the roof of the sac was a single, papillary or nipple shaped elevation in the mucous membrane, 7 mm. in diameter. When sectioned lengthwise, this papilla was found to be but the shell for a cavity of the same shape, which apparently did not communicate with the stomach cavity. The furrow constricting this stomach began about the middle of the anterior surface, was very deep below and behind, and disappeared on the posterior surface just below the lesser curvature. The furrow was doubled for most of its extent by the deposition in its bottom, of an accessory pancreas, which was divided transversely by a decided groove where the epiploic vessels crossed. Most of this accessory pancreatic tissue was below these vessels, but it should be borne in mind that on this stomach the epiploic vessels were not at the lower border of the organ where they crossed the constriction, but instead were in the middle of the posterior wall. This, the major part of the accessory pancreas, was 35 mm. in length and 10 to 15 mm. in width. The smaller portion of pancreas lying in the furrow above where the epiploic vessels crossed was 1 cm. in length and the same in width; both portions showed the usual lobular markings of pancreatic tissue, the lower more plainly.

MEDICAL RECORD

November 1, 1907.

1. Kuhn's Lung Suction Mask for the Hyperæmic Treatment (Bier) of Pulmonary Tuberculosis. By WILLY MEYER.
2. Radium for the Treatment of Cancer and Lupus. By WILHELM J. MÖLLER.
3. Intracranial Complications of Disease of the Arteries. Summary of the News. By EDWARD A. COHEN.
4. Phototherapy in Neurology. By A. D. RUSSELL.

1. Kuhn's Lung Suction Mask for the Hyperæmic Treatment (Bier) of Pulmonary Tuberculosis.—Willy Meyer, of New York, states that the construction of Kuhn's mask is based on Bier's original idea of having the patient inhale in a slightly obstructed manner, so as to produce negative pressure in the thoracic cavity. We know that the respiratory distention and contraction of the thorax is automatic, a physiological act. Now, if we prevent the easy filling with air of the elastic lung tissue, as is the case under ordinary circumstances when the thorax expands during the act of inspiration, the air within the lungs is rarefied and the blood aspirated. In other words, we produce an artificial hyperæmia of the lungs by suction. It was evident, however, that it would be an advantage to be able to increase or decrease this hyperæmia by degrees, and it was with this point in view that Kuhn proceeded to construct his lung suction mask. Made of thin celluloid, the mask has the shape of the mouthpiece we use to cover the patient's face with when administering one of the volatile drugs for general anesthesia. The edges are protected by rubber tubing which can be filled with air. The mask is divided transversely by means of a celluloid wall, which rests with its border on the upper lip. This border also is provided with an inflatable pad. In this way we have two separate cavities, one for the nose and one for the mouth, there being no communication except by a slide covering a narrow slit in the transverse dividing wall. This slit is opened only if nasal respiration is temporarily or permanently interfered with. The mask is placed over nose and mouth of the patient and held in place by two elastic straps passing below the ears and fastened in the back by means of a buckle. Another slide, attached to the outer side of the nasal section of the mask, controls the degree of obstruction desired. This is the principal part of the device, inasmuch as by it we regulate at will and by degrees the amount of obstruction to the passage of air into the alveoli of the lungs. The mask is worn in the beginning two or three times a day for fifteen minutes; later, the time is increased to one hour two or three times a day. The primary unpleasant effects from wearing the mask, consisting in headaches and dizziness, will not last, but disappear quickly as the applications are continued. While using the mask the patient would best rest on an easy chair on the piazza or near an open window. Disinfection is done (with the rubber straps unbuckled) in a cold 3 per cent. solution of lysol or carbolic acid. Afterward the mask is rinsed in cold water in order to get rid of the odor of these disinfectants. It is advisable to remove the two caps on top of the mask often and clean and dry the small celluloid plates. They are apt to become sticky, but proper care must be taken to always have them work easily. It must be borne in mind that celluloid is a very combustible material. The advantages of the mask, as pointed out by Kuhn, are principally twofold: 1. The healing of the tubercles located in the lungs by *Stannic Hyperæmia* (Bier). 2. The increase of red and white blood corpuscles as well as hemoglobin in the blood. It should be specially emphasized that the application of the mask is not known to have done harm in a single instance.

4. **Phototherapy in Neuritis.**—Rockwell says that he has not been successful in treating neuritis by physical methods, especially by electricity. The use of the static spark in the treatment of acute neuritis on the theory that it overcomes blood stasis, and thus relieves pressure, is most fallacious. It may, indeed, overcome blood stasis, but it overcomes it at the expense of infinite damage to the sensitive nerve. The faradic current is equally useless, although not equally harmful, while vibrating methods, so valuable in many conditions, are also futile as well as harmful. High frequency currents he has thoroughly tested, and has also found wanting here. The galvanic current has proved more satisfactory in his hands than any other modality, but the benefits following its use are not usually great, and, unless much care is exercised in its administration, it, too, may aggravate the symptoms. But phototherapy has given better results. In phototherapy, says the author, we have a method of treatment which, theoretically, is well adapted for the relief of pain dependent on congested and inflammatory conditions, even though deep seated, and practically he has found the light treatment to be far more efficacious in neuritis than any other therapeutic measure. By phototherapy is meant light treatment, and yet not light alone—for an incandescent light of 500 candlepower yields not only an intense light, but powerful heat and efficient chemical rays as well. The author reports ten cases treated with phototherapy, and observes that it may be said that phototherapy is by no means confined to neuritis or nervous diseases. In addition to its power to relieve blood pressure and pain, its bactericidal properties, its influence as a promoter of tissue metabolism, and its power to increase the hæmoglobin carrying power of the red corpuscles, render it of value in a variety of constitutional conditions.

BRITISH MEDICAL JOURNAL.

November 2, 1907

1. English and German Education, a Parallel,
By SIR F. SEMON.
 2. The Cancer Problem—A Suggestion,
By F. B. SKERRETT.
 3. An X Ray Method for Immediate Localization of
Foreign Bodies, By C. F. BAILEY.
 4. Case of Radical Mastoid Operation; with Subsequent
Septic Infection and Rupture of the Lateral Sinus,
By K. RENSCHAW.
 5. Treatment of Delayed Resolution after Pneumonia,
By W. M. GORDON.
 6. A Case of Chylothorax: With a Record Quantity of
Fluid Withdrawn from the Left Pleural Cavity, and
Ultimate Recovery, By J. P. MILTON.
- (Seventy-fifth Annual Meeting of the British Medical Association).

Section of Ophthalmology.

7. Discussion on the Form and Manipulation of Instru-
ments Used in Ophthalmic Surgery,
Introduced by E. LANDOLT.
8. An Inquiry into the Causes of Blindness in 333 In-
mates of the Sheffield School for the Blind,
By S. SNELL.
9. A Study of Optic Neuritis in Connection with Nasal
Accessory Sinus Disease, By H. M. FISH.
10. An Improved Form of Artificial Eye,
By K. GROSSMANN.
11. A Portable Refractometer and a Portable Astigmo-
meter, By K. GROSSMANN.
12. A Discussion on Iridocyclitis,
Introduced by K. GROSSMANN.

13. Four Cases of Congenital Word Blindness Occurring
in the Same Family, By J. HINSHELWOOD.
14. Clinical Observations on Spring Catarrh,
By H. HERBERT.
15. Fatal Case of Orbital Thrombosis,
By E. E. SMITH and A. H. GRIFFITH.
16. On the Treatment of Alternating Squint,
By R. J. COULTER.
17. Vesicular Affections of the Cornea,
By W. T. H. SPICER.
18. Lepra Ophthalmica in Ceylon, By W. H. DE SILVA.
19. Pathogenesis of Glaucoma and the Rationale of its
Treatment, By T. HENDERSON.
20. Prolapse of the Iris in Simple Cataract Extraction,
By A. C. ROPER.

2. **Cancer.**—Skerrett states that the present help-
less state of our knowledge of the cure of can-
cer behooves those engaged in cancer research
to leave no stone unturned. As a result of the
experiments on the propagation of cancer in
mice, he suggests that further investigation be
made along the following lines: 1. The action
on carcinomatous tumors of a diet free from
nuclein and its progenitor—nucleoproteid. Such a
diet in man would correspond somewhat with the
purin free diet suggested for gout and its manifesta-
tions. It is well recognized that the nucleus de-
termines the division of cells, the separation of the
protoplasm being secondary. Now, the essential
characteristic of the cancer cell is its apparently un-
limited power of multiplication. The suggested ex-
periments would show if it be possible to act upon
and modify the nucleus so as to rob it of its abnormal
power of proliferation, by cutting off the supply of
nuclein. Cancer has much greater incidence among
those taking a mixed diet than among vegetarians,
and a vegetarian diet as well as a restricted nitro-
genous diet has been extolled in both external and in-
ternal cancer. This plan, the "nuclein free diet,"
could also be tried in conjunction with the internal
administration of arsenic or other member of its
periodic group. 2. The action of a "phosphorus free
diet," with or without arsenic, should be tried, be-
cause of the fact that nuclein is remarkable among
organic bodies for its high percentage of phosphorus.
But since phosphorus is such an important element
in the nervous system of vertebrates, it is doubtful
if the entire organism could withstand its entire
withdrawal from the food. It is also possible that a
cancerous growth might still draw its necessary
phosphorus from the nervous system, thus producing
mental depression. 3. The production artificially of
extensive inflammatory conditions far away from a
cancerous growth, with a view to withdrawing the
leucocytes thereto and noting the effect.

8. **Causes of Blindness.**—Snell investigated 333
cases of blindness. The largest number were due to
ophthalmia neonatorum—136, or 42.36 per cent.
The ravages of this disease are still rampant, not-
withstanding all that has been done toward its pre-
vention. Ulceration of the cornea was the cause in
7 cases, or 2.18 per cent. There were 10 cases of
interstitial keratitis, but only one of trachoma. Sym-
pathetic ophthalmia was the cause of the blindness
in 22 cases, or 6.85 per cent. Sixty-seven cases were
congenital, as follows: Anophthalmos, 3; hydroph-
thalmos, 5; microphthalmos, 6; coloboma, 1; albin-
ism, 1; nystagmus, 1; congenital cataract, 30, and
congenital blindness due to retinal and choroidal
disease, 20. The acute exanthemata caused 30 cases,

11 being due to measles, 9 to scarlet fever, and 4 to smallpox. There were 35 instances of blindness from optic atrophy due to brain disease, nearly all being the result of meningitis. Only one case of malingering was noted.

19. **Glaucoma.**—Henderson holds that the causal factor of glaucoma exists in a primary obstruction and closure of the pectinate ligament, due to sclerosis of the fibrous structures about the filtration area, and that all other changes are secondary to this. The hindrance to the aqueous outflow does not arise from the peripheral anterior synechia so frequently met with in glaucoma, but is caused by the closure of the interspaces of the pectinate ligament in consequence of the fibrosis of the cells of its connective tissue stroma and the formation of a homogeneous membrane around these fibrous bundles leading to the endothelial cells being first brought into contact, and then welding together the fibrous structures. The iris in addition is not only a diaphragm, but an absorbing surface accessory to the pectinate ligament, and when the latter is obstructed the iris has to do the whole of the drainage. When the pupil becomes dilated, its area becomes dilated, its area becomes lessened and the crypts near the pupil become closed, and thus the blocking of the angle of the anterior chamber is a consequence of the acute iritic oedema, and not the cause of the glaucoma. The oedema of the ciliary body relaxes the suspensory ligament, thus allowing the lens to become more globular and consequently causing shallowing of the anterior chamber. By modifications in these processes, acute, subacute, and chronic glaucoma are explained. The reasons why myotics cause diminution in tension is because the crypts on the surface of the iris become open and the aqueous is able to find its way out. Mydriatics act in just the opposite way. After an iridectomy, the stump of the iris shows no signs of healing. The operation opens up permanent channels by which the fluid can drain away. The operation will always be effective unless the iris tissue is too atrophied and degenerated.

LANCET

November 2, 1907

1. The Need of Research in Medicine (The Harvey Oration), By F. TAYLOR.
2. Studies in Connection with Therapeutic Immunization, By SIR A. E. WRIGHT, S. R. DOUGLAS, J. FREEMAN, J. H. WELLS, FLEMING, and others.
3. The Growth of Malignant Disease in Man and the Lower Animals, with Special Reference to the Vascular System, By E. GOLDMANN.
4. A Case of Ruptured Bladder; Operation Forty-two Hours After the Accident; Recovery, By P. H. LANG.
5. A Case of Injury and One of Exposure of the Bladder in Operations for Femoral Hernia, Recovery in Both Cases, By J. D. MALCOLM.
6. A Case of Injury to the Bladder while Operating on a Case of Femoral Hernia, By E. OWEN.

2. **Therapeutic Immunization.**—Wright, Douglas, Freeman, Wells, Fleming, and others give a selection of their records of the treatment of patients by therapeutic immunization, according to the methods of Wright. They treat first of certain unregarded points in connection with the immunization curves which are obtained by bacterial inoculations. Auto-inoculations are then dealt with, and it is shown that these may come under observation in

connection with the first beginnings of tuberculous infection, and that they are a regular accompaniment of the hectic fever of advanced phthisis. By means of a case of gonococcal arthritis it is shown that there is a very intimate relation between auto-inoculation and autoimmunization, on the one hand, and the clinical symptoms of the patient on the other. The question of generalized bacterial infections is then taken up, and it is shown that spontaneous autoinoculations and immunizing responses are a characteristic feature in anthrax septicæmia in rabbits. In cases of human streptococcal and staphylococcal septicæmias, a description is given of the work done with a view to eliciting immunizing responses by the agency of vaccine therapy in those cases where immunizing responses make default. And finally some of the more interesting of the records are set forth, which were obtained in the course of systematic study of autoinoculations in connection with localized bacterial infections. Here are considered, first, the effect of massage and of active muscular movements affecting the focus of infection; then the effect of active and passive hyperæmia affecting these foci. Evidence is also brought forward to show that we have in the induction of an autoinoculation, when this is preceded and followed up by a series of measurements of the opsonic index, a method which can be turned to account for the resolution of some of the diagnostic and therapeutic problems which present themselves in connection with every localized infection which is not accessible to direct bacteriological examination.

3. **Growth of Malignant Disease.**—Goldmann discusses the following questions: 1. How far is the vascular system responsible for the dissemination of malignant growths? 2. What are the general conditions of circulation in these growths? 3. What purpose does the multiplication of blood vessels in malignant growths serve, merely that of nutrition or also that of defense? As regards the dissemination of tumors along the vascular system, the writer's own researches have shown that both in sarcoma and carcinoma an extensive invasion of tumor cells into the coats of blood vessels occurs. This happens far more frequently in veins than in arteries, and the results of the invasion can only be traced locally, rarely exceeding the area of round cell infiltration. An extensive study of benignant growths, even of such verging upon the boundary of malignancy (e. g., goitre), shows that such tumor cell infiltration into the walls of channels bounded by elastic tissue is characteristic of malignant tumors only. In arteries the tumor cells rarely proceed farther than the outer coat, whereas in veins they are generally found beneath the intima. Thus arterial cancer appears as a form of periarthritis, venous cancer as one of endophlebitis carcinomatosa. Now since the above distribution corresponds exactly with the anatomical distribution of blood vessels in the walls of arteries and veins respectively, it is clear that the disease is disseminated in the walls of infected blood vessels by means of their blood vessels. It cannot be denied that the lymphatic system plays a large part in the dissemination of malignant disease, but the relations between the lymphatic and vascular systems are probably far more intimate than we have hitherto

believed. As regards the circulatory conditions in malignant growths, the first striking point is that the regular distribution of blood vessels is disturbed by the invading growth. The normal regularity of distribution, so characteristic of each particular organ, gives place to chaotic irregularity. Extensive new formation of blood vessels takes place in growing tumors, this being most apparent in the zone of proliferation, which in infiltrating tumors corresponds to their periphery. As the cancerous growth increases in volume its centre gives way to necrosis, and the newly formed blood vessels occupy merely its capsule. Ultimately the blood vessels seem to disappear altogether, so that in this stage cancer is far from rich in blood vessels. The mass of newly formed blood vessels is of small calibre and their branching is irregular to such an extent that big vessels split up into the smallest of their kind without intermediary. Vascular neoformation may be regarded as a standard by which we may test the body's power of reacting against malignant tumors. On the other hand, the "virulence" or malignancy of the tumor cell may be measured by the extent of necrosis found in the growth. Necrosis is not caused by accidental reasons, such as pressure, malnutrition; it is bound up with the primary cause of the disease in the same sense that it is in tuberculosis. The area of necrosis is the battlefield on which assailant as well as defender perish, for it is not only the tumor cell that is destroyed, but the stroma as well. It seems probable that the newly formed vessels serve an intensified circulation in the arterial coat, thus guarding it from changes from within or without. Many facts prove that the body commands powers of combating cancer and healing it. If we analyze the anatomical basis of all those cases of cancer in which complete recovery or retarded growth has been achieved spontaneously, or by means of mechanical, physical, and chemical agents, we always discover the same reaction on the part of the body—namely, the formation of stroma. The network of newly formed vessels is to be regarded merely as the useful means of more active blood circulation. The efficacy of this intensified circulation is naturally dependent upon the presence of defensive factors in the blood. The body's first line of defense is established on the boundary of the invading growth. In future it will not be sufficient for clinical and therapeutical purposes to distinguish between scirrhus, adenoma, etc., from a purely histological point of view as to the arrangement of the tumor cells, their different forms of degeneration, etc. It is equally important to discover their reactive powers on the body as tested by stroma formation.

LA PRESSE MEDICALE

October 10, 1907.

1. Acute Secondary Syphilitic Meningitis,
By J. BOIDIN and PIERRE WEIL.
2. Lactic Bacteriotherapy in Infantile Enteritis,
By R. ROMME.

1. **Acute Secondary Syphilitic Meningitis.**—Boidin and Weil give the clinical history *in extenso* of the case of a man, eighteen years of age, who contracted a chancre about the middle of June, began to suffer from headache on July 15, came down with meningitis on August 5, exhibited the rosacea of sec-

ondary syphilis on August 12, and recovered from the meningitis on August 17. The primary impression made by the meningitis was that it was of a tuberculous nature, but this was eventually excluded. The remarkably early appearance of the meningitis as a result of syphilis is commented on at length.

October 23, 1907.

1. The Minor Signs of Arteriosclerosis, By O. JOSUÉ.
2. Exploratory Puncture of Solid Tumors,
By TH. TUFFIER and A. MAUTE.

1. **The Minor Signs of Arteriosclerosis.**—Josué asserts that there exists a series of early symptoms of arteriosclerosis, the importance of which as indices of danger is not easily recognized by the unprepared. These symptoms are in relation with slight and variable troubles of the circulation. The arteries are less elastic, the contractility of their muscular coats is lessened, and as a result the regulation of the course of blood is imperfect. These troubles may be persistent or may appear only as the result of labor or fatigue. He divides these troubles into: 1. General, such as fatigue on slight exertion, accompanied perhaps by painful sensations, as in the case of a man who suffers from headache after a long walk. The expression is indicative of lassitude, or perhaps discouragement. Another condition is that of intolerance to certain substances, such as alcohol and tobacco. 2. Vasomotor, of the teguments of the face. The patients may be flushed, or, on the contrary, pale, and in some cases there is an instability of the vasomotor innervation. Some persons are pale in the morning and ruddy in the evening. 3. Nervous, shown in inaptitude for work, modifications of character, headache, abnormal sensations in the limbs with some difficulty of movement, neuralgic pains, vertigo, insomnia, neurasthenia, and the development of traumatic neuroses. 4. Loss of hearing. 5. Ocular troubles, such as the development of the arcus senilis on the cornea, thrombosis of the central artery of the retina, and spasm of the smaller retinal arteries. 6. Respiratory, a dyspnoea induced by comparatively slight exertion, and a condition of emphysema, the true cause of which is not easily to be recognized unless its possible relation to arteriosclerosis is considered. 7. Epistaxis, which may be one of the first indications of the change in the arteries. 8. Edema of the legs, not very marked, in the absence of cardiac or renal disease. 9. Cardiac troubles, such as palpitation, sometimes associated with angina; in some cases a more or less marked tachycardia is met with. 10. Arterial overtension, continuous and persistent, is a good sign on which to base a suspicion of arteriosclerosis. 11. Renal symptoms, which may be those of great or little renal insufficiency.

2. **Exploratory Puncture of Solid Tumors.**—Tuffier and Maute give the results they obtained by means of the withdrawal of bits of tumor tissue for examination with a needle, about 2 mm. in diameter. They thus made the diagnosis in two cases of cirrhosis of the liver, two cases of cancer of the liver, one case of hepatic syphilis, two cases of tumor of the testicle, one case of tuberculosis of the testicle, two cases of tumor of the breast, three cases of adenofibroma of the breast. In none of these cases did the puncture cause any trouble. In the cases operated on and at the autopsy of one of the cases of cancer of the liver no trace of the puncture could be detected.

LA SEMAINE MEDICALE.

October 23, 1907.

Nondiphtheritic Acute Laryngitis with False Membrane.
By MAURICE JACOD.

Nondiphtheritic Acute Laryngitis with False Membrane.—Jacod, after a discussion of the symptoms, pathology, and diagnosis of this condition, says that treatment should be to support the general system and combat the pulmonary symptoms. To do this the medication indicated in bronchopneumonia should be instituted without delay—that is to say, local revulsion, subcutaneous injections of camphorated oil, tepid baths every three hours, and repeated inhalations of oxygen.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT.

October 15, 1907.

1. Tetanoid Conditions of Children, By ESCHERICH.
2. Pain and Blood Pressure, By CURSCHMANN.
3. Contributions to the Treatment of Foreign Bodies in the Œsophagus, By HÄCKER.
4. Concerning the Treatment of Deep Seated Foreign Bodies in the Œsophagus, By LUNZER.
5. Contribution to the Œtiology of Perityphlitis, By NAAB.
6. Report on One Hundred Operations on the Cæcum, By SCHÖNWERTH.
7. Treatment of Granulating Wounds, By HÄBERLIN.
8. Experiments with Regard to Disinfection of the Hands, with Special Reference to the Iodobenzin Method Recommended by Heuser, By GRASMANN.
9. Concerning the Use of Fluid Somatose in Obstetrics, By SCHMIDT.
10. A Case of Death in Consequence of Reflex Anuria Following Passage of a Catheter through the Urethra of a Man with Greatly Contracted Kidneys, By BENNECKE.
11. The Bacterium Coli Communis as the Cause of Sepsis in Two Cases of Abdominal Disease, By KRENCKER.
12. Concerning a New Röntgen Ray Apparatus and Some of the Results Produced with It, By ROSENTHAL.

2. **Pain and Blood Pressure.**—Curschmann declares that his investigations warrant him in the statement that the effect of pain in both healthy and diseased individuals with normal cutaneous sensibility results, in the majority of cases, in an increase of the systolic blood pressure, much more rarely in just as distinct a decrease.

3 and 4. **Foreign Bodies in the Œsophagus.**—Häcker and Lunzer report several cases in which œsophagotomy was performed for the extraction of foreign bodies. In Häcker's first case the foreign body had been in position for several months and was located by œsophagoscopy at about the level of the crossing of the œsophagus with the left bronchus. The removal was successfully performed. In his second case the x rays located the foreign body below the larynx, which was swollen. On account of the danger of exciting a progressive periesophagitis, the introduction of any instrument into the œsophagus seemed to be contraindicated. Œsophagotomy was performed, the wall of the œsophagus found swollen, edematous, and inflamed, but there was no foreign body within it. The patient died, and on autopsy it was discovered that there was a perforating ulcer which led into an abscess cavity in the thyroid gland. In his third case the foreign body was accurately located by the x rays and could be seen with the œsophagoscope, but, on account of the danger of an attempt to remove it with forceps, œsophagotomy was performed with success. He

then describes two cases in which irregular foreign bodies were removed by means of Weiss's fish bone catcher. Lunzer's case was one in which the foreign body had lodged just above the entrance of the œsophagus into the stomach. Gastrotomy was performed and the foreign body extracted.

5. **Œtiology of Perityphlitis.**—Naab, after a consideration of the statistics obtained from Asiatic Turkey, asserts that the conclusion is to be drawn from both the statistical facts and the theoretical considerations that the cause of a local inflammation which results in typhlitis and peritonitis is a faecal stagnation due to the ingestion of too great a proportion of proteid food. This does not exclude the occurrence of an occasional case from other causes, such as an enterocolitis.

7. **Treatment of Granulating Wounds.**—Häberlin alleges that the action of sunlight is to accelerate all the healing processes of wounds.

8. **Experiments with Regard to the Disinfection of the Hands.**—Grasman presents the results of his experiments and bacteriological examination of the hands after disinfection by means of the sublaminalcohol of Engel, the mixture of alcohol, ether, and one half per cent. nitric acid recommended by Schumberg, and the modified method of Fürbringer, in tabulated form. His paper is to be continued.

9. **The Use of Fluid Somatose.**—Schmidt finds that this artificial preparation of albumin gives good service in giving strength and exciting the appetite in lying in women, that it promotes nutrition, and does not vex the stomach or intestines.

10. **Death Following Introduction of a Catheter.**—Bennecke reports the case of a man sixty-five years of age who had chronic, apparently nonarteriosclerotic, contracted kidneys, developed a cystitis together with a condition which may be described as a chronic uræmia. In order to obtain some of the residual urine for examination a catheter was passed. This resulted in an anuria which caused his death. An unobjectionable explanation of the case Bennecke finds it difficult to suggest.

11. **The Bacterium Coli as the Cause of Sepsis in Two Cases of Abdominal Disease.**—Krencker reports two cases of severe abdominal pain with fever—the pain in one case referred to the kidney, in the other to the liver—in which the *Bacterium coli* was cultivated in pure cultures from the blood. The first patient recovered, the second died. On autopsy about 200 c.c. of seropurulent exudate was found in the abdominal cavity. The liver was rather small, the spleen greatly enlarged, and there were ulcers in the mucous membrane of the ascending colon.

October 22, 1907.

1. The Experimental Pharmacology, By NAUSAN.
2. Treatment of Dysmenorrhœa by Way of the Breasts, By FIEDER.
3. Treatment of Inoperable Tumors by Artificial Hyperæmia, By RITTER.
4. My Observations in Regard to the Use of Marmorek's Serum in the Treatment of Tuberculosis, By SCHENKEN.
5. Plastic Operations for the Correction of Malformations of the Anus, By URSINARI.
6. A New Method of Treatment of Rhinorrhœa of Adults by Means of Rhinological Ointment, By ARAM.
7. Treatment of Typhoid Bacilli Carriers, By DRELLER.

8. Almost Total Necrosis of the Parenchyma of the Liver in Syphilitic Interstitial Hepatitis. By MELCHIOR.
9. Death from Poisoning with Mercury. By BARTSCH.
10. The Question of the Demonstration of Blood in the Faces. By GRÜNWALD.
11. Experiments Concerning Disinfection of the Hands with Special Reference to the Iodobenzin Method Recommended by Heusner (Concluded). By GRASMANN.

12. E. Hitzig, By GRASMANN.
By BRUNS.

2. **Treatment of Dysmenorrhœa by Way of the Breasts.**—Freund says that, by means of an electric cupping glass, which he has devised to be applied to the nipples, he has obtained a certain degree of diminution of the loss of blood and of the duration, but not usually greater than can be obtained by other means, so that he now uses this instrument only occasionally in menorrhagia. He did not find that it gave any relief to the pain in dysmenorrhœa.

3. **Treatment of Inoperable Tumors by Artificial Hyperæmia.**—Ritter adds to a paper on this subject, published a year ago, the clinical history of a man, twenty years of age, whom he treated for inoperable sarcoma of the neck and shoulder. The diagnosis was confirmed by a histological examination of an excised portion of the tumor. An attempt to excise the tumor failed. Treatment with artificial hyperæmia was instituted, and the patient was discharged apparently cured in one month. He mentions also a case of inoperable sarcoma of the thigh in which the tumor became necrotic under treatment.

4. **Use of Marmorek's Serum in Tuberculosis.**—Schenken's observations go to show that Marmorek's serum has an antitoxic action on tuberculosis in the human organism, recognizable through the decrease or disappearance of tubercle bacilli from the excretions in tuberculosis of the lungs, bladder, and kidneys when treated with it. The effect of the serum is particularly favorable in pulmonary tuberculosis of the first and second degrees, and likewise in tuberculosis of the bones and peritoneum. Ambulatory treatment can be carried out in mild cases. In pulmonary tuberculosis of the third degree the results were better than with any other means. Even though not always curative, yet it can bring the disease to a standstill and for a time prevent further destruction. Therefore the serum should be tried in more advanced cases, when there is still some degree of hope of improvement. The severer and more obstinate the pathological process the longer the serum must be used. The published bad results, he thinks, were probably due to early faults or to an incorrect use of the serum. Even in mixed infections he says that improvement may be obtained in many cases, though more slowly and more rarely than in pure tuberculosis. When extensive serious destructive processes are present Marmorek's serum can give no more help than anything else. When used per rectum Marmorek's serum has no bad after effects and is particularly well borne, and for a prolonged time, by young people. The observations of the author in thirty-nine cases are given in tabulated form.

5. **Plastic Operations for the Correction of Malformations of the Auricle.**—Uffenorde describes a rather complicated plastic operation which he performed successfully on a patient with microtia and cat's ear. The cosmetic result was better on one side than on the other.

6. **New Method of Treatment of Blenorrhœa of Adults.**—Adam's idea is to protect the cornea from injury by a layer of ointment. For this purpose he recommends an ointment composed mainly of white petrolatum, with the addition of a certain amount of ceresin and anhydrous lanolin, which furnish the mixture with the property of being able to withstand the oxygen of the air and moisture without change, as well as that of not being rendered fluid by the heat of the body. Lenicet is then added to make a 10 per cent. mixture, which is then applied to the affected eyes every two hours until there is a decided decrease in the secretion. The strength of the lenicet is then reduced to 5 per cent., and the ointment is used until the purulent secretion is nearly or quite stopped, when the lenicet is omitted from the ointment and silver nitrate is applied to the conjunctiva, changed after a while to a 5 per cent. zinc ointment. Eight cases thus treated are reported. In five the cornea remained intact throughout, in two there was an ulceration of the cornea with perforation, and in one an ulcer of the cornea apparently without perforation.

9. **Death from Poisoning with Mercury.**—Bartsch reports four cases of syphilis treated by injections of mercury in three, by inunctions in the fourth, with fatal results. That death was due to mercury poisoning in each case seems to be positive, because the autopsies revealed in the first case old tuberculous deposits in the lungs, myocarditis, cyanosis of the spleen and liver, ulcerative colitis, parenchymatous nephritis, periurethritis, periproctitis, paravaginal abscess, vesicovaginal and rectovaginal fistula, and necrosis of the left gluteal muscle. In the second, fatty degeneration of the heart and aorta, cyanosis of the spleen and liver, parenchymatous nephritis, bleeding erosions in the stomach, necrotic mercurial colitis increasing in intensity toward the rectum. In the third case, arteriosclerosis, œdema and emphysema of the lungs, hyperplasia and cyanosis of the spleen, mercurial colitis, intestinal hæmorrhages, gummata of the liver, hydrosalpinx, endometritis, subserous fibroma of the uterus, degenerated ovarian cyst, hydrocephalus externus and internus, and degeneration of the posterior and lateral funiculus. In the fourth case, arteriosclerosis, fatty degeneration of the heart, hyperplasia of the spleen, mercurial colitis, cirrhosis of the liver, atrophy of both kidneys, and degeneration of the posterior cornu of the spinal cord.

11. **Experiments Concerning Disinfection of the Hands.**—Grasman obtained better bacteriological results after disinfection of the hands with iodobenzin, as suggested by Heusner, than after disinfection by means of any of the other methods tried, the three mentioned last week, and therefore recommends its use in a 0.1 per cent. strength for practice.

LA REFORMA MEDICA.

September 21, 1907.

1. Splenic Anæmia. Splenohepatocirrhosis (Concluded). By G. RUMMO.
2. Periodic Family Paralysis. By R. MASSALONGO.
3. Pathogenesis of Gastric Ulcer. By G. MARCHETTI.
4. Anaerobic Cultures with Organic Extracts. By L. GIRARDI.

4. **Anaerobic Cultures Without Excluding Air.** Girardi found that he could cultivate anaerobic bacteria without excluding air, if he

added to the bouillon some extracts from fresh internal organs, especially the liver. The presence of oxygen, it is true, impedes the growth of anaerobes in these cultures to a certain extent at first, but the organic extracts absorb a considerable amount of the oxygen. Once the growth has begun, the air ceases to interfere with the development of the bacteria.

September 28, 1907.

1. Systematic and General Review of the Lectures on Splenic Anæmia and Splenohepatocirrhosis, By G. RUMMO.
2. Pathogenesis of Malta Fever, By U. GABBI.
3. Local Anæsthesia with Alypin, By A. D'ORTONE.
4. The Bactericidal and Therapeutical Value of Colloidal Metals, By F. LASAGNA.

2. **Pathogenesis of Malta Fever.**—Gabbi has this to say in concluding an experimental and clinical study of this subject: The *Micrococcus melitensis*, penetrating into the system, slowly increases in virulence. This is favored by various circumstances rendering the body less resistant. The germ forms agglutinins with a slight defensive power for the human body. It undermines the life of the red cell in the blood forming organs, and excites phagocytosis within the liver and the spleen. It does not diminish the resistance of the red cells in the circulation, but decreases the phagocytic action of leucocytes, as is demonstrated by an increase in the polynuclears, such as is met with in most other contagious diseases. The germ acts upon the nervous and muscular systems. The headache, the rapid prostration, the frequent heart beat in disproportion to the temperature, the neuralgias and neuritides are signs of this action.

4. **Value of Colloidal Metals.**—Lasagna unqualifiedly condemns colloidal metallic preparations as worthless and devoid of bactericidal action. He experimented especially with colloidal gold prepared according to Bredig's method, which he found has no bactericidal or antitoxic value in infection with the typhoid bacillus or with the *Staphylococcus pyogenes aureus*, nor in tetanus, nor in pneumonia. The method of administering colloidal metals hypodermically has been highly praised by Bordet and Robin.

October 5, 1907.

1. Clinical and Experimental Researches on the Action of Iodine in the Treatment of Tuberculous Exudates, By A. CALABRESE.
2. A Case of Precocious Tertiary Lesions: Gummata of the Ciliary Body, By S. EZIO.
3. A New Sign for Distinguishing an Ovarian Cyst with Flaccid Walls from an Effusion in the Peritoneum, By M. DI VIVO.

1. **Action of Iodine on Tuberculous Exudates.**—Calabrese finds that iodine increases in the exudates the formation of certain defensive substances which are developed in the body against the bacillus of tuberculosis. He employed this treatment in tuberculous pleurisy, peritonitis, etc., making sure of the tuberculous character of the lesion with the tuberculin test. He injected daily doses of from 1 to 4 centigrammes of iodine in the form of a solution containing 1 gramme of metallic iodine, 1 gramme of potassium iodine, 10 grammes of guaiacol, 80 grammes of neutral glycerin, and 20 grammes of distilled water. Two cases of tuberculous peritonitis were cured after a course of

treatment lasting four months. A third case was greatly improved after six weeks. In two cases of tuberculous peritonitis in which the fluid was evacuated and the iodine solution injected, cures were obtained.

ARCHIVES OF PÆDIATRICS.

October, 1907.

1. Grippe Meningitis, By S. S. ADAMS.
2. The Use in Practice of the Theoretical Resources Provided by Percentage Feeding, By C. H. DUNN.
3. Some Conclusions from Our Knowledge of the Proteids of Milk, By T. S. SOUTHWORTH.
4. Cane Sugar in Its Relation to Some of the Diseases of Children, By C. G. KERLEY.
5. Chronic Cervical Adenitis, By J. T. SCHELL.
6. Symposium on Scarlet Fever,

CHICAGO PÆDIATRIC SOCIETY.

1. **Grippe Meningitis.**—Adams states that meningitis has occasionally been recognized as a complication of influenza, but in only a few cases has the diagnosis been based upon bacteriological findings. Pfeiffer described in 1892 the bacillus which is now accepted as the cause of influenza, and the diagnosis of influenzal meningitis could not have been made earlier than that. Only twenty-one cases have thus far been reported in which the Pfeiffer bacillus has been found in pure culture. The author has had one such case which he reports in detail, the first reported by an American in which the diagnosis has been confirmed by finding the bacillus in pure culture in the cerebrospinal fluid removed by lumbar puncture during the life of the patient.

2. **The Use in Practice of the Theoretical Resources Provided by Percentage Feeding.**—Dunn states that our knowledge of the underlying principles of artificial feeding has been much enlarged by the earnest work of pædiatrists in this direction. The inability to produce a perfect substitute for human milk from cows' milk led to the recognition of the idiosyncrasy of every baby's digestive powers and requirements. The subject is a difficult one, and has demanded the most careful study of the chemistry of cows' milk and of its digestion. The problem needs simplification. The author thinks that one of the resources provided by the modification of cows' milk which has been neglected is the split proteid which is based entirely on the imitation of Nature. By modifying with whey the whey proteid and the caseinogen we can produce a formula closely resembling human milk. Objections to its use in calculations are that the method is too cumbersome for home practice, and involves too much mathematics for the average physician. Cereal diluents are objected to because they are mainly starch and unsuited to an infant's digestive organs. Peptonization when used to increase proteid tolerance may be very useful.

3. **Some Conclusions from Our Knowledge of the Proteids of Milk.**—Southworth considers the early attempts at modification of cows' milk as epoch making improvements. Then came the attempt to conform it to the conditions of breast milk, with the addition of lime water. The addition to the milk of cereal decoctions was still further an advance. Notwithstanding all experiments, it is probable that the fats, proteids, salts, and sugar of human milk are not the same as in cows' milk, hence an exact imitation of human milk can be

considered impossible. The utility of alkalies in infant feeding rests upon the fact that they prevent the action of rennet pepsin and the formation of paracasein and its compounds until enough acid is present to overcome the alkalinity of antacid values. Pure lactate of casein is readily digestible, as is seen by its use in the form of buttermilk, zoolak, and kumyss, in which lactic acid fermentation is the active factor. It is the toughness, contractility, and massiveness of the paracasein curd which makes cows' milk so difficult of digestion. The highest development of the art of infant feeding will enable the physician to determine by study of environment, symptoms, and stools why one mixture has been unsuccessful, and, how the difficulty may be remedied.

4. Cane Sugar in Its Relation to Some of the Diseases of Children.—Kerley believes that the use of cane sugar is harmful in many cases. He calls "sugar susceptibles" those cases in which there are persistent head colds, bronchitis, bronchial asthma, recurrent vomiting, urticaria, rheumatism, chorea, and eczema. Seventy-eight cases were studied with these various troubles, and in all of them there was sugar excess or sugar incapacity. In such cases cane sugar was excluded from the diet, and this did not interfere with nutrition in the least. The best results were obtained in the catarrhal diseases of the upper respiratory tract. While these cases were under treatment it was demonstrated that the sugar capacity in children who are well varies greatly, a few grains being harmful to some, while others could readily tolerate three or four ounces daily. The general conclusion is that to some children cane sugar is sufficiently toxic to cause perversion of function with symptoms of its own, and in others to produce enough change to permit bacterial invasion, as in articular rheumatism and endocarditis.

REVUE DE MEDECINE

October, 1907.

1. Experimental Syphilis, By E. METCHNIKOFF.
2. Technique of the Investigation of *Treponaem pallidum* in the Products of Syphilis, By C. LEVADITI.
3. Gummatous Syphilis of the Heart, By HEUCHARD and FIESSINGER.
4. Neurasthenia and Chronic Suprarenal Insufficiency, By E. SCHNEIDER.
5. The Role of the Suprarenal Glands in Pathological Conditions, By L. BERNARD.

1. Experimental Syphilis.—Metchnikoff states that experiments have as yet been applied to the therapy of syphilis to only a moderate degree. The principal reason for this is that syphilis in apes and other mammalia susceptible to the disease usually gets well without any treatment. In spite of this fact it has been tried to hasten the cure of syphilis in apes by the use of various drugs. Neisser found that injections of mercury were effective in syphilitic apes in which there appeared no tendency to get well spontaneously. Quite recently an arsenical preparation known as atoxyl has been used in treating syphilitic apes. It was effective in mild cases, but in severe cases a temporary cure was followed by recurrence soon after the medicine was discontinued. The results obtained with atoxyl thus far, both with man and with the lower apes, lead one to hope for better results in future. Ex-

perimental syphilis is yet in its very earliest stage and better results may be looked for by and by.

2. Technique of the Investigation of *Treponaem Pallidum* in the Products of Syphilis.—Levaditi found that the extreme slenderness of *treponaem* and its want of affinity for staining substances have rendered current histological methods of procedure negative with regard to the discovery of the parasite in syphilitic tissues. Quite recently the use of silver as a stain has led to the discovery of the microbe in sections with the microscope. Volpino was the first to use this agent both in acquired and hereditary syphilis. There is, in addition to Volpino's method, the one which the author suggested, and one which is a modification of that one. There is also a new process by Bertarelli and Volpino.

3. Gummatous Syphilis of the Heart.—Heuchard and Fiessinger refer to the gumma as the typical lesion of syphilis upon the heart. It is of somewhat rare occurrence, but has been reported by various well known observers as one of the tertiary manifestations of the disease. Such symptoms as the following will be noted in the clinical history, prolonged syphilitic phenomena and eventually as the heart becomes implicated, progressive dyspnoea, and oedema of the ankles. The extremities are cyanosed, the pulse small, accelerated, and perhaps irregular. The apex lies low and its beat has rather unusual sweep. The second heart sound is loud or muffled, the jugulars are dilated, the liver enlarged, the urine abundant and albuminous. The gummata develop slowly, but having developed they are quickly followed by sudden death, or by acute oedema of the lungs, with asphyctic dyspnoea, cyanosis, expectoration of mucus, and in some cases hæmoptysis. The diagnosis is obscure in all cases, treatment with mercury and iodide which may clear up a bad condition of the heart does not prove that it was a syphilitic. The actual diagnosis is possible only upon autopsy.

4. Neurasthenia and Chronic Suprarenal Insufficiency.—Schneider dwells upon the importance of careful examination of the various neurasthenics in trying to reach a diagnosis. Certain facts have recently been brought forward which suggest that lesions of the suprarenal glands may produce the phenomena which are common in neurasthenia. In its acute forms suprarenal insufficiency may take the form of pseudopertitonitis with sudden death, pseudotoxæmia, pseudomeningitis, or pseudotyphoid fever, the diagnosis resting principally upon the two symptoms, asthenia and vascular hypotension. In the subacute and chronic forms there have been few reported cases, excepting those of E. Sergent and L. Bernard. In the paper by these authors the following symptoms are mentioned: 1. Circulatory troubles, including chilliness, small and unstable pulse, arterial hypotension, tachycardia, collapse, syncope. 2. Digestive troubles, including anorexia, vomiting, diarrhoea, and peritoneal symptoms. 3. Nervotoxic troubles, including encephalopathy, headache, excitement, delirium, convulsions, depression, coma, asthenia, and acute pains. 4. Hypothermia, anemia, emaciation and cachexia, and cadaveric odor.

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of October 9, 1907.

The President, Dr. JAMES B. WALKER, in the Chair.

An Unobtrusive Sputum Receptacle.—Dr. SOLOMON SOLIS COHEN presented this receptacle for use by patients while on the street or in public places. It consisted of a small leather bag, of about the shape and size of that used for opera glasses, closed with a draw string by which it could be carried, and lined with a soft fabric faced with rubber, in which there was a pocket to hold the papers or cloths for the reception of sputum, while a waterproof paper bag was inserted within the outer leather bag to receive the papers that had been used, so that, on the patient's return home, the paper bag with its contents might be taken out at once and thrown into the fire, and a fresh paper bag inserted. The bottom of the bag had been stiffened by the insertion of an oval piece of cardboard between leather and lining, while a rim of cardboard a little less than 2 inches wide was slipped within to keep the leather spread at the bottom and hold the paper bag in place. The use of this bag rendered it easier for sensitive women to observe hygienic directions in regard to the disposal of their sputum.

Observations Upon the Alimentary Canal by Means of the Röntgen Rays.—Dr. GEORGE E. PFAHLER made a demonstration with eighty lantern slides which had been prepared to illustrate a paper upon the subject before the Section in Medicine of the American Medical Association. On account of the difficulty of darkening the room they could not be shown at Atlantic City. The author simply read the conclusions of his paper. The slides demonstrated the normal form and position of the stomach, which was shaped somewhat like a reversed J and occupied the left side of the abdomen, the upper two-thirds being vertical and the lower third horizontal. The effect of the contractions of the abdominal muscles was also shown, as well as a number of other facts.

Dr. SOLOMON SOLIS COHEN thought that, from the demonstration given by Dr. Pfahler, it was evident that by the ordinary methods of auscultation and percussion many stomachs and masses heretofore had been outlined where they did not exist. Dr. Cohen had long since abandoned the use of the buckled bandage in gastropotosis, but with Dr. J. Torrance Rugh he had experimented with and made some changes in the method of Dr. Achilles Rose, of New York, in his application of the zinc oxide bandage directly upon the skin. He had found this method useful also in cases of displaced kidney in which the gastropotosis was a minor feature. In one such case in which these bandages had been worn over a period of two years, there had been apparently perfect recovery. Dr. Pfahler's statements regarding the motions of the stomach under abdominal contraction, he thought, showed that systematic abdominal exercises were sometimes to be preferred to any kind of bandage.

Dr. H. A. HARE said that, regarding the arrest of food in the esophagus at the cardiac orifice of

the stomach, his observations placed the period at six seconds, and not seven, as stated by Dr. Pfahler. As in almost all other forms of treatment, Dr. Hare thought it could be said that belts were useful in all cases of gastropotosis, but that a careful study of the cases must determine the question of their application.

Dr. L. JAY HAMMOND was especially interested in the cases in which the pyloric end of the stomach seemed to be divided from the duodenum and the food remained as in the hour glass stomach, and referred to a case in which there was almost total obstruction of the pyloric end and in which an operation revealed a bag in the duodenum which had retained food for a considerable time. The condition was due to a bending down of the second portion of the duodenum because of pericholecystitis.

Dr. JOSEPH SAILER observed that in almost every case of congenital malformation of the abdominal viscera there was an extreme degree of descent of the transverse colon, involving the hepatic flexure. In these cases the x ray was of value in diagnosis and in determining the treatment. Improvement of the nutrition of the stomach was regarded as an important element in treatment.

Dr. ADDINELL HEWSON thought many mistakes in diagnosis had been brought about because, in some of the textbooks on anatomy, it had been taken for granted that the position of the stomach was not vertical, but rather horizontal. The work of Treves, in his comparison of the position of the stomach of the lower animals with the condition in man, and the change brought about in the position of the stomach and duodenum due to the peritoneal attachments, had changed the statements of the textbooks to-day. It was suggested that the decided turn in the duodenum caused by the turning of the stomach to reach the descending portion of the duodenum might explain the kinking of the duodenum outside of the stomach, with its consequent effect upon the position of the food in the duodenum.

Dr. JOHN B. ROBERTS referred to Ochsner's conclusions that there was a sphincter in the duodenum, making the first part a pouch somewhat similar to the stomach in which some portions of food were retained.

Dr. W. WAYNE BABCOCK referred to the relative rarity of dilatations and displacements of the stomach shown on the autopsy table at Blockley. In thirty cases there had been seven marked types of anomalous conditions of the colon. In none of the bodies was there any abnormal condition of the stomach except atrophy. In view of the marked disproportion between the number of dilatations in this series and those seen in the average patients outside, the question arose as to whether there was any causative factor in the character of life of the two classes of patients.

Dr. ERNEST LAPLACE felt that Dr. Pfahler's work offered great possibilities to surgeons as well as to physicians.

Dr. HARE, apropos of Dr. Roberts's remarks, stated that there had recently been published a contribution of the anatomical laboratory of Harvard University stating that Ochsner's so called sphincter fibres of the duodenum did not exist.

Dr. PFAHLER expressed his disbelief in the possibility of definitely outlining the stomach by percussion. He believed that the stomach, if distended with gas in the recumbent posture, could be outlined and its size determined, but that as soon as the patient stood up the gas would rise to the upper pole, the lower pole would be lost sight of, and the clinician would outline the transverse colon.

The Operative Treatment of Pulmonary Tuberculosis.—Dr. W. WAYNE BABCOCK referred to the failures attendant upon the operative treatment of tuberculosis of the lungs, and pointed out that the type of operations heretofore employed had been the same as those that had proved ineffective against tuberculosis of other organs. More thorough operative measures, with precautions to avoid any additional infection, might prove as valuable in the treatment of pulmonary tuberculosis as they had in treating tuberculosis of the kidney and other organs. The excision of entire lobes of the lung, and probably of all of one lung, Dr. Babcock maintained, was feasible through properly planned posterior incisions giving access to the root of the lung. Operative treatment was to be considered in selected cases in which hygienic and medicinal treatment proved adequate to arrest the progress of the disease, but impotent to overcome localized massive lesions which had already formed. In the case reported the left lung was almost free from disease, but there was a moderate miliary involvement of the right upper lobe, with massive caseation of the entire lower right lobe. Two months' open air treatment proved the patient's ability to overcome the lesser lesions, but death was inevitable from the condition of the right lower lobe. The lower lobe of the right lung, weighing 770 grammes, was therefore excised, the hæmorrhage being controlled by ligation of the vessels of the base of the lung, and the bronchus occluded by a flap of pulmonary tissue sutured over its lumen. The man's cough ceased, and nine days after the operation he was able to be out of bed. On the night of the tenth day he was left out of doors in a rain storm by the carelessness of an attendant, and was seized with pulmonary œdema, to which he succumbed on the fourteenth day. The portion of right lung remaining in the body was atelectatic and weighed 320 grammes, showing that life was maintained after the operation almost entirely by the left lung. This experience had convinced the author of the feasibility of massive resection up to the removal of an entire lung. In a second case the patient greatly improved after a pneumotomy for large tuberculous abscess. To overcome the effects of the pneumothorax a new vacuum shield, designed to be placed over the chest wound during the operation for the reduction of intrathoracic pressure, was demonstrated. After extensive resections, if feasible, the pleural cavity should be closed under negative pressure. The divided bronchi could be occluded best by covering them with flaps of tissue. All portions of ribs should be removed from the flap in the chest wall and primary drainage of the pleural cavity avoided.

The Diagnosis and Treatment of Tuberculous Diseases of the Skin.—Dr. SCHAMBERG remarked that lupus vulgaris was a comparatively rare disease in this country, and was particularly uncommon in

the cities where there was not much foreign population. It was especially to be distinguished from the nodular syphilide, lupus erythematosus, and epithelioma. Syphilis might closely simulate lupus, but, as a rule, ran a much more rapid course; the tubercular syphilide made as much progress in a month as lupus did in a year; lupus nodules were much softer and more friable than those of syphilis. A case of accidental tuberculous inoculation of the sole of the foot, with subsequent tuberculous involvement of the femoral glands, was portrayed and described. Dr. Schamberg showed photographs upon the screen of the various types of phototherapeutic lamps, and compared the value of actinotherapy and radiotherapy in lupus. The x rays did remarkably well in many cases, but, on the whole, the results obtained with the large Finsen lamp were, from the cosmetic point of view, the best. Oponotherapy in lupus had not given better results than other methods.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Meeting of March 7, 1907.

The President, Dr. WILMER KRUSEN, in the Chair.

Premature Separation of the Placenta.—Dr. WILLIAM R. NICHOLSON reported five cases, in which there had been two maternal and five foetal deaths. All were associated with frank hæmorrhage. Three were emergency cases and the condition of the urine was unknown. In the two cases in which examinations were made the urine was free from albumin. The frequency of the condition was emphasized. As the chief diagnostic points were mentioned collapse, pain of varying degree of severity, absence or weakness of labor pains, distention of the uterus (in complete or partial concealment), uterine hæmorrhage, an accessory tumor, and a serous vaginal discharge. The ætiology was obscure, but the separation was regarded as dependent upon changes in the deciduæ. If the patient was in labor the treatment was by delivery as rapid as was consistent with safety. In the absence of labor the uterus must be emptied by the conservative methods, if the severity of the symptoms warranted. In the absence of labor and in the presence of marked symptoms of shock and a rigid, unobliterated cervix, either vaginal or the classical Cesarean section was advised.

Dr. RICHARD C. NORRIS thought the important part of the subject the treatment of the cases occurring at term with undilated and undilatable cervix. He believed that some cases of asphyxia of the newly born infant were due primarily to a partial detachment of the placenta in the second stage of labor. Sometimes, during forceps delivery, he questioned whether the free bleeding was due to lacerations, since frequent digital examination showed that the cervix was not well dilated and not torn. After the birth of the asphyxiated baby and the expulsion of the placenta, the firm clots attached to the maternal surface of the placenta indicated that there had been some detachment of it as the probable cause of the asphyxia and of the bleeding.

In the treatment of placenta prævia the best plan of emptying the uterus at term in the presence of a rigid and undilated cervix, he felt, must be considered from the standpoints of the general practitioner and of the skilled operator. In the hands of the latter the plan of treatment must be by either vaginal

or abdominal Cæsarean section; in the hands of the former, either vaginal or Cæsarean section was regarded as a grave operation.

Dr. Norris thought the danger to the woman would be greater in the hands of the general practitioner who attempted an abdominal section unless he had some experience as a surgeon. Among expert surgeons he felt that vaginal Cæsarean section would fall into the hands of skilled vaginal operators and men who liked that class of work, while abdominal Cæsarean section was apt to go on giving good results in the hands of those trained to that operation. In the presence of hæmorrhage, the patient almost pulseless and unable to stand the shock of an abdominal operation, Dr. Norris's advice to the general practitioner would be, if a skilled consultant was not available, to do the vaginal operation, and, if he found any difficulty in the extraction of the child with forceps or after version, rather than tear the incised cervix, to do craniotomy, since the child was almost always dead. He thought craniotomy after vaginal incision offered the safest plan for the man of average experience, and for the skilled vaginal operator obstetric surgery had never before offered so promising an operation for the immediate delivery of a shocked and acutely anæmic woman as vaginal Cæsarean section.

Dr. GEORGE M. BOYD believed the premature separation of normally implanted placenta late in pregnancy and associated with grave hæmorrhage to be rare. Slight separation of the placenta early in pregnancy he considered not so rare as was once thought. Reference was made to an article by a French writer, who laid stress upon the association with the albuminuria of pregnancy, and he inquired whether this had been present in the cases of Dr. Nicholson. He agreed with Dr. Norris that, if the patient was bleeding profusely and the surroundings were unfavorable to abdominal section, craniotomy and delivery by the vaginal route were in order. With a rigid cervix and profuse bleeding he could cope better by the abdominal route and would feel better assured of the discontinuance of bleeding.

Dr. ALICE WEID TALANT cited a case occurring in the out patient department of the maternity of the Woman's Medical College. When the patient was seen there was some history of bleeding, the labor was well advanced, and the child was born spontaneously, but was dead. The placenta, which had evidently separated prematurely, came away with the child and there was a large clot. It was apparent that the fetus had died at the time the hæmorrhage took place, as the woman had spoken of the cessation of foetal movements. Reference was made to the suggestion of Adam Wright that the shock in these cases was due not so much to the amount of blood lost as to the shock from the tearing away of the placenta, and the inquiry was made of Dr. Nicholson concerning his opinion on this point.

Dr. NICHOLSON thought the condition not so rare as Dr. Boyd had suggested. In only one of his cases did he see the woman before the accident, and there was no albuminuria present. Regarding the after treatment, he believed that hysterectomy was indicated in many cases, particularly in cases of multiple. Shock from the tearing away of the placenta he thought was probably operative in a certain num-

ber of cases. With free external hæmorrhage he did not think there could be sufficient shock to explain the symptoms observed.

Repeated Cæsarean Section.—Dr. GEORGE M. BOYD, in a previous paper, had reported fourteen successful Cæsarean sections, among which were three cases of repeated section. In this paper he reported a fifteenth successful case, being the fourth repeated section. He stated that the mortality of this operation in general was now but 5 or 6 per cent., while in his own series it was nil. In repeated section he thought it was usually lower than in the first operation.

He agreed with Monroe Kerr regarding the indications for sterilization, especially by hysterectomy, and those for Cæsarean section. He then mentioned the study of the dangers of repeated Cæsarean section made by Wallace, as well as that of Kerr, who thought that repeated sections showed a very low mortality. Fruhinsholz, Sinclair, and Wallace were quoted concerning the dangers arising from the formation of adhesions in such cases.

Dr. Boyd did not believe that the danger of utero-abdominal fistula need be greatly feared by the advocates of the conservative operation, although such an accident must be taken into consideration.

Reference was made to a case reported by Tull in which a second Cæsarean section was performed on a patient with rupture of the uterus at the site of the first operation. The diagnosis of rupture was not made before the opening of the abdominal cavity, and the patient did not present the usual picture of shock or severe hæmorrhage.

In preparing the patient for operation Dr. Boyd washed the vagina very carefully with lysol solution. He usually made the incision below the umbilicus, and only sufficiently large to enable him to carry out the further steps of the operation. In closing the wound he always used a fine silk suture, because it was strong and easily sterilized.

A brief description was given of each of the three cases of repeated section reported in his former paper, in all of which adhesions were found. He then described his fourth case. The first labor of this patient had been complicated with eclampsia, the infant having been stillborn. Three years after this a Cæsarean section was performed for a generally contracted pelvis. A year later the second section was done, the patient having been in labor several hours. An anterior longitudinal incision was made to the side of the old cicatrix. There were no adhesions of the omentum or between the uterus and the abdominal wall, as in the three other cases. The patient made a good recovery and left the hospital with her baby a month afterward.

Dr. NICHOLSON thought the paper most interesting because of the belief prevailing in the profession that Cæsarean section was in a transition stage. He believed that in a few years there would be fewer sections done than at present. Pabiotomy, more than any other operation, he believed would tend to revolutionize obstetrical procedures in difficult cases. He believed that the questions of Cæsarean section and the sterilization of the woman depended upon the degree of pelvic contraction. The matter of sterilization should be fully explained to every woman and she should make the decision. In the course of the uterine wound he

gave preference to the technique employed by Dr. Barton Cooke Hirst.

Dr. NORRIS thought it necessary to approach the question of repeated Cæsarean section with a sharp line drawn between the cases of pelvic deformity where the absolute indication existed and those of the relative indication. In the presence of the absolute indication he would impress upon the patient the possible dangers to her in succeeding pregnancies and have her make the decision. Personally, in the case of the absolute indication he would feel like advising her not to be sterilized, feeling that the results of modern Cæsarean section were such that in the hands of a skilled operator she would not be deprived of the possibility of bearing subsequent children. Rupture of the cicatrix after Cæsarean section had been said by no less an authority than Olshausen to be an inherent risk which the patient ran in subsequent pregnancy.

With the cases coming within the relative indication he took issue with Dr. Boyd and believed that induced labor for subsequent pregnancies entered as a factor in many of the cases on the border lines of the relative indication, as an elective operation. In his own experience he had done very few Cæsarean sections, not any at the Preston Retreat in a series of almost 3,000 confinement cases. In thirty-two induced labors he could have done thirty-two Cæsarean sections at term had he followed the indications guiding many of his colleagues. He had thus far been favorably impressed with pubiotomy and believed the future might show this operation to be a substitute for the relative Cæsarean section at term, and if not for that, that it might be used in conjunction with induced labor to replace repeated Cæsarean section.

He believed with Dr. Nicholson that there had been a glamour about Cæsarean section. With the absolute indication he subscribed to it most heartily. For the cases showing the relative indication, however, he thought its selection involved great responsibility, extensive experience in practical obstetrics, and something more than the assurance that almost all women survived the abdominal operation when done by a skilled operator.

Dr. BOYD said that pubiotomy was still in the experimental stage. It could not be said that it had not a maternal mortality. Hæmorrhage was said to be marked and troublesome in some cases. Because the Cæsarean section was tragic it should not, in his opinion, receive adverse criticism if it was easy in execution and saved mother and infant. He believed that a more careful study of cases and a better preparation of patients would lessen adhesions and the likelihood of rupture through the scar. With these dangers eliminated, Cæsarean section was the child saving operation.

treatment, is largely an exposition of this view. The ætiological relations of the acute infections and alcohol are well known, and possibly it is well to emphasize the fact that excessive and improper food materials may produce inflammatory and degenerative changes in these important organs.

In the section of the book devoted to treatment the matter of diet is given, as it should be, great importance. The reviewer gathers from reading the sixth chapter that the author is not in favor of decapsulation, as proposed by Edebohls. There are three valuable tables in which the nitrogen percentage of various foodstuffs is given. There are also two tables giving the proteid percentage, fat percentage, carbohydrate percentage, and fuel value per pound of various standard articles of food. The tables are copied from Atwater and Bryant.

Third Annual Report of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis. February 1, 1905, to February 1, 1906. An Account of the Work of the Third Year, a Continuation of the Report on the Maragliano Serum Treatment, a Statistical Study of the Influence of the Henry Phipps Institute on the Death Rate from Tuberculosis in Philadelphia, and a Report of Some of the Scientific Work Done by Members of the Staff of the Institute during the Year. Edited by JOSEPH WALSH, A. M., M. D. Published by the Henry Phipps Institute, 238 Pine Street, Philadelphia, 1907.

The third annual report of the Henry Phipps Institute shows that during the year 1,251 patients, none of whom could afford to pay a physician even a small fee, were admitted for treatment. Of these 655 were new tuberculous cases, 124 were new non-tuberculous or unsuitable cases, and 472 were old cases. Of the last 17 were unsuitable. The report is rich in statistical material bearing upon these cases.

The educational work of the institute consists principally of what is accomplished through the annual report, but in addition members of the staff give lectures on the various phases of tuberculosis, particularly the preventive side, and nurses are sent out to the dispensary patients and to their families to instruct them in methods of prevention. The institute also participates in exhibits for educational purposes whenever the opportunity presents itself, to which end an excellent pathological museum has been formed.

Among the special reports published in the volume, that to which one turns with the greatest expectancy and which he leaves with the greatest disappointment is on the Maragliano serum treatment, written by Dr. Flick. Twenty-four cases were treated in the dispensary alone, six in the hospital alone, and six in both. The prognosis of these cases when first seen was favorable in twelve, doubtful in fourteen, and unfavorable in ten. The results of treatment were improvement in thirteen cases, unimprovement in twenty-three cases. The work done at the institute with this serum for a period of two years seems to be unfavorable to it. There is a footnote in the report, which says that since the report was written, one of the cows used for the preparation of the serum died from tuberculosis. This is a curious occurrence: An animal used for the manufacture of an immune serum, one supposed to possess a high degree of immunity, dies of the disease to which she is supposed to be immune! There are certain factors developed in the

Book Notices.

Nephritis. A Manual of the Disease Commonly Called Nephritis or Bright's Disease and of Allied Disorders of the Kidneys. By SEELYE W. LITTLE, M. D. New York: The Grafton Press, 1907.

Dr. Little lays particular stress on overeating as a cause of nephritis, and his book, which treats of the disease from the standpoint of ætiology, pathology, symptomatology, diagnosis, prognosis, and

course of the study of the treatment of the disease by this serum which have decided the institute to continue its experimental work.

Failure to mention the other excellent special reports contained in the volume must not be ascribed to lack of appreciation of their value, but rather to a lack of available space.

Physical Chemistry in the Service of Medicine. Seven Addresses by DR. WOLFGANG PAULI, Privatdocent in Internal Medicine of the University of Vienna. Authorized Translation by DR. MARTIN H. FISCHER, Professor of Pathology at the Oakland College of Medicine. First Edition. First Thousand. New York: John Wiley & Sons, 1907. Pp. 156.

This small volume consists of seven addresses given at various times by Pauli on topics which are of vital interest to those who would seek for a more fundamental knowledge of the phenomena going on in life, especially for that class of activities which depend on the changes found in substances in the colloidal state.

It is a frequent reproach to medical men that their life work is called an art and not a science. Such a reflection is born in minds who do not recall that medicine is founded on a number of sciences; it is made of many sciences, each of which is exact; the applications of individual medical men may be inexact and unscientific, it is true, but the ideas of medicine, so far as they receive general recognition, are as exact as they can be in any branch of biology.

The present volume will be read by the newer generation, and the principles will be utilized as foundations in the physiological knowledge of a new company of students. To the present generation they will prove absorbing, and to the elder men we can recommend these addresses as charming excursions in a realm which promises much for the future.

Technically considered, the subjects discussed are as follows: Physicochemical methods and problems in medicine; general physical chemistry of the cells and tissues; colloidal state and the reactions that go on in living matter; therapeutic studies on ions; the relation between physicochemical properties and medicinal effects; changes wrought in pathology through advances in physical chemistry; and the electrical charge of protein and its significance.

It is to be hoped that this little volume will be well received, both by reason of its intrinsic value, but also as an encouragement for translators and publishers to provide the best of recent German thought on these essentials of life's processes.

German-English Medical Dictionary. By JOSEPH R. WALLER, M. D. Fourth Edition, Improved and Enlarged, by M. WHITE, M. D. Leipzig and Vienna: Franz Deuticke, 1907. Pp. 448.

This is a handy little book. The fourth edition shows quite a number of additions in the vocabulary, and the necessary changes have been made in accordance with modern German orthography. A few trifling typographical errors and minor omissions will certainly be corrected in the next edition.

Abkondensieren—a word very rarely used in medical books—means to emulsify, and not "emuseulate." Is *Paulsen* too often mentioned in German medical books that it should find a place here, while *diagnostizieren* and *Diagnosis* are missing, although *diagnostische Merkmale* is given. We have looked in vain for *verwenden* (of *arsenicum*), is there,

verbrennen, etc. *Alkohol* is missing, but *alkoholhaltig* and *Alkoholmissbrauch* are translated; *antiseptisch* we find, but not *aseptisch*. *Eiweiss* is translated as albumen, glair, white of egg, but the words compounded of *Eiweiss* are properly translated with albumin. Under *Blutleere* we read anæmia, while the adjective only gives bloodless and exsanguine. Such mistakes and incongruencies should certainly be avoided.

The Cause and Prevention of Beriberi. By W. LEONARD BRADDON, M. B., B. S., F. R. C. S., State Surgeon, Negri, Sembilan, Federated Malay States. London: Rebman, Limited; New York: Rebman Company, 1907. Pp. xiii-544. (Price, \$6.)

It has been well said that volumes could be written on beriberi. In fact, they have been. Dr. Braddon presents his subject in a logical manner, but his argument may be reduced in simple terms to an advocacy of the rice theory of the production of the disease. The first of the author's conclusions is as follows: "Stale, decorticated (white) rice, therefore, at times contains a poison, the effect of which is to produce beriberi." The author then continues: "Second, the agent which produces the poison in rice is specific or peculiar to that grain. Third, the beriberi poison is not performed (or not present in quantities sufficient to cause symptoms) in normal, fresh rice seeds, but is adventitious. . . . Sixth, the poison of stale rice has an antecedent in fresh rice. The agent must be, therefore, some ferment or parasite or epiphyte peculiar to padi. Seventh, the beriberi poison is probably an alkaloid which is stable and not volatile, and resembles atropine and muscarine in some of its effects. Eighth, the formation of poison in stale rice is probably due neither to fermentation nor to bacteria, but to the growth in it of a special fungus. Ninth, the beriberi producing fungus of rice is probably a surface parasite or epiphyte affecting the seed saphrophytically after decortication." The author then goes on to compare this fungus with that of toxic rye and lolium.

As is well known, students of and writers about beriberi are divided into two groups according to their advocacy of theories of ætiology. One group, to which the author of the work under review belongs, believes that the disease is due to mouldy rice. The other group believes that the disease is due to a bacterium. Within the past year we have noticed in our editorial columns from time to time the various opinions of the nature of the microorganism. Further, an editorial in our issue of October 26 calls attention to the theory, advanced by Hewlett and de Korte, of the protozoan nature of the cause of the disease. It is needless to repeat that no one of the theories advanced so far has been proved. This much is in favor of the mouldy rice theory: Change of diet and removal of the patient to a nonberiberic place is of great assistance in curing the disease; at any rate, after the subsidence of the acute stage.

Dr. Braddon's book is an admirable piece of work and reveals the author's great industry. The literature has been exhaustively reviewed, and the references are given in all cases. From the mechanical point of view the book shows great merit; in spite of its size it is quite light and can easily be held in the hand.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Taschenbuch der Therapie mit besonderer Berücksichtigung der Therapie an den berliner, wiener u. a. deutschen Kliniken. Herausgegeben von Dr. M. T. Schnirer, Redakteur der Klinisch-therapeutischen Wochenschrift. Vierte vermehrte und verbesserte Ausgabe. Würzburg: A. Stuber, 1908. 1p. 387.

Zur Psychologie und Therapie neurotischer Symptome. Eine Studie auf Grund der Neurosenlehre Freund's. Von Dr. Arthur Muthmann, II. Arzt des Kurhauses Bad Nassau, früheren II. Arzt der psychiatrischen Klinik der Universität Basel. Halle a. S.: Carl Marhold, 1907. Pp. 115.

Beiträge zur Klinik der Tuberkulose. Unter Mitwirkung der Herren Dozent Dr. Arnsperger, Prof. Dr. Bettmann, etc. Herausgegeben von Dr. Ludolph Brauer, o. ö. Professor an der Universität Marburg, Direktor der medizinischen Klinik. Band VIII. Heft 2. Würzburg: A. Stuber, 1907. Pp. 222.

Lehrbuch der spezifischen Diagnostik und Therapie der Tuberkulose. Für Aerzte und Studierende. Von Dr. Bandler, dirigierendem Arzte der Lungenheilstätte Cottbus, und Dr. Röpke, dirigierendem Arzte der Eisenbahnheilstätte Melsungen. Mit 18 Temperaturkurven, auf 5 lithographischen Tafeln. Würzburg: A. Stuber, 1908. Pp. 113.

Technique oto-rhino-laryngologique sémiotique et thérapeutique à l'usage de l'étudiant et du médecin praticien. Par E. Escat. 322 figures dans le texte. Paris: A. Maloine 1908. Pp. 596.

Pathologische Physiologie, ein Lehrbuch für Studierende und Aerzte. Von Dr. Ludolf Krehl, o. Professor und Direktor der medizinischen Klinik in Heidelberg. Mit einem Beitrag von Professor E. Levy in Strassburg. Fünfte neu bearbeitete Auflage. Leipzig: F. C. W. Vogel, 1907. Pp. 649.

The Commoner Diseases of the Eye: How to Detect and How to Treat Them. For Students of Medicine. With 280 Illustrations and 8 Colored Plates. By Casey A. Wood, M. D., C. M., D. C. L., Professor of Ophthalmology, Northwestern University, Chicago, etc., and Thomas A. Woodruff, M. D., C. M., L. R. C. P. (London), Ophthalmic Surgeon, St. Luke's Hospital and St. Anthony de Padua Hospital, Chicago, etc. Third Edition, Enlarged and Improved, with Index. Chicago: W. T. Keener & Co., 1907. Pp. 598. (Price, \$2.50.)

Handbook of Cutaneous Therapeutics. Including Sections on the X Ray, High Frequency Current, and the Minor Surgery of the Skin. For the Use of General Practitioners. By W. A. Hardaway, M. D., LL. D., Professor of Diseases of the Skin and Syphilis in Washington University, St. Louis, and Joseph Grindon, Ph. B., M. D., Professor of Clinical Dermatology and Syphilis in Washington University, St. Louis. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. xi-606.

A Textbook of the Practice of Medicine. By James M. Anders, M. D., Ph. D., LL. D., Professor of Medicine and Clinical Medicine at the Medicochirurgical College, Philadelphia, etc. Illustrated, Eighth Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 1317. (Price, \$5.50.)

Treatise on Diseases of the Skin. For the Use of Advanced Students and Practitioners. By Henry W. Stelwagon, M. D., Ph. D., Professor of Dermatology in the Jefferson Medical College, Philadelphia, etc. Fifth Edition, Thoroughly Revised. With 267 Illustrations in the Text, and 34 Full Page Colored and Half Tone Plates. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 1150. (Price, \$6.)

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Miscellany.

Tuberculosis in New York State.—At the recent Buffalo convention of the sanitary officers of the State of New York, tuberculosis occupied the major part of the attention of the four hundred members gathered to discuss measures for the protection of the public health. It was the general opinion of these experts that the death rate from this disease in this State can be very largely reduced, but that to bring this about much more money must be spent than has thus far been devoted to this use.

It was shown that under the present lack of control throughout the State not only does consumption cause every year over 14,000, or one tenth, of all the deaths, but that the disease is on the increase. Dr. John H. Pryor, who was formerly the superintendent of the State Hospital for Incipient Tuberculosis at Ray Brook, advocated a chain of sanatoria through the State, and especially in the Adirondacks, as the speediest and cheapest way of properly providing for the treatment of consumption in New York, and he at the same time called attention to the fact that the disease in its early and relatively curable stages is as yet seldom recognized by patients or physicians. In support of this he cited the fact that to-day there is room for fifty-five more patients at Ray Brook out of a total accommodation of but two hundred beds, stating that these beds are not all filled because those who have incipient tuberculosis do not apply for admission until their disease has gotten beyond the point where they may be treated at this sanatorium. Dr. Edward T. Devine, of the New York Committee on the Prevention of Tuberculosis, advocated much more thorough State control of tuberculosis than is now exercised, and was of the opinion that the whole duty of the State is to be summed up in the control of the more advanced cases and popular education in the means of prevention. For the thousands who would enter hospitals for the better care there provided, and for the hundreds who are dangerous to their neighbors and their families, and therefore should be forcibly removed from their homes, local hospitals should be distributed throughout the State. It was Dr. Devine's opinion that a hospital for the more advanced type of cases is needed in at least every county in the State, and probably there should be at least one such hospital for each 250,000 of the population.—*The Committee on the Prevention of Tuberculosis.*

Health Conditions in Various Armies.—It is difficult to compare health conditions in the United States army with those in other armies, the principal reason being that in the United States the hospital admissions include all soldiers who have been excused from any part of their military duties, while this is not the case in any other country. Moreover, recruiting conditions vary greatly in different countries, the United States and Great Britain depending upon voluntary enlistments, while all other countries have conscription. Then, again, the strength is differently estimated in different countries, and some have a low death rate because their sick are promptly discharged or retired and die out of service instead of on sick report. Nevertheless, certain comparisons are both possible and interesting. The highest admission rate, 1,321, last year, was in the Dutch army; the next highest, 1,179, was in the United States army, and the lowest, 348, in the Russian army. The highest death rate, 5.61, was in the British army; the next highest, 5.28, was in the United States army, and the lowest, 1.86, in the Prussian army. The best basis for comparison is the record of total losses, representing the combined rates for deaths and discharges. According to this record, the United States army stood fourth after those of Belgium, Russia, and Great Britain, but far ahead of all others. An important factor in judging the

relative healthfulness of armies is the average duration of each case of sickness. Measured by this standard the United States army stood fourth after the armies of Prussia, Bavaria, and Holland. The average duration of each case in the American army was about half that of the average in the British army and a little more than half the average in the Russian army. The admission rate in the United States army was lower than in most other armies for pneumonia, pleurisy, scarlatina, sunstroke, erysipelas, and cerebrospinal meningitis, but far higher for alcoholism, influenza, mumps, and venereal diseases. The United States army rate was lower than the Russian rate for diphtheria, erysipelas, malaria, pleurisy, pneumonia, trachoma, and variola. The admission rate for dysentery was lower in the British than in the United States army, but while the British had a death rate of 0.16 per 1,000 from that disease, there was no death from that cause in the United States army. The admission rate for malaria was lower, but the death rate was higher in the British, Dutch, Russian, Spanish, and Belgian armies than in the United States army. The comparative figures concerning alcoholism—these and the others used in this article having been supplied by the surgeon general of the United States army—tell an ominous story which is commended to the attention of those misguided persons who oppose the restoration of the army canteen. The figures for the United States army are for the year 1906, and those relating to foreign armies are for the latest year obtainable. The admission rate in the United States for the year was 30.58 per 1,000 of mean strength; in the British army, 1.09; in the French, 0.29; in the Prussian, 0.08; in the Bavarian, 0.06; in the Dutch, 0.24; in the Russian, 0.1; in the Spanish, 0.01, and in the Belgian, 0.15. The return of death rates is very meagre, those for the American army relating only to troops within the continental boundaries of the United States. The death rates per 1,000 of mean strength are as follows: United States, 0.02; British, 0.07; Russian, 0.001. In all, or nearly all, the armies for which the admission rates for alcoholism are given above the troops are supplied with malt liquors and some with spirits. In the United States army alone is the soldier denied the privilege of purchasing beer or light wines at his post exchange. How this deprivation has worked to his disadvantage and injury is best told in the alarming figures we have cited.—From the *Army and Navy Journal*, November 9, 1907.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending November 9, 1907.

Disease.	Number of Cases.	Number of Deaths.
California—San Francisco	1	0
Colorado—Denver	1	0
Florida—Miami	1	0
Illinois—Chicago	1	0
Indiana—Indianapolis	1	0
Missouri—St. Joseph	1	0
Nebraska—Omaha	1	0
Ohio—Cincinnati	1	0
South Carolina—Charleston	1	0
Texas—San Antonio	1	0
Virginia—Richmond	1	0
Washington—Seattle	1	0
Wisconsin—Milwaukee	1	0

Montana—14 counties	June 1-Sept. 30	57
New Jersey—Newark	Oct. 20-29	3
Ohio—Cincinnati	Oct. 29-Nov. 1	2
Tennessee—Nashville	Oct. 20-29	3
Texas—San Antonio	Oct. 20-29	3
Virginia—3 Counties	Sept. 1-30	5
Washington—Spokane	Oct. 20-29	1
Washington—Tacoma	Oct. 20-29	1
Wisconsin—La Crosse	Oct. 20-29	1
Wisconsin—Milwaukee	Oct. 20-29	1

Smallpox Foreign.

Africa:		
British South Africa—Cape Town	Sept. 15-21	1
Portuguese East Africa—Lourenço Marques	Aug. 1-31	2
Austria—General	Oct. 9-12	3
Austria—Vienna	Oct. 9-12	1
Brazil—Para	Oct. 13-19	12
Canada—Halifax	Oct. 20-26	1
Canada—Hamilton	Oct. 20-26	1
Ecuador—Guayaquil	Oct. 6-12	3
France—Cannes	July 1-Sept. 30	19
Germany—General	Sept. 5-28	8
India—Bombay	Oct. 2-8	12
India—Calcutta	Sept. 15-21	2
Italy—General	Oct. 1-31	39
Italy—Catania	Oct. 11-17	1
Java—Batavia	Sept. 15-21	15
Malta—Valletta	Oct. 6-12	1
Mexico—Aguas Calientes	Oct. 20-26	2
Mexico—Mexico City	Sept. 15-21	4
Peru—Lima	To Oct. 3	47
Portugal—Lisbon	Oct. 6-12	3
Russia—Moscow	Sept. 22-Oct. 5	1
Russia—Riga	July 1-Sept. 30	3
Spain—Almeira	Sept. 1-30	5
Turkey in Europe—Constantinople	Oct. 8-15	1
Turkey in Asia—Smyrna	June 11-Sept. 30	18

Cholera Foreign.

India—Bombay	Oct. 2-8	12
India—Calcutta	Sept. 15-21	31
India—Cochin	Aug. 17-Sept. 6	5
India—Madras	Sept. 28-Oct. 4	98
India—Rangoon	Sept. 2-8	7
Japan—Yokohama	Oct. 1-7	14
Russia—Kief	Sept. 22-Oct. 10	97
Russia—Rostow	Sept. 19-Oct. 4	28
Siam—Bangkok	Aug. 1-31	12

Yellow Fever.

Brazil—Manaus	Oct. 6-12	4
Brazil—Para	Oct. 13-19	4
Cuba—Camaguey Province—Ciego de Avilla	Sept. 30-Nov. 5	1
Cuba—Havana Province—Guines	Oct. 31-Nov. 4	1
Cuba—Matanzas Province—Alajuela	Oct. 20-Nov. 2	1
Cuba—Cienfuegos	Oct. 31-Nov. 4	1
Cuba—Matanzas City	Nov. 2	1

Plague—United States.

California—San Francisco	Oct. 20-Nov. 5	6
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Plague Foreign.

Algeria—Oran	To Sept. 30	16
Australia—Gairns	Sept. 1-30	2
Bayam—Alexandria	Sept. 28-Oct. 14	7
Egypt—Port Said	Sept. 26-Oct. 14	2
India—General	Sept. 8-14	9,754
India—Calcutta	Sept. 15-21	17
India—Rangoon	Sept. 2-8	17
Peru—Callao	Sept. 27-Oct. 2	10
Peru—Lima	Sept. 2-8	2
Peru—Mollendo	Sept. 2-8	2
Peru—Punta	Sept. 2-8	6
Peru—Punta	Sept. 2-8	4
Peru—San Pedro	Sept. 2-8	3
Peru—Trujillo	Sept. 2-8	11
Spain—Barcelona	Aug. 1-31	15
Spain—Valencia	Aug. 1-31	15
Turkey in Asia—Smyrna	Aug. 1-31	15

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the week ending November 9, 1907.

ARMSTRONG, J. P., Passed Assistant Surgeon. Granted three days' extension of annual leave, on account of sickness, from October 31, 1907.

ARMSTRONG, E. A., Assistant Surgeon. Granted five days' leave and extension of annual leave, on account of sickness, from October 31, 1907.

BRINCKERHOFF, W. R., Director Leprosy Investigation Station, Honolulu, Hawaii. Returned to proceed to Manila for special assignment (to be upon completion of which to return to Honolulu).

CANNON, R. H., Physician. Granted leave of absence for thirty days from November 10, 1907, directed to proceed to Manila for special temporary duty, upon completion of which to return to Honolulu, Hawaii.

- GRUBBS, S. B., Passed Assistant Surgeon. Excused from duty for one year, without pay, from November 2, 1907.
- HAMILTON, H. J., Acting Assistant Surgeon. Granted five days' extension of leave of absence on account of sickness, from October 5, 1907.
- HOLT, J. M., Passed Assistant Surgeon. Granted two days' leave of absence.
- HUNTER, W. R., Acting Assistant Surgeon. Granted leave of absence for one day.
- KEATLEY, H. W., Acting Assistant Surgeon. Granted seven days' leave of absence, October 20-24, inclusive, and October 29-31, 1907, under paragraph 210, Service Regulations.
- LAVINDER, C. H., Passed Assistant Surgeon. Directed to report at the Bureau, for special temporary duty; upon completion of which to rejoin his station at Wilmington, N. C.
- LIGHT, S. D. W., Acting Assistant Surgeon. Leave of absence granted for seventeen days from November 14, 1907, revoked.
- MACDOWELL, W. F., Pharmacist. Granted leave of absence for fifteen days from November 9, 1907.
- MCLAUGHLIN, A. J., Passed Assistant Surgeon. Directed to proceed to Rome, Italy, for special temporary duty; upon completion of which to rejoin his station at Naples, Italy.
- SAFFORD, M. V., Acting Assistant Surgeon. Directed to report at the Bureau, November 11, 1907, for special temporary duty; upon completion of which to rejoin his station at Boston, Mass.
- SCHERESCHESKY, J. W., Passed Assistant Surgeon. Directed to report at the Bureau, November 11, 1907, for special temporary duty; upon completion of which to rejoin his station at Baltimore, Md.
- STONER, G. W., Surgeon. Directed to report at Bureau for special temporary duty, November 11, 1907; upon completion of which to rejoin his station at Ellis Island, New York; granted leave of absence for three days, under paragraph 189, Service Regulations.
- WHITE, J. H., Surgeon. Leave of absence granted for thirty days from August 29, 1907, amended to read for twenty-six days only.
- WILLIAMS, L. L., Surgeon. Bureau Order directing Surgeon L. L. Williams to report at the Bureau for special temporary duty, November 4, 1907, revoked.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army for the week ending November 9, 1907:

- EASTMAN, WILLIAM R., First Lieutenant and Assistant Surgeon. Reported for temporary duty at the Army Medical School, Washington, D. C., on November 5, 1907.
- JONES, PERCY L., Captain and Assistant Surgeon. Relieved from duty at Camp Captain John Smith, Jamestown Exposition, Va.; left on ten days' leave of absence.
- PHILLIPS, JOHN L., Major and Surgeon. Reports on forty-eight days' leave of absence from October 28, 1907, from Ancon, Canal Zone, Isthmus of Panama.
- SMART, WILLIAM M., Captain and Assistant Surgeon. Granted leave of absence until December 1, 1907.
- STRAUB, PAUL F., Major and Surgeon. Detailed to represent the Medical Department of the United States Army at the Third International Sanitary Conference, to be held in the city of Mexico on December 2, 1907.

The following named medical officers are relieved from duty at the posts designated after their names, and ordered to proceed to Vancouver Barracks, Wash., for duty with the 14th Infantry to the Philippine Islands; upon arrival at Manila they will report in person to the commanding general, Philippine Division, for assignment to duty:

- HESSE, LOUIS T., Captain and Assistant Surgeon. Fort Porter, N. Y.
- METCALFE, R. F., Captain and Assistant Surgeon. Columbus Barracks, Ohio.
- PYLES, WILL L., Captain and Assistant Surgeon. Jefferson Barracks, Mo.

The following named medical officers will be relieved from duty in the Philippines Division on February 15, 1908, and upon arrival at San Francisco will report by telegraph to the Adjutant General of the Army for further orders:

- BRATTON, THOMAS S., Captain and Assistant Surgeon.
- DE WITT, WALLACE, Captain and Assistant Surgeon.
- GIBNER, HERBERT C., First Lieutenant and Assistant Surgeon.

A board of medical officers has been appointed to investigate the medical materials indicated, and to recommend the types best adapted to the condition of service in the field: 1, Wheel vehicles, including ambulances, medical wagons, and transport wagons for the Hospital Corps; 2, means of transportation for the sick and wounded in the service of the rear, including vehicles of various types, trains, boats, ships, etc.; 3, pack transportation of medical supplies for the service of the front, and 4, hospital tents. The members of the board are as follows:

- DARNALL, CARL R., Captain and Assistant Surgeon.
- HAVARD, VALERY, Colonel and Assistant Surgeon General.
- KNIGHT, JOHN T., Major and Quartermaster.
- STANLEY, DAVID S., Major and Quartermaster.
- STRAUB, PAUL F., Major and Surgeon.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy for the week ending November 9, 1907:

- BAGG, C. P., Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the Philadelphia.

Births, Marriages and Deaths.

Born.

FISKE.—In Vallejo, California, on Wednesday, October 30th, to Dr. Charles N. Fiske, United States Navy, and Mrs. Fiske, a son.

STEARNS.—In Fort Screven, Georgia, on Wednesday, October 30th, to Dr. Charles H. Stearns, United States Army, and Mrs. Stearns, a son.

Married.

HEWISH.—AUGSTADT.—In Stamford, Connecticut, on Tuesday, October 29th, Dr. Herbert Inglis Hewish and Mrs. Emilie Barrett Augstadt.

MCCASKEY.—HOOPES.—In Peekskill, New York, on Friday, November 1st, Dr. Donald McCaskey and Miss Clyde Louise Hoopes.

MYTINGER.—KEISER.—In Cincinnati, Ohio, on Thursday, November 7th, Dr. George Mytinger and Miss Rachel Keiser.

RUMBOLD.—MCCORD.—In St. Joseph, Missouri, on Saturday, October 26th, Dr. Frank Meeker Rumbold and Miss Susan McCord.

Died.

ALLEN.—In Nashville, Tennessee, on Sunday, November 3d, Dr. P. McF. Allen.

BOENNING.—In Philadelphia, on Monday, November 4th, Dr. Henry C. Boenning, aged fifty years.

CALDWELL.—In Philadelphia, on Sunday, November 3d, Dr. Alexander Caldwell, aged sixty-three years.

CORBALLY.—In New York, on Monday, November 4th, Dr. Thomas P. Corbally, aged eighty-four years.

COWDREY.—In Stoneham, Massachusetts, on Tuesday, November 5th, Dr. Arthur Harris Cowdrey, aged seventy-one years.

HUGHES.—In Boulder, Colorado, on Friday, November 1st, Mrs. Mary R. Hughes, wife of Dr. George A. Hughes.

MARTIN.—In New York, on Sunday, November 3d, Dr. Edmund Howard Martin, aged eighty-two years.

MONROE.—In Sandy Hill, New York, on Sunday, November 3d, Dr. Henry Clay Monroe, aged sixty-two years.

SAUNDERS.—In Kenosha, Wisconsin, on Wednesday, October 30th, Dr. William F. Saunders, aged sixty-seven years.

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Original Communications.

A STUDY OF SAGO BODIES AND OTHER VESICULAR ELEMENTS IN MASSAGE URINE IN THEIR RELATIONS TO DIAGNOSIS.*

By DE SANTIAGO SANCHEZ, M. D.,

New York.

Assistant in Genitourinary Surgery at the New York Postgraduate Medical School and Hospital.
(From the Genitourinary Clinic of the New York Postgraduate Hospital.)

There appears to be much difference of opinion among surgeons as to whether the presence in massage urine of certain semi-solid bodies, variously known as "sago," "frog's spawn," etc., is always indicative of disease, or may at times occur in health. During the past four years I undertook a detailed study of a large number of specimens of massage urine, both from healthy men and from cases of vesicular disease. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.¹

The work included a consideration of the structure, origin, mode of formation, and clinical significance of the various elements that come from the vesicles and that are visible to the naked eye. The method of procedure was as follows:

I.—*Method of Obtaining Specimens.*

The patient reported with a full bladder and voided about half his urine into two glasses. If both specimens were clear the prostate was first massaged, the vesicles were stripped, and the remainder of the urine was voided and examined. If any pus or shreds were present in the first two urines, the urethra and bladder were thoroughly washed, and after the lavage fluid began to come clear a sufficient amount of it was left in the bladder. Stripping was then done, and the voided fluid was examined.

For the purposes of this work it was desirable to obtain vesicular secretion separately from prostatic. This was found to be possible only relatively. It is impossible, save occasionally, to obtain prostatic material alone without carrying with it some of the contents of the vesicles. The reason for this lies in the anatomical relations of the parts concerned, shown in Fig. 1. The treated part of the vesicle

and the ampulla unite under cover of the upper border of the prostate to form the ejaculatory duct, and the examiner cannot avoid compressing this point of union in massaging a prostate. With each stroke downward he inevitably milks some of the vesicular material into the posterior urethra. A method for partly overcoming this difficulty was described by Dr. Hugh Cabot (1), but I have had too little experience with it to judge of its value.

Owing to the anatomical relations just mentioned, it is also usually impossible to strip the vesicles very thoroughly without at the same time carrying the massage along the upper part of the prostate. At any rate, far less vesicular contents are obtained when one stops stripping at the border of the prostate and does not carry the strokes so as to empty the ejaculatory ducts. With caution it is possible at times to obtain a great deal of vesicular material with a minimum admixture of prostatic, but there is never an absolute separation of the two fluids, so far as I know, in any form of massage.

In the present study this difficulty did not matter much, as I shall show below, for the reason that I was dealing with semi-solid bodies that came from the vesicles, and that could be washed quite thoroughly, so as to remove adherent prostatic material.

II.—*Gross Appearance of Vesicular Material.*

The gross appearance of vesicular material in massage urine varies to a marked degree. At times the fluid presents merely a diffuse opacity which grows clearer at the top on standing. At other times there is an abundant snowflake-like sediment, resembling normal semen as it appears when dropped into urine. This sediment sinks rapidly, and over it floats a cloud of mucus. A heavy, yellowish white sediment, which sinks rapidly, is due to the presence of pus, while in other cases there may be blood, either tinging the fluid diffusely or coloring its more solid particles. Occasionally the sediment assumes a brownish tinge.

In very many cases there are also macroscopic bodies of definite shapes in this urine, including sago-like masses or "sago bodies"; smaller, clearer, and more translucent particles resembling sugar granules, and thin, somewhat opaque, flaky pellicles looking like seed skins. All of these sink quite rapidly and quickly dissolve.

Less frequently, nevertheless with great regularity in some cases, we find larger, gelatinous, grape-like masses or tufts, apparently held together by thin membranes. These masses are of various sizes, and bulk, and are of various colors, and are of various consistencies. They are

*Read at the meeting of the New York Postgraduate Medical School and Hospital, November 15, 1907.
1. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
2. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
3. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
4. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
5. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
6. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
7. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
8. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
9. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.
10. The material was obtained from my private patients and from cases observed at the genitourinary clinic of the Postgraduate Hospital.

ments disintegrate more slowly, but tend to fuse into shapeless masses at the bottom of the fluid.

III.—Technique of Examination.

After the massage urine had been inspected, the various formed elements just described were isolated and their chemical behavior in solvents noted. They were studied both fresh under the low power and in stained smears.

The detailed description of the chemical characteristics of these bodies may be omitted here. The reader is referred to the works of Fürbringer (2) and of Landwehr (3), who identified vesicular sago bodies, etc., as masses of globulin. These bodies have no odor to speak of, quite in contrast to the strong spermin odor of prostatic fluid, are slightly alkaline or neutral in reaction when taken direct from the vesicles, and grow more opaque and slowly dissolve in distilled water and in salt solution.

Two points which I noted personally and which have a bearing on this work may be mentioned in this connection. These bodies instantly coagulate in alcohol and ether (equal parts), and are converted into tough, rubber-like particles. This reaction I found useful in fixing their smears upon slides.

Another feature is their varying opacity. This has been noted by Fürbringer in solutions, but I do not find mentioned anywhere their varying opacity in the urine. This I believe to be due to two factors. First, to the varying number of spermatozoa and other cellular elements which they contain, and second, to the amount of chlorides in the urine. In a dilute sodium chloride solution they are translucent, but by adding salt to the solution one can make them turn whiter and more opaque.

Before studying them under low power they were washed in normal salt solution and thus any adherent particles of prostatic or of vesicular secretion were largely removed. For stained smears the sago bodies, sugar granules, etc., were very thinly spread on slides and fixed for ten minutes in equal parts of alcohol and ether, or else by flooding the slide with a thin collodion solution. (The collodion film was allowed to dry and was soaked for ten minutes in distilled water to render it permeable.)

The fixed smear was then covered with a solution containing one part of saturated alcoholic solution of eosin and three parts of distilled water for thirty seconds. The slide was washed in water and covered with a mixture of one part of saturated solution of methylene blue to three parts of distilled water. This was left on for from three to five minutes, according to the density of the specimen. The slide was then thoroughly washed, dehydrated with alcohol for a few seconds, cleared in Dunham's mixture (oil of cloves and oil of thyme), dried, and mounted in balsam.²

With this method very satisfactory slides can be obtained. The heads of the spermatozoa stain a blue or purplish color, their tails and middle pieces a bright red, the amorphous background becomes a salmon pink, while the cellular elements show quite distinctly their blue or purplish nuclei, their pink cell bodies and their neutrophile, acidophile, or basophile granules. The successive staining just described was found to be far more satisfactory

than the use of such combined stains as Jenner's, Goldhorn's, Wright's, etc., all of which were tried.

Bacteria were stained blue or purple with my method; when gonococci were expected Gram's stain was used, with a solution of fuchsin or eosin as a counterstain.

IV.—Structure and Mode of Formation of the Macroscopic Vesicular Elements in Massage Urine.

In taking up this part of my subject I shall consider in succession (1) the sago bodies; (2) the sugar granules; (3) the skins; (4) the vesicular casts; and (5) the vesicular shreds.

1. *Sago Bodies*.—These were originally described by Lallemand (6) and Trouseau (7) in the urines of patients with spermatorrhea. They seem to have been forgotten for some time until Curschmann (8) mentioned them casually and rather doubted their existence. They were found by Fürbringer in a few cases of spermatorrhea and in the contents of the vesicles removed from fifty-six cadavers (9, 10, 11). They are round or ovoid masses, of a semi-opaque, yellowish white, semi-solid colloid material, varying in size from that of a barleycorn to that of a lentil, and tend to sink rapidly to the bottom.

Under the low power the sago bodies are found to consist of a fairly homogeneous colloid matrix,

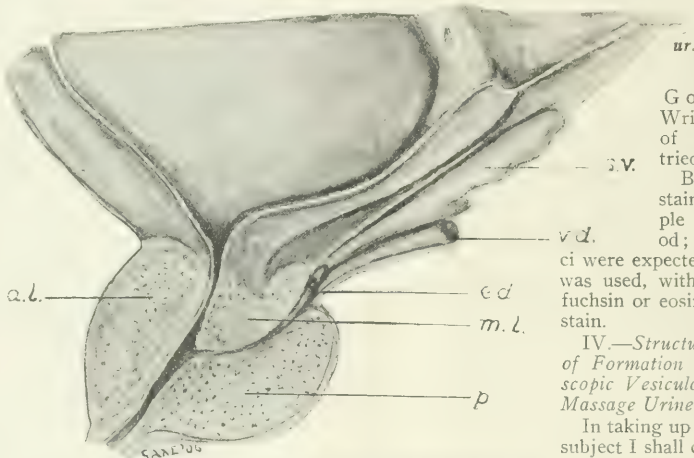


FIG. 1.—Section through the prostate and seminal vesicles showing relations at the beginning of the ejaculatory duct e. d. (after Zuckerkandl and Testut); p, prostate; a. l., anterior lobe; m. l., middle lobe; v. d., vas deferens; s. v., seminal vesicle; ur., ureter; b., bladder; p. u., prostatic urethra.

² The method of fixation had been used in my work for three years before I became aware of the publication of a similar method by Wederhake. This author recommends fixation in alcohol and ether for twenty-four hours, and precedes it by fixation in alcohol alone. He applies this method especially to prostatic secretion. In my work I have found the alcohol-ether fixation quite satisfactory, though perhaps still better fixation can be obtained, when there is time, with Wederhake's plan.

in which are embedded motionless spermatozoa. I say motionless, because these spermatozoa from the vesicles never, to my knowledge, show the motion characteristically found in semen, although they may move very gently within the semi-fluid mass as it lies on the slide. The number of spermatozoa, as has been already stated, varies to some extent. In many instances the bodies are literally packed with them, while in others the field is but sparsely sown. Fürbringer states that but few spermatozoa are found within these bodies, and that usually they are adherent thereto, rather than embedded therein. This statement has also been made by Posner (12)

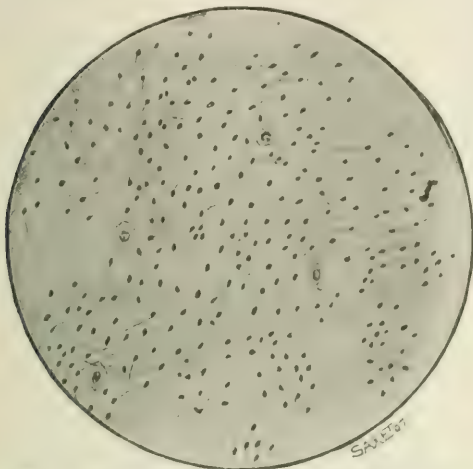


FIG. 2.—Stained smear taken from a sago body (x257. Eosin methylene blue).

and others. In the large, semi-opaque structures which, to my best knowledge, are the sago bodies of Lallemand and Trouseau, there are always large numbers of spermatozoa, while the comparative absence of spermatozoa mentioned by Fürbringer applies to the "sugar granules," which I shall describe presently. It is possible, however, that Fürbringer spoke also of the "sugar granules" as "sago bodies."

The spermatozoa in the sago bodies are usually most numerous at the edges, and sometimes the matrix appears concentrically striated, especially at the poles of the body, where there appear to be several layers of spermatozoa densely packed, with clearer spaces between the layers. At the edge of the body the low power often shows a double line of refraction, and a number of spermatozoa may be found adherent to the outer surface. Some of the latter may be endowed with motion as they float in the surrounding fluid.

In addition these bodies, with a high power lens, are found to contain (Fig. 2) a very small number of epithelia from the vesicles, both cylindrical and cuboidal, and a few large, pale, hyaline or colloidal cells identical with the testicle cells found in the semen. Many of these epithelial cells contain granules or masses of yellow pigment, which are also found outside the cells.

The sago bodies are undoubtedly derived from

the vesicles. Fig. 3 shows the gross structure of the vesicle, as exhibited in a dissection. The organ presents numerous convolutions, each of which represents a cavity for the moulding of a sago body. Fig. 4 and Fig. 5 show a section through a normal vesicle under high and low powers. The arrangement of the sacculations is clearly shown.

Fürbringer has found (9) in fifty-six cadavers that the vesicles are normally filled with a colloid, semi-solid mass, which dissolves quite rapidly when mixed with the other ingredients of ejaculated semen. In massage urine, however, this material has no time to come into contact with the prostatic secretion. The reaction of the vesicular contents is alkaline, and in it are embedded innumerable motionless spermatozoa which are set free only when the prostatic fluid has mixed with the vesicular masses as in the act of ejaculation. A small amount of fluid is also encountered in the vesicles, but the bulk of the contents is semi-solid.

On the other hand, the normal human prostatic secretion is thin, not even viscid in character. While vesicular fluid and semi-solid secretion contain chiefly globulins, prostatic fluid contains largely albumoses. Prostatic fluid normally never contains macroscopic or semi-solid masses. Patho-



FIG. 3.—Seminal vesicle, and masses of sago bodies, removed vertically in the dissection. (After Lallemand and Trouseau.)

logically it contains concretions, shreds, etc., but never anything resembling the sago bodies.

2. *Sugar granules.* These are bodies found in massage urine which resemble very much granules of melting sugar. They are much smaller than the sago bodies, averaging the size of a pinhead and

scarcely reaching the size of the head of a match. They are glassy, transparent, and in health either colorless or slightly yellowish. They are often present in considerable numbers, falling rapidly to the bottom and dissolving within a few minutes. These are probably the bodies described by Hugh

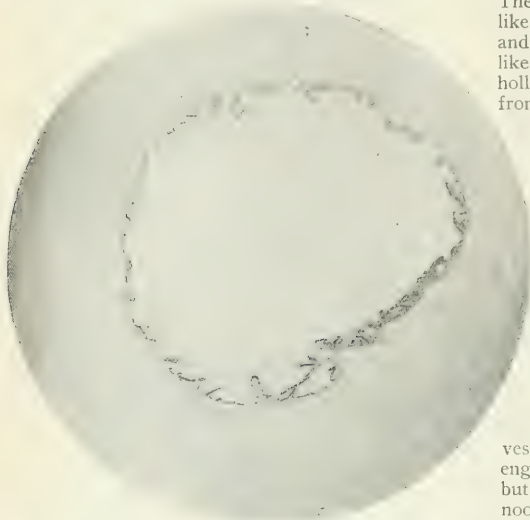


FIG. 2.—Transverse section through a seminal vesicle, showing the arrangement of the mucosa. (Photomicrograph, low power, X25. Hematoxylin eosin.)

Cabot (1) as frog's spawn. When the urine contains a great deal of coloring matter they assume the tint of brown sugar. In some cases they are colored a still darker brown, without apparently being tinged with the urinary coloring matters. In such instances they are probably affected by a pigment which is formed in the vesicles and which sometimes tinges the massaged material.

Microscopically they are practically structureless. They consist of a glassy, highly refractive, homogeneous matrix, in which there are few or no spermatozoa and very few, if any, cellular elements of any kind—usually a few epithelia from the vesicle. The examination of smears from these bodies yields but little satisfaction on account of their structureless character. Chemically they are composed of globulin and behave in salt solutions, etc., in the same way as sago bodies.

The origin of the sugar granules, which are so transparent and contain so few spermatozoa, can be explained by recognizing them as fragmented masses of vesicular secretion where there happened to be few or no spermatozoa. Their formation is explained by the fact that, for example, the bottom of the organ was filled with spermatozoa mixed with secretion, while the upper part contained presumably pure vesicular secretion without spermatozoa. To understand how this may happen we have to go back to the physiology of the vesicle. If ejaculation does not take place at the time, the secretion accumulates in the vesicle, where it may be

stored, while the organ may fill up with secretion until the next ejaculation. The vesicle is thus an organ which has two functions, that of storing semen and that of secreting. (Kayser 13.)

3. *Skins*.—Every one who has massaged the vesicle has seen the structures to which I now refer. They are delicate, opaque, yellowish white, skin-like fragments. Sometimes the skins are larger and often present a lobulated appearance, looking like the shells of an orange or lemon seed, with hollows where the seeds had been. When removed from the urine these larger skin-like shells are found to be somewhat viscid and collapse into little lumps of gelatinous material. Both varieties dissolve very rapidly indeed in urine. When spread out and stained after fixation with alcohol and ether, they are found to contain numerous spermatozoa, vesicular epithelia of the cuboidal or rounded variety and occasionally of the cylindrical type, and numerous pigment granules. Chemically they are identical with the sago bodies.

The skins are probably composed of bits of inspissated or thickened vesicular secretions which have lain for a considerable time in the organ, possibly between the closely lying folds of a collapsed portion of the vesicle. Even in the vesicles of men actively engaged in sexual life we can find such skins, but they may possibly be derived from some nook whence the dense mass of secretion is dislodged only by massage. This theory of their formation, which I offer for what it is worth, with-

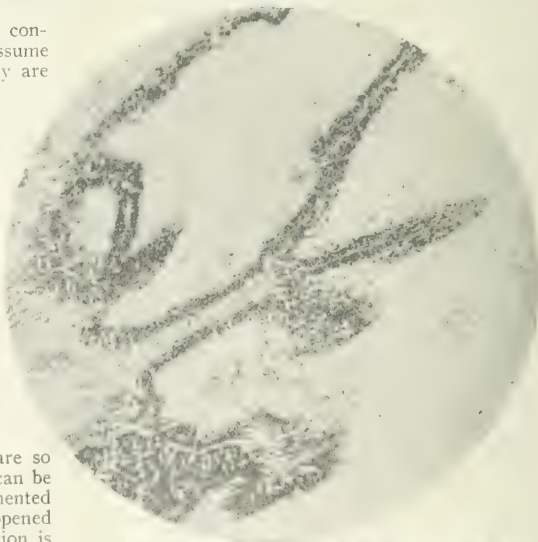


FIG. 3.—Transverse section of vesicle under higher power, showing epithelia, submucosa, and villous arrangement of mucous folds enclosing chambers for the lodgment of secretion. (Photomicrograph, X173. Hematoxylin eosin.)

out as yet being able to give positive proof, is confirmed by the finding in massage urine of the shell-like lobulated skins which present hollows apparently for the reception of sago bodies. These "skins" very probably are the stripped lining

of secretion from some of the recesses of the vesicle.

The formation of the inspissated wall or shell which we thus encounter in the vesicular secretion may be explained by assuming the occurrence of a certain amount of absorption of the vesicular contents. The fluid part of the contents is very probably absorbed through the vesicular wall to some extent. While we have no direct proof of this, it is the only way in which we can account for the disposal of the vesicular contents which is constantly secreted normally in men who abstain from sexual intercourse for a long time and who do not have any ejaculations or emissions. This theory of absorption is held by Exner (14), to whose article on the physiology of the vesicles I refer those who are particularly interested in this point. If such a process of absorption goes on it is not astonishing to find the outermost portions of the vesicular secretion denser than the central portion of the vesicular contents, and to find in the sago

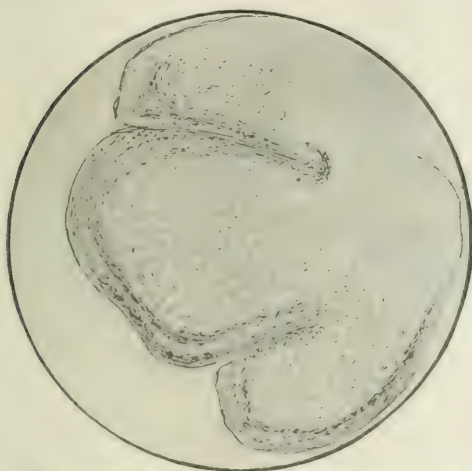


FIG. 7.—Vesicular cast, showing the characteristic concentric arrangement of the spermatozoa and the labilitation (eosin, methylene blue.)

bodies denser layers of secretion, arranged concentrically at the edges of the mass.

4. *Vesicular Casts*.—A number of authors have noted the occurrence in massage urine of casts of portions of the vesicle, or even of the entire vesicular contents, but no detailed descriptions of these bodies are to be found. They occur in grape-like masses of whitish, opaque, ovoid, or rounded bodies, connected with short and narrow pedicles or agglomerated in close contact with one another, though still showing their individual outlines. These bodies are usually of the size of a pea or even larger, and seem to be filled with some sort of opaque mucoid material. They float for a few seconds in the urine, and then sink and soon rise into a shapeless mass which slowly dissolves. When placed upon a slide, after having been picked out with a needle, they lose the opaque look which they have in the urine and which makes them look like minute cysts arranged in grape-like tufts, and

they assume the look of masses of glairy, semi-transparent, jelly-like material. The only difference between these and the sago bodies is a greater condensation of their outer layers, without any difference in structure (Fig. 6). These bodies are difficult to stain, on account of the peculiar glairy material of which they are composed. When stained freshly without fixation and pressed under the cover glass they make but indifferent preparations for histological study. Thin smears, however, can be readily made from them and stained as described before.

Microscopically they consist of the same elements, as are found in the sago bodies, save that their outer layers consist of a sort of wall of condensed or inspissated material identical with the rest of the body itself, in which are embedded innumerable spermatozoa. In addition, these bodies contain epithelia from the vesicle, and, what is most important, often a varying number of pus cells. In vesiculitis of gonorrhoeal origin, I have in a number of cases found *gonococci* within and about the pus cells and have identified them by means of Gram's stain in smears prepared from these bodies (Fig. 7).

Streptococci, staphylococci, and other germs are also found in these casts at times. The colon bacillus probably occurs in some cases of vesiculitis. Fig. 7 shows a smear from a cast in a case of mixed streptococcus and gonococcus vesiculitis.

In some cases there are in massage urine elongated, sausage-like, or club-like bodies which are similar in structure to the vesicular casts just described. When placed in salt solution and studied with a low power lens they show shapes which suggest their origin from the neck of the vesicle, or possibly from the ampulla of the vas. Fig. 8 illustrates their gross appearance.

5. *Vesicular Shreds*.—The next structure which we have to consider in massage material from the vesicles is closely related to those just discussed. Vesicular shreds are often of considerable size. They sink slowly and present the appearance of a mass of egg albumin or of an egg membrane. They collapse on being fished out with a platinum needle into a semi-transparent ball of mucoid material. Their structure may be detected either by looking at the fresh specimen spread on a slide with the low power, or better, by thinly spreading a small portion of the shred on a slide, staining with methylene blue and eosin, and examining with a higher power. Microscopically, the vesicular origin of these shreds is demonstrated by the large number of spermatozoa which they contain, embedded in a homogeneous or finely fibrillated matrix. They contain, in addition, numerous vesicular epithelia, a large number of highly refractive granules, some pus cells, and less often streptococci, gonococci, staphylococci, colon bacilli, and other bacteria. These shreds are therefore identical in structure with the grape-like masses, save that they are more condensed and probably represent thickened masses of vesicular secretion mixed with pus and mucus.

A. *General Significance of the Vesicular Elements Found in Massage Urine*

In considering this part of my subject, the first question is, whether the sago bodies and the other formed elements from the vesicles occur in healthy

persons, and, if so, under what conditions. It might be assumed, *a priori*, that when normal vesicles are stripped, the urine will contain a mixture simply of the normal secretions or the normal contents of these organs.

The contents of the vesicles vary physiologically according to a variety of conditions. The vesicles secrete an essential vesicular secretion, with which is mixed a certain amount of seminal fluid, which is stored in the vesicle after having been propelled along the vas deferens during a period of sexual excitement, especially when this excitement is not followed by an ejaculation. The amount of semen in the vesicle, therefore, will vary according to the frequency and intensity of sexual excitement. Increased sexual stimuli also promote the secretion of the prostate gland, which is essential in reproduction.

But very little can be found in the literature concerning the appearance of the normal massage urine in perfectly healthy subjects, and some urologists still cling to the old idea that the mere presence of sago bodies or other formed elements, or even of a large amount of prostatovesicular material in the massage urine, is indicative of disease. The study of a large number of cases undertaken in connection with the present investigation, and especially the study of twenty-six young men who came for various general disorders, and whose prostate and vesicles were normal,³ proves that this attitude is erroneous. These young men ranged from seventeen to twenty-three years of age; none of them presented a history of any venereal infection whatever, and eight of them asserted that they never had had sexual intercourse. None of them suffered any inconvenience from the massage, which was carried out with the greatest caution, in order to avoid congestion of the parts. In no case was massage repeated more than four times, the average number being twice, and in no case was the massage repeated at shorter intervals than fourteen days. The only effect this massage had in these healthy men, so far as I could see, was that the normal frequency of their nocturnal emissions (which occurred about every three weeks) was materially diminished, showing that the massage had not

induced, as I at first feared it would, an increased sexual irritability.

In twelve of these twenty-six young men I could obtain, at one time or another—not always at the first examination—either skins, sugar granules, or sago bodies in the massage urine. In eight only skins appeared, while in six but a single examination was made, and nothing but a slight turbidity was obtained in the urine, the vesicles evidently being empty. In none of these cases were vesicular casts or vesicular shreds seen, and a microscopical examination in all cases showed but very few leucocytes either in the fluid or the semi-solid portions.

Twelve of these men, in whom more accurate observation was possible, were followed closely, and the amount and appearance of the massaged discharge was carefully noted. I found that in those patients of this group who were under constant sexual excitement, and who associated with young women, without having intercourse, the amount of

vesicular and prostatic secretion was greatest and the number of sago bodies and sugar granules the largest. The skin flakes occurred most frequently in those cases in which massage was performed about a week after a nocturnal emission. On the other hand, when these subjects were massaged three weeks after the emission, i. e., just before the next one became due, the amount of secretion was greatest.

It seems evident, therefore, both from our knowledge of the physiology of the organs concerned and from the observation of this small group of men, that (1) semi-solid formed ele-

ments, especially sago bodies, sugar granules and skin flakes, occur normally in massage urine; (2) that the amount of vesiculoprosthetic contents is dependent upon (a) sexual irritability and (b) the opportunity for discharging the contents of these organs, or, in other words, upon the amount secreted and the degree of condensation of the secretion.

Hence, neither an increased amount of secretion nor the appearance of sago bodies, sugar granules, or skin flakes in the massage urine are necessarily symptomatic of disease, so far as my observations go.

Inasmuch as the number of normal individuals studied was small, I thought it best to fortify these conclusions with the opinions of the most distinguished urologists of the country. For this purpose I sent in February, 1907, thirty-two circular letters, most of them to members of the association,

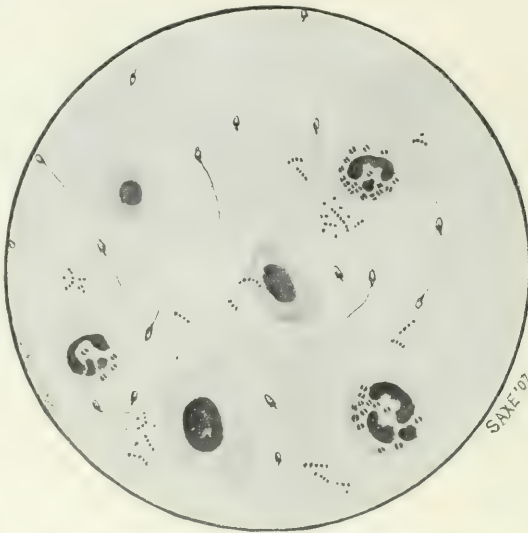


FIG. 7.—Coccobacilli and streptococci, epithelial and pus cells, in stained smear from a vesicular cast. (Gram's stain, x400.)

³ To be sure, we are inclined to wonder whether "normal" prostate and seminal vesicles can be found in any class of men. The possible presence of disease in the prostate and seminal vesicles, and the possibility of their being diseased, is a question which is not touched upon in any of the young men examined.

I received in all twenty-two answers, three of which were noncommittal; the remaining nineteen I am able to quote. They were from:

Dr. Winfield Ayres, of New York; Dr. W. T. Belfield, of Chicago; Dr. W. Tilden Brown, of New York; Dr. Hugh Cabot, of Boston; Dr. Charles Chassagnac, of New Orleans; Dr. Charles G. Cumston, of Boston; Dr. Eugene Fuller, of New York; Dr. Ramon Guiteras, of New York; Dr. Orville Horwitz, of Philadelphia; Dr. M. Krotoszyner, of San Francisco; Dr. Bransford Lewis, of St. Louis; Dr. G. Frank Lydston, of Chicago; Dr. Granville McGowan, of Los Angeles; Dr. Edward Martin, of Philadelphia; Dr. Henry H. Morton, of New York; Dr. A. Ravogli, of Cincinnati; Dr. Robert W. Taylor, of New York; Dr. Paul Thorndike, of Boston, and Dr. Hugh H. Young, of Baltimore.

The following is a summary of their answers. I regret that space will not permit to quote *in extenso* each of the gentlemen who so kindly answered my queries:

Sago bodies and other formed elements in the urine occur:

I. *Normally*, according to: Cabot, Morton, Thorndike, Young.

II. *Normally* (?) under certain conditions: (2) Hypersecretion in the vesicles according to Ayres. (b) Stagnation of secretion in vesicles, according to Chassagnac, Guiteras, Martin, Lewis (also in congestion), McGowan (also in low grade inflammation), Krotoszyner (also in congestion and low grade inflammation), Cumston, Belfield, Brown, Horwitz, Lydston. The last five state, also in congestion, low grade inflammation, and in inflammation.

III. *Abnormally*,* (a) In low grade inflammation, Fuller. (b) Congestion or mild inflammation, Taylor.

A survey of the table shows that the answers are grouped into three divisions. The first four observers agree with me that sago bodies can be found normally. The second group, eleven observers, believe that they can be found in the presence of hypersecretion or of stagnation of secretion, conditions which, I take it, must needs be present normally to a certain extent and at certain times of life. Undoubtedly, however, stagnation of secretion is a very broad term and may include vesicular atony, a pathological condition. For this reason I

have put a question mark after *normally* under this heading. My own conclusions point distinctly to the occurrence of sago bodies in normal subjects, especially under these two conditions, hypersecretion, and stagnation.

Two authors, both of them authorities of the highest rank, attribute the formation of sago bodies to the presence of low grade inflammation or congestion, and do not consider them normal. In view of this, it is impossible to consider the question as closed, and further researches will be needed, either to confirm or contravert the views expressed in the present paper. I submit in all humility my observations for what they are worth, hoping that abler hands may take up this question soon.

VI.—*Massage Elements in Vesiculitis.*

The first condition which we must consider is so called *atonic vesiculitis*. Here we do not find in the

sediment or in the smears from the sago bodies, etc., any pus cells and but rarely any bacteria. The vesicles are distended with stagnant secretion and a large amount accumulates in spite of stripping repeated every five days. In addition to sago bodies, sugar granules, and skins, there are here numerous sausage-like or grape-like casts of the vesicular contents.

While some authorities designate this condition as atonic vesiculitis, I should like to suggest for it the term *spermato-stasis*. It seems to me analogous in many respects

to intestinal constipation, where the contents grow more and more dense as the walls lose their tone. I may also compare the behavior of the vesicles in this atonic condition to that of the gall bladder. We know that the retention of bile leads to the gradual thickening of this secretion and secondarily to infection and to the development of cholecystitis. The same process goes on in the vesicles, and the contents of the atonic organ is soon attacked by germs from the rectum, the prostate or the bladder, and a vesiculitis develops. When I find, therefore, large masses of semi-solid material upon repeated examination, without any pus in the smears, I make a diagnosis of spermato-stasis or vesiculitis atony (not of "atonic vesiculitis," for the latter term means an inflammation).



FIG. 1. Casts from the apical end of the ducts of the vesicles, showing the presence of sago bodies and other formed elements.

*There are no normal conditions.

*It is usually to be expected.

*In inflammation, etc.

*A. Ravogli's answer is not based on a personal observation.

conditions.

It is not necessary for me to speak of the massage secretion in *acute vesiculitis*, as the diagnosis of this condition is quite evident from palpation, and stripping should never be done in these cases.

In *chronic vesiculitis*, however, much can be learned from the microscopic and even from the gross appearance of the sediment. In some cases the stripping gives hardly any semi-solid material. This means usually that the vesicles happen to be empty from natural causes or from previous stripping. If the organs are thickened, nodular, and feel unyielding through the rectum, we have the sclerotic form of vesiculitis described by Fuller, in which the walls are converted into a tough connective tissue substance, and the secretory function is abolished.

In ordinary cases, however, when the vesiculitis has not progressed so far, the massage secretion varies, as normally, with the amount of retention (spermatostasis) and the opportunities for emptying. Besides the sago bodies and sugar granules, there may be here not only vesicular shreds and casts, sausage-like or grape-like in character, but also a certain amount of thick semi-fluid sediment, which cannot easily be distinguished from purulent prostatic secretion.

Occasionally the vesicular masses are colored a brownish or reddish brown tinge, and, according to some writers, this is a normal condition. The exact pigment which gives rise to this color is not known, but it is either derived from the blood or formed in the vesicular secretion. At any rate, I have not been able to attribute any diagnostic significance to it.

Owing to the difficulty of separating prostatic from vesicular contents, I have made it a matter of routine to examine always smears from the semi-solid macroscopic bodies from the vesicles. These, as I have shown, could not be derived from the prostate. The adherent particles of prostatic fluid may be washed off quite thoroughly by rinsing the vesicular casts, shreds, etc., in one or more changes of normal salt solution before the smear is made. In this way we obtain material that we know comes from the vesicles.

It is more difficult to be sure of this in the case of shreds. *Vesicular shreds* are distinguished from prostatic shreds, which they resemble, by the fact that the former are larger, more viscid and elastic, and contain a far greater number of spermatozoa, as a rule. Prostatic shreds do not usually contain imbedded spermatozoa, but only show adherent ones. Prostatic shreds also show the presence of characteristic prostatic epithelia, and an absence of vesicular epithelia.

On microscopical examination of the smears in the manner described before, I was able to find in these vesicular bodies, especially in the casts and shreds, enough pus cells, vesicular epithelia, and bacteria to justify a diagnosis of vesiculitis. In all these cases there were some palpatory and some subjective phenomena. On the other hand, in a number of cases in which there was merely retention of vesicular secretion, spermatostasis, or atony of the organs, no pus cells, but only a few leucocytes and a few epithelia were found in these smears. It

is these cases which I should have regarded as vesiculitis if I had not made the microscopical examination.

In about 10 per cent. of cases of vesiculitis with a history of gonorrheal infection I was able to find the *gonococcus* in the smears in chronic vesiculitis. In one case there was a Gram negative typical diplococcus in the vesicular casts, although the infection had taken place twelve years previously. In cases of atony of the vesicles, which, according to Fuller, tend to become mildly inflammatory, I was also able to find after a time streptococci in these smears, and thus to confirm his statement that a streptococcus infection eventually occurs in atonic cases. Streptococci were found in a considerable number of cases of frankly developed chronic vesiculitis, with pus in the casts and sediment. In but very few cases were there staphylococci in the vesicular smears, in some cases along with the gonococcus. In a few cases a bacillus resembling the *Bacillus coli* morphologically was found in the smears. Unfortunately no cultures were made in these. The tubercle bacillus was never seen in any of the series, which embraced nearly three hundred cases.

This leads me to speak finally of *tuberculous vesiculitis*. Unfortunately, I have seen but four cases of this condition, and therefore cannot speak definitely of the character of the vesicular contents. In one of these cases some of the contents were obtained accidentally before the diagnosis was made. The manipulation was followed by an aggravation of the symptoms, and stripping is contraindicated, I believe, in these cases. This was also the unanimous opinion of the correspondents who answered my circular letter. Fortunately for the surgeon and unfortunately for the patient, tuberculous vesiculitis occurs usually when there are other organs, as the testes, involved, and so we do not have to depend upon the stripped secretion. When obtained, in the few cases which I have been able to trace, the vesicular contents is usually bloody, mixed with dark reddish black masses, and contains pus, shreddy debris and broken down epithelia. The tubercle bacillus, however, was found in the urinary sediment obtained by centrifuging in one of my cases.

Conclusions:

1. Neither the occurrence of semi-solid masses nor the increased amount of massage material from the vesicles necessarily indicates the presence of vesiculitis.
2. The semi-solid bodies in massage urine derived from the vesicles include "sago bodies," "sugar granules," "skins," vesicular casts, and vesicular shreds.
3. Sago bodies, sugar granules, and skins occur in normal massage urine, when there is a hypersecretion and a certain (physiological?) amount of stagnation of secretion (spermatostasis) due partly to retention and partly to the absorption of the fluid portion of the vesicular contents.
4. Vesicular casts indicate a more marked degree of spermatostasis in the vesicle, due to an atony of the walls, and favoring infection, but do not indicate inflammation unless they contain pus cells, considerable numbers of vesicular epithelia and bacteria.
5. Shreds from the vesicle containing a mucoid

matrix, pus, epithelia, and many spermatozoa occur in chronic vesiculitis.

6. The diagnosis of chronic vesiculitis is incompletely founded unless *stained smears* from the semi-solid vesicular bodies (when such are present) *show the presence of a sufficient number of pus cells, of vesicular epithelia, and of bacteria.* The latter are usually streptococci, less frequently gonococci, occasionally staphylococci, and bacilli resembling morphologically the *Bacillus coli*.

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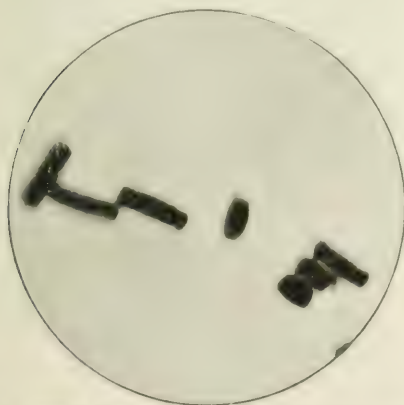


FIG. 1.—*Bacillus coli*. Stained with cyanide blue solution.

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- 72 WEST FORTY-FOURTH STREET.

A NEW STAINING METHOD FOR MICRO-ORGANISMS.

BY HENRY G. PIFFARD, M. D., LL. D.,
New York.

In an article on the microscopical examination of bacteria, etc. (*Medical Record*, December 4, 1897), I wrote as follows:

"During a conversation recently held with one of our most eminent bacteriologists, he expressed himself as follows: 'Bacterial investigation has about reached its limit. We may discover new species and doubtless will, but I do not see how we are to find out anything more about those known at present, unless some one will discover or invent new or improved methods of investigation.'"

The usual method of preparing bacteria and other microorganisms for microscopical examination is to make a spread of the bacteria on a slide or cover

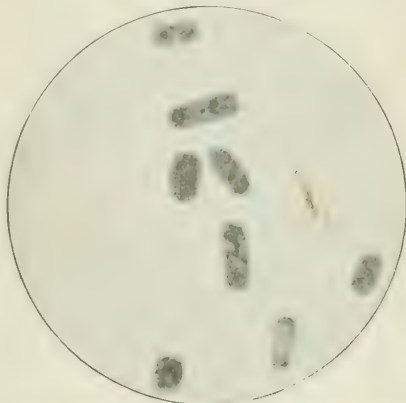


FIG. 2.—*Bacillus coli*. Stained with cyanide blue solution.

glass, let it dry in the air, pass it a few times through a flame, and when cool apply the selected stain, wash it off, dry, and examine in cedar oil or balsam.

The object of flaming the slide is twofold. It kills the bacteria and fixes or cements them to the slide.

It is well known that it is extremely difficult to stain living bacteria in a satisfactory manner, and if, on the other hand, they are killed by heat, they are in a measure shriveled up, and details of structure, if they possess any, are invisible or at least obscure.

During the summer just past, I have experimented in the hope of overcoming this trouble, and have been measurably successful by the use of what, for convenience, I have called the *cyanide blue solution*, composed as follows:

1. Distilled water,	100.00
Potassium cyanide, pure,	1.00
Potassium carbonate, dry, C. P.,	0.5
Rectified methylen blue,	0.5

A small drop of the stain is placed on the centre of the slide. To this add a loopful of the desired bacterial or other culture, mixing it gently with the stain, preserving the drop form as much as possible. At the end of a minute apply a clean cover glass, and after pressing it down absorb the excess moisture with blotting paper. It is now ready for immediate examination.

The accompanying reproductions from photomicrographs illustrate the difference between the older method and the one here described.

There are many uses for this stain, and one of the most important is in connection with the immediate examination of milk. Ordinarily the character of a certain sample is determined by counting the number of colonies that develop in a Petri dish in forty-eight

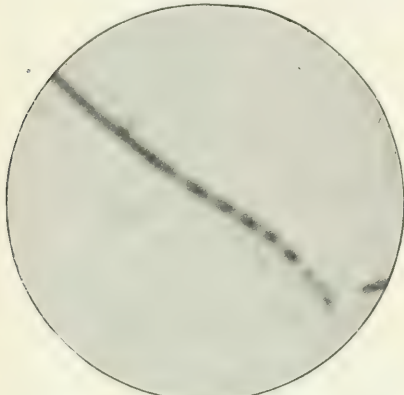
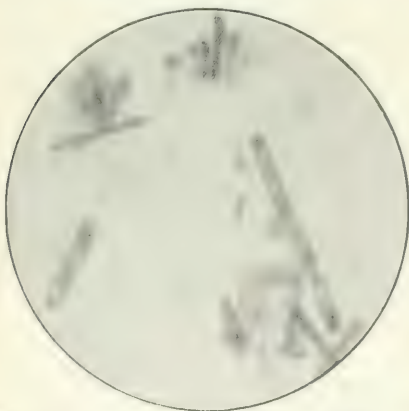


FIG. 3.—Organisms from kefir, fixed and stained in the usual manner, x2000.

hours or longer, little if any attention being paid to the character of the colonies—that is, they are rarely studied microscopically—the number of bacteria per c.c. being the standard employed in judging the quality of the milk. As the cyanide blue does not stain the fat, the bacteria stand out in relief, and the fact that there are few or many may be noted. If



the microscopical estimate be later compared with the bacterial count, a little experience will enable the observer to arrive at a fairly accurate opinion as to the character of the milk under examination without waiting a couple of days to make the count. A million bacteria per c.c. of the lactacid type may be harmless, while a vastly fewer number of injurious organisms may prove exceedingly detrimental.

As the solution above given deteriorates by keeping, it is better to dissolve the potassium cyanide in

half of the water and the other ingredients in the other half, mixing about a week's supply as needed. 256 WEST FIFTY-SEVENTH STREET.

A NOTE OF SURGICAL SPLINTING.

BY EDWARD A. TRACY, M.D.

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The art of splint making is practised more or less by every surgeon. When skilled, he need never be at a loss for materials from which to construct fixative appliances for fractures or other cases—the lack of suitable material being more than compensated for by the plentifulness of his surgical wit. With a cigar box, or a piece of scantling, the common fractures can be immobilized and brought to a successful outcome by the skill with which the material is used. I do not mean to argue that such splinting is the best, but rather to emphasize the fact that the result in the treatment of fractures is due to the man behind the splint. There are considerations, however, which ought to have weight when the choice of materials for splint making is permitted. A material that is light, convenient, readily applicable, and that permits of *universal* use—that is, can be moulded readily over the various parts and members of the body—merits the attention of the practitioner who loves his art. Such a material is wood plastic. It is a preparation of fibred wood, that when moistened with cold water, can be moulded over the various limbs and joints of the body, forming efficient splints. These splints are as if carved out of solid wood, and yet resilient enough to permit of proper reapplication. Besides the lightness of wood plastic—a quality of great comfort to the wearer—it is porous, thus permitting of the escape of insensible perspiration. No padding is required with this material, because, when rightly used, the splint fits the limbs without the need of padding. As an evidence of its adaptability to the purposes of general splinting, a few of its applications are here figured and briefly described. The illustrations are taken from photographs of splints that were extemporized for cases occurring in my practice. I trust that this note will be of interest to the reader, and serve as a slight contribution to the art of scientific surgical splinting.

Descriptions of Illustrations.

FIG. 1.—This picture shows a shouldercap, moulded over the shoulder and arm down to the elbow. With a piece of wood plastic over the inside of the arm I have used this splint in fractures of the surgical neck of the humerus with good results.

FIG. 2.—Picture a wrist splint. This was moulded upon a case of Colles's fracture, being applied over the back of the hand and forearm. It allows of passive motion of the finger and thumb, a very important practice from the first day to prevent adhesion of the finger tendons to their injured sheath. It allows also passive motion of the wrist joint—which should be done carefully from the third day, and also daily massage of the wrist—both measures help materially in bringing about the early use of the broken wrist. The splint allows of these procedures being carried out, because it fits so nicely that it can be applied again after removal.

quickly and correctly—there being no pads or compresses to arrange. Another advantage of this splint is that the forearm so splinted can pass through the patient's sleeve, and the garments can thus be worn in the usual fashion. This, and the lightness of the wood plastic splint, adds to the comfort of the patient.

FIG. 3.—Illustrates an external angular splint moulded over a case of dislocated elbow joint (right), the forearm in supine position. This form of elbow splint possesses no advantages over the lateral elbow splints pictured in Fig. 7 and Fig. 8.

FIG. 4.—This illustrates a combination of dorsal and palmar splints used on a case of fracture of the bones of the forearm—the splints serving to box in the fractured member. The dorsal (upper) splint extends over the back of the hand, thus immobilizing the wrist joint.

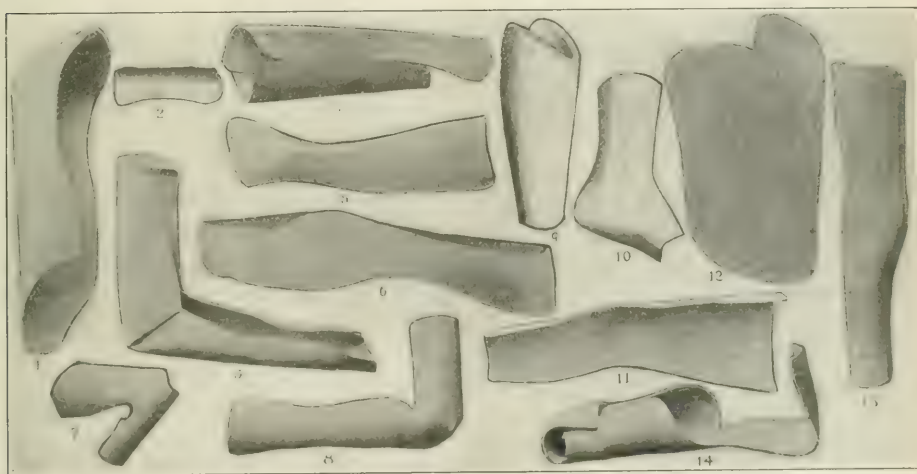
FIG. 5.—This illustrates a palmar forearm splint for wrist joint fixation. It is not as easy to make as a dorsal splint and no more efficient.

FIG. 6.—Illustrates a dorsal forearm splint ex-

broken bone had taken place, after the patient, a teamster, had returned to work to prevent any possible yielding of the callus. A similar splint moulded on a case of transverse fracture of tibia in a boy of twelve, permitted ambulation, without crutches, on the sixth day after the fracture.

FIG. 10.—This illustrates a splint moulded over the left ankle for ankle immobilization in a case of fractured fibula and traumatic synovitis of the ankle joints. It was moulded over the internal aspect of ankle joint and projected under the sole of the foot, producing an ankle fixation that was complete.

FIG. 11.—This illustrates a splint for knee joint fixation. It was moulded over the posterior and internal aspects of the left thigh, knee, and leg—in a case of knee joint mobilization, after removal of floating bodies in a knee joint. This form of splint, termed a lateroposterior knee splint, is easily extemporized, and is more efficient than the ordinary ham splint, because its lateral flange prevents the slipping of the splint around the leg. The lateral



MOULDED SURGICAL SPLINTS

tending down over the backs of the fingers. This was moulded on a tenosynovitis of the finger extension tendons of the right hand, and by its immobilization proved quickly curative.

FIG. 7.—Illustrates a splint moulded over the left arm and forearm, the elbow fixed to an acute angle. It served admirably in a case of fracture of the humerus into the elbow joint.

FIG. 8.—Illustrates an external angular splint moulded over the left arm and forearm and extending down over the dorsum of the hand, thus immobilizing the wrist joint as well as the elbow joint.

FIG. 9.—Illustrates a leg splint moulded on a case of broken tibia, a transverse fracture. The skin was eroded and broken over the point of fracture, and for five days the splint had to be removed daily for an antiseptic dressing, a piece of clean lint soaked in whiskey. This form splints the broken tibia in an exceedingly efficient manner, allowing the patient after two weeks' rest to ambulate. It was worn for several weeks after reunion of the

flange also gives great tensile strength to the splint. The powerful fixation afforded by this splint is astonishing, when considered with the lightness of the splint.

FIG. 12.—This illustrates a splint moulded over the right chest wall in a case of fractured ribs, the eighth and ninth, left. It was retained simply on the body by means of a woven bandage, the structure of which permitted it to elastically stretch and contract with the movements of the thorax. This splint protects the fracture from painful pressure, as it bridges over the broken ribs and rests securely upon the sound ribs. I have treated many cases of broken ribs, in various situations, including one case of fractured ribs, second and third, in left front chest wall, and all the cases were more comfortably treated than by the ordinary manner of applying adhesive plaster. The end results in broken ribs, no matter what treatment be applied, are the same, union; but with this splint the comfort of the patient is greatly enhanced, sleep is less

disturbed, because the painful points are so well protected from accidental pressure. The splint is very easily made and applied, a matter of five minutes.

FIG. 13.—This illustrates a splint moulded over the left side, hip and thigh on a case of tuberculosis of the hip joint in a boy of eight years. It was worn for fourteen months—and together with protection from weight bearing on the joint by the use of crutches produced a complete cure. (This case is briefly noted in a recent paper *The Cure of Joint Tuberculosis in the New York Medical Journal* for September 8, 1906, to which the reader, if interested, is referred.)

FIG. 14.—This is a slipper form of splint, and was moulded over a case of compound fracture of toes on the right foot. It was applied over the dressings and protected and immobilized the broken tissues effectively. The part of the splint moulded over the back of the heel could be readily bent downwards and permitted the easy removal and reapplication of the splint found necessary in caring for the injured tissues.

These splints illustrate the readiness with which practical splints can be extemporized to appropriately immobilize the members and parts of the body requiring such treatment. Special indications in individual cases can readily be met, and the sense of satisfaction to the surgeon on the result of his own handiwork is enhanced by the added comfort which it gives to the patient.

485 BROADWAY.

BILATERALITY AND ONE SIDEDNESS IN DISEASES OF THE EYE.

By H. GRADLE, M. D.,
Chicago.

Amongst eye diseases, some remain limited to the eye attacked, while others involve invariably both eyes. A number, however, follow no definite rule, being sometimes one sided, sometimes bilateral. A definite knowledge regarding the liability of a disease to extend to the second eye is evidently of considerable prognostic value. But it often aids as well in clearing up the ætiology and pathogenesis of the disease. Although most of the facts to be brought out in this article are known to experienced oculists or can be found in literature, a survey regarding the bilaterality of eye diseases with many details learned from a fairly large personal experience may be of interest to many readers. The topic does not lend itself to generalizations, as the factors involved are peculiar to each individual disease. The only instructive presentation of the subject is a review of the more important diseases which are either typically one sided or bilateral.

Acute catarrhal conjunctivitis, due to the pneumococcus, the Weeks's bacillus, or the Morax diplobacillus, either attacks both eyes at once or in rapid succession. The virus is so readily transferred from one eye to the other that caution in the use of the handkerchief, etc., very rarely prevents the second eye from being attacked if the disease has begun one sided and that only in the mildest instances.

In gonorrhœal infection of the conjunctiva, which usually is one sided in the adult, the second eye does

not always become infected, even when no protective shield is used. With a glass shield over the sound eye and proper care the disease should of course never spread.

Chronic catarrhal conjunctivitis is, as a rule, equally marked in both eyes. In the less frequent instances in which it is one sided or more severe in one eye, a special reason must be sought. This is most often stricture or infection of the tear sac, less commonly a purulent or an obstructive lesion of the same side of the nose. It may also result from ectropion of the lid in consequence of cutaneous scars or active skin disease. One sided chronic conjunctivitis is apt to be associated with ulcerative blepharitis, a disease which, barring localized causes, is ordinarily bilateral.

Granular conjunctivitis (trachoma) usually a disease of both eyes, remains one sided in about 2 per cent. of cases. Some of these seemingly one sided instances are not absolutely so, since close examination shows really a slight hypertrophic conjunctivitis on the "sound" side—not enough lesion to call it trachoma, were it not for the disease in the other eye and the persistence of this trifling inflammatory hypertrophy. In many of the one sided cases, however, the exempt eye is entirely free from trachoma. It is important to know that the one sided immunity, even when not absolute, is permanent. A trachoma patient whose other eye has not become involved after a month's duration of the disease has nothing to fear for his sound eye.

Episcleritis is commonly bilateral and if one sided for a time is likely to attack the second eye sooner or later. There are, however, infrequent instances of episcleritis limited to one eye. Deep or true scleritis, on the other hand, although sometimes bilateral, is much more apt to remain one sided, especially when seen after a one sided history of many weeks.

Diseases of the cornea.—Amongst the diseases of the cornea, those started by a localized traumatism (followed by infection) are not likely to occur in the second eye, unless there is a predisposition due to the existence of bilateral disease of the conjunctiva. This is true of localized infiltrates and ulcers. Herpes febrilis is much more often one sided than double sided. Herpes zoster leading to a deep keratitis is always one sided. Dendritic keratitis, said to be sometimes the sequel of herpes febrilis, oftener, however, not postherpetic, is always limited to one eye, as far as the writer knows. Phlyctenules and the various other forms of scrophulous keratitis rarely remain limited to one eye for any length of time. It is exceptional, and only true of cases with the least systemic evidence of scrophulosis, that the second eye remains permanently exempt.

Interstitial keratitis, when due to congenital syphilis, invariably involves both eyes, with an interval usually less than a month between the eye first involved and the second. In fact, an interstitial keratitis of both eyes, with involvement of the whole cornea and invasion of the cornea by newly formed blood vessels, can be definitely referred to syphilis, even in the absence of other corroborative evidence. On the other hand, an

interstitial keratitis which has remained limited to one eye for more than a month, even though it be the exact copy of the syphilitic form, is not due to syphilis (possibly to tuberculosis). In several instances of this kind my inability to refer the disease to syphilis was ultimately borne out by a more rapid recovery than is ever seen in syphilitic keratitis. Besides the typical interstitial keratitis with ground glass appearance of the whole cornea and new formation of blood vessels, which is of syphilitic origin when bilateral and often or perhaps always tuberculous when one sided, there is another variety of deep keratitis. In this form a central area of the cornea is involved, while the periphery is nearly clear and there are no new blood vessels or perhaps only later on a coarse vascular leash. Its origin is not known. This form of keratitis I have seen as one sided disease even when it lasted for months.

Iritis, when due to recent syphilis, practically always attacks both eyes. There may be an interval of perhaps two weeks between the beginning in one eye and the involvement of the second. Active specific treatment during the interval can render the disease much milder and of shorter duration in the eye attacked last, but it does not prevent it. Iritis due to tertiary syphilis dating back many years I have only seen one sided, either in the gummatous form or in the ordinary appearance of severe iritis. There is no invariable rule regarding the bilaterality of iritis other than the syphilitic form. The iritis of diabetes I have only seen one sided, but do not know whether there are exceptions. A nonsyphilitic one sided iritis, which runs a mild course and begins to subside after the second week, is very unlikely to attack the other eye, at least at that time. Bilateral disease usually occurs in the two eyes at once or within less than a week's interval. On the other hand, some forms of severe iritis, one sided for the time, may reappear in the other eye after an interval of months or years.

Cyclitis occurs in different forms, varying in its course presumably with the aetiology. The ordinary form, the serous iritis of a former nomenclature, is always double sided from the start or within the first few days. It is indicated by sensitiveness and tenderness, with variable pain, fine deposits on the posterior surface of the cornea, fine vitreous haze, a pupil readily dilated by atropine, and with a long, tedious course and marked fluctuations. In the well known case dissected by Knies, the bilaterality was explained by cellular infiltration between the sheaths of the optic nerves extending from one eye to the other. There is another form of complicated cyclitis, formerly termed iridochoroiditis or keratiritis, now usually known as uveitis and characterized by coarse deposits on the rear of the cornea, with diffuse haze of the cornea and more or less of the vitreous, with or without plastic iritis and with localized inflammatory changes in the choroid often visible with the ophthalmoscope when the media permits examination. This type of disease I have never seen confined to both eyes, even under an observation of many months in at least an or eight patients. Yet it has been observed bilateral more often than unilateral by De Schweinitz and others, and hence the prognosis must be guarded. In the

unilateral and bilateral forms of the disease differ aetiologicaly we cannot as yet make out the distinction clinically.

In no eye disease is the question of bilaterality of as great a practical importance as in infectious iridocyclitis following traumatism. This is the only instance of which it can be definitely stated that the primarily diseased eye can excite a similar "sympathetic" affection in the other, which we can prevent absolutely by removing the injured eye in time. Yet it is well known that eyes which showed many of the threatening symptoms after injury have recovered with useful sight and without damage to the mate, while, on the other hand, many an instance of sympathetic disease has been seen due to an eye offering a fair prognosis. The decision whether to sacrifice an eye which offers still a fair prospect of useful sight is hence very difficult at times. Fuchs has recently stated that there are two forms, clinically similar, of traumatic infection, of which only one can cause sympathetic disease. The disease which he thinks cannot extend to the other eye is characterized by exudates and plastic deposits on the surfaces, external and internal, of the entire uveal tunic. It is caused by the familiar pyogenic bacteria. The other disease which, according to Fuchs, not only may cause, but in time is sure to cause sympathetic extension, is a proliferative uveitis with inflammatory infiltration within the substance of the choroid. Its causative germ is as yet not identified. The two diseases may, however, be associated. Moreover, we cannot tell the two varieties apart clinically.

Choroidal affections.—Amongst choroidal affections the only form surely and invariably one sided is acute plastic choroiditis. Aside from some casual reference to it I believe I was the first to circumscribe and classify more accurately this disease under the name transient central choriortinitis (*Annals of Ophthalmology*, January, 1893). It has since been recognized as an entity by Griffith in Oliver and Norris's *System of Ophthalmology*, under the name choroiditis with descemetitis. It is a disease of acute onset, subsiding slowly and steadily with incomplete recovery, and is presumably due to infectious material in one of the posterior ciliary arteries. Its signs are fine deposits on the rear corneal surface, without ciliary vascularity, a slightly dilated pupil, vitreous haze, and an inflammatory patch in the central area of the choroid, sometimes associated with optic neuritis.

Aside from acute plastic choroiditis, all of the more common forms of choroiditis, the disseminate and the areolar varieties—of syphilitic origin or otherwise—are double sided. Occasionally strictly circumscribed patches of choroiditis may be found in one eye only, but even in many of these instances close search will show slight choroideal lesions in the other eye. In this class of cases, however, the chances of progressive trouble in the better eye are very small.

Choroidal disturbances leading to vitreous opacities are as a rule bilateral except when due to traumatism or a one sided myopia. Otherwise opacity in the vitreous of one eye is very apt to be followed by similar opacity in the other. Yet there is one syphilitic exception to this rule. When syphilis causes practically blindness by the forma-

tion of dense opacities in the vitreous it has in my experience invariably been—and staid—one sided.

Cataract, congenital, senile, or the result of systemic disease like diabetes, is always bilateral, though not necessarily alike in the two eyes. One sided is the cataract due to trauma or one sided degenerative disease of the eye, like old retinal detachment, former iridochoroiditis, etc. Rather infrequently a one sided cataract is met with in young people, in whom some minor choroideal lesion is suspected, but not demonstrable.

Congenital subluxation of the lens, a curious malformation often running through several generations of a family, is always bilateral.

Glaucoma remains limited to one eye only when it is secondary to some gross lesion of that eye. Otherwise glaucoma will invariably attack the second eye later on. In the noninflammatory form of glaucoma the interval may be several years.

Retinitis due to systemic causes, like nephritis and syphilis, manifests itself always in both eyes and simultaneously. In diabetic retinitis this is also the rule, however, with some rare monocular exceptions. Pigment degeneration—retinitis pigmentosa—is likewise a bilateral lesion. Purulent (embolic) retinitis (likewise purulent choroiditis) in general sepsis may be limited to one side or occur bilaterally. Retinitis in the form of circumscribed small patches (sudden scotoma) occurring in one eye in subjects without general disease or diathesis does not endanger the other eye.

Retinal lesions dependent upon vascular changes may be one sided, when there is no kidney disease. This is strikingly true of hæmorrhagic retinitis, the result of endophlebitis or thrombosis, which seems to remain monocular invariably. A single retinal hæmorrhage, however, without characteristic hæmorrhagic retinitis indicates diffused vascular fragility and may be followed by hæmorrhages in the other eye or the brain. Embolism of the central artery of the retina or its simulation by occlusive endarteritis is characteristically a one sided accident. But very rare cases have been observed, too, in which it occurred some time later in the second eye, a possibility, exceedingly remote, but still to be borne in mind.

Detachment of the retina in one eye is always alarming as regards the possible occurrence of the same accident in the other. The danger of the sequence is greatest when there are similar lesions in both eyes, like vitreous opacities or high myopia. In the absence of such gross lesions predisposing to retinal detachment, the latter may not occur in the second eye, or at least not for an indefinitely long period. It is only when detachment is due to one sided myopia that there is nothing at all to fear for the other eyes.

Inflammation of the optic nerve is always double sided when due to kidney disease or intracranial lesions. This is especially true of the typical inflammatory oedema of the nerve head termed choked disk. In some chronic and insidious forms of meningeal disease there may be pronounced optic neuritis without oedema in one eye, with slight changes in the other eye, so slight that they can be readily overlooked. Syphilis may cause an optic neuritis of either one or of both eyes. Aside from these ætiological instances, optic neuritis is, as a rule, a one sided lesion. In many cases no cause

can be detected, in others the neuritis follows some infectious disorder. A fair number of instances of one sided optic neuritis are ascending from the eye. I shall shortly publish some new observations on the frequency of inflammation of the optic nerve in acute plastic choroiditis—a relationship hitherto not described. In general, it may be said that an unquestionably one sided neuritis does not indicate brain lesion and is not followed by similar disease in the other eye.

Retrobulbar neuritis, disease of the optic nerve central to the eye and usually without intraocular lesion in the earlier stage, is, as a rule, one sided, and if one sided, remains so, when due to some preceding infectious fever or some menstrual derangement. Quite often the cause cannot be ascertained. The rare double sided instances are bilateral almost from the beginning. As an exception may be mentioned the retrobulbar neuritis in the course of disseminated sclerosis of the brain. In this disease the lesion in the optic nerve, if one sided, may after a time be followed by the same disorder in the other eye. Retrobulbar neuritis of toxic origin, due to alcohol, tobacco, or diabetes, is always symmetrically double sided. In fact, the selective action of poisons upon the optic nerve, such as wood alcohol, quinine, male fern, and some others, involves always both nerves. Lead action, however, is sometimes exceptionally limited to one optic nerve.

Atrophy of the optic nerve, if dependent upon lesions of the central nervous system, is typically bilateral. In disseminated sclerosis there may be a long interval of time between the advance of atrophy on the two sides. Strictly one sided atrophy of the optic nerve can only occur in consequence of some compressing lesion anterior to the optic chiasm, such as tumor, periostitis, extension of sinus suppuration (ethmoid or sphenoid) or fracture of the apex of the orbit, or secondarily after a one sided optic neuritis.

100 STATE STREET.

FRENZIED SURGERY OF THE ABDOMEN.

By J. W. KENNEDY, M. D.,
Philadelphia.

(From the Clinic of Dr. Joseph Price.)

After training for seven years under a great master, I find myself an earnest advocate for more apprenticeship.

The great number of reoperations in which it has been my privilege to participate have suggested the title of this paper.

Where does the education of the abdominal surgeon begin? Certainly not with the incision into the abdomen. It is with great apprehension and profound regret that we find such a large proportion of aspirants for surgery of the abdomen who have not the proper appreciation of the value for preliminary training in this great work.

We were to answer the question "Where does the education of the laparotomist begin?" I should say with the examination of the female pelvis.

In the last twenty thousand bimanual examinations in the Philadelphia Dispensary, we have had two aspirants for diagnostic advantages, while many thousands have witnessed the operations therefrom.

Our intelligence in this field of work is not acquired along leisure lines or those most pleasant to follow. It is a great, grand, consistent work, punishing and rewarding in direct proportion to ability of the operator. Nor do we think abdominal surgery a natural step in the progress of general surgery; but it is a delicate specialty so sensitive to insults and resentful to unsurgical procedures.

Not from inspiration, but from perspiration, will you become a monarch in this work. I know no more earnest plea for more apprenticeship than a quotation from Dr. Price, who says: "After entering the abdomen over twenty-four thousand times, I find myself a bitter critic of my work. Each operation is such an important object lesson and an appeal for more refined and completed work."

One may be a brilliant operator yet a dangerous one. Surgical judgment is eminently the most important quality of an operation and must be born from personal experience and an exhaustive study of others' works. Much of our literature on the surgery of the abdomen is a perfect bedlam of opinions of operators of little experience.

The beginner is abashed by contradictory ideas and procedures which have emanated from operators who are not familiar with pathological probabilities and possibilities of intraabdominal conditions. We have too much literature on minor differences of operative technique, which is often a mere advertisement of the I and My procedure, and not enough on diagnosis and history of pathology. It will be a strong profession, indeed, when we are familiar with our surgical limitations and have learned that there is a definite lesson taught by every pathological lesion which revolts at anatomical and unphysiological surgery. This would make the great specialty so beautiful and its punishment so bitter to the surgeon without refined attainments.

There are many small hospitals in our country without a resident physician, yet those institutions are filled with interesting surgical and medical material. With a respectful degree of courtesy to the great teaching institutions of our country, one cannot help but feel that the student is not sufficiently encouraged in dispensary, hospital, and slum work of our large cities. Those who have had the wide experience of the general practitioner become the most accurate in the specialty. The surgeon must be familiar with pneumonia, pleurisy, typhoid fever, etc., and the internist must receive an apprenticeship as an assistant to some laparotomist.

He must stand the fire of living pathology and learn therefrom a lesson of certainty on progression of many pathological conditions. He can thus obtain a biographical view and practically witness moving pictures of disease.

The operator's judgment emanates from a succession of mental photographs of a lesion, from the incipency of disease to the *devastation* of viscera. When we obtain an eyewitness of pathological conditions have we not a most defensible argument for our views?

It is upon this ground that we dogmatically take our stand in these suppurative lesions whose signs and symptoms are not proportionate to the pathology witnessed at the operating table and so make our appeal for early interference.

The practitioner who follows his patient to the

operating room always becomes an accomplished diagnostician and an ardent cooperator. Intraabdominal surgery of the day is a crippled giant. The competent operator has so much more in his power than he is privileged to execute.

Incompetent surgery has made the practitioner a doubting Thomas and results in a tardy diagnosis with high mortality.

Over 80 per cent. of our appendical work for the past two months has been pus, gangrene, and peritonitis, which is a flagrant disgrace to the diagnostic ability of a large educational centre, and we can hope for little in the future, unless our leaders stand for first hour operations.

We had in the hospital at one time ten patients, on whom twenty-seven sections had been done, all pitiable examples of errors in diagnosis, incomplete surgical procedures, and frenzied surgical judgment from an anatomical, physiological and pathological standpoint.

During the last six months nearly 50 per cent. of our work consisted of reoperations. Multiple scars marred the abdomen and were reproachful neglects of the untrained surgical mind. The sins of the operator had visited upon the patient to the third, fourth, and fifth scar. The patient has been made a chronic invalid and often an unwilling victim of some drug habit.

Surgical achievements of the competent operator are so minimized by the incompetency of others. The complications incident to previous operations are a greater source of mortality than the lesion itself. Late and faulty diagnosis, incomplete procedures, and errors in judgment of pathological future have brought us mortality which is an insult to the advanced surgery of the day.

The physiologists are demanding a revolution in the surgery of the upper abdomen. Their views demand more operative conservatism for visionary pathology. Much of their ground is well taken and strongly supported on a physiological and anatomical basis.

Surgically the most important intraabdominal work consists of the acute inflammatory lesions which confront us daily, and it is the management of these conditions on which the profession is much divided medically and surgically.

Acute suppurative lesions should be looked upon as emergency surgery and are as much a demand for early work as ectopic gestation, twisted pedicle, or strangulated hernia.

Dr. Price's great work on acute suppurative lesions of the abdomen is a very strong plea for early and complete procedures. His results are a convincingly strong post on which to lean, and commend to us much denied surgical teaching. He says, "In these conditions do not depend upon inflammatory walls and gravity for surgical consolation. The toilet of such lesions must be proportionate to the extent of the pathology. Partial toilets have a double mortality, primarily from filth and pathology not removed; secondly, from postoperative complications (adhesions, etc.) and the multiple operations which follow."

Courteously and wisely we beginners ask our masters to take care of our mistakes, but greater humanitarianism will only supersede be when their interest antedates our errors.

PERINÆORRHAPHY.

BY R. A. BARR, M. D.,

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It is not my purpose to present in this paper an entirely new method of perineal repair, or one that involves any radical departure from the beaten paths. I merely wish to emphasize the following points in connection with the operation:

First, the generally accepted idea of the anatomy of the perinæum is somewhat incorrect, and for this reason many of the accepted methods of suture get unsatisfactory results.

Second, perineal laceration should be sutured primarily, and this can be done by the obstetrician, with any surgical instinct, so as to get ninety per cent. of good results.

Third, for secondary operation on incomplete tears the Emmet denudation is best, but a modification of the Emmet method of suture will get the better results.

Fourth, a general anæsthetic is not necessary for the secondary operation.

That the pelvic diaphragm, as a whole, is a supporting structure is necessarily a fact. However, those muscle fibres actually having attachment in the perinæum have little to do with this function. The perinæum is the meeting place of the sphincteric muscles, and here is formed a *point d'appui* for mutual interaction. The real supporting muscle, the levator ani, or more accurately speaking, the pubococcygæus lies on a higher plane than the sphincters, and its fibres are so placed that they are not, to any serious extent, involved in perineal lacerations. This statement is not based on my own dissections, but on those of Peter Thompson, now generally accepted by anatomists. Gynecologists, judging from textbooks, and even the writers of the most recent journal articles, have not all accepted this fact. Some of them still gravely set forth that the injury to the levator ani is the principal injury in perineal lacerations, or take issue with this statement, putting the fascial injury first, never denying, however, that the levator injury is of great importance. The levator ani is not a single muscle. It should be described as two, the pubococcygæus and the iliococcygæus. Of these the pubococcygæus is attached anteriorly to the body and horizontal ramus of the pubis. The two muscles, one on either side, run backward by the side of the urethra, vagina, and rectum to an insertion that can be roughly described as being into the coccyx and the median raphe between the coccyx and the anus. Each muscle is about an inch wide, and the two form the most important supporting muscle of the pelvic diaphragm. A few of the innermost fibres, the preanal fibres, as they are called, are attached to the central tendon of the perinæum. These fibres, however, are too few and too poorly marked to be of any importance. For all practical purposes the pubococcygæus has only a lateral relation to the vagina, and the opening through which the vagina passes gives exit to the rectum as well (Fig. 1). In cutting anteroposteriorly from vagina to rectum you would cut between the two muscles (pubococcygæi) and destroy the few important fibres from each,

where they interlace in the median line, and these fibres would retract directly forward toward the subpubic angle. The iliococcygæus bears no relation to the perinæum, and will not be discussed here.

The female perinæum is not a special structure, but simply that area of the pelvic diaphragm lying between the openings of the vagina and rectum. Stripped of all confusing minor details, especially in the way of fascial tracings, its anatomy is simple enough, consisting of only five important structures, in addition to the two pubococcygæi muscles. With the exception of the deep layer of the superficial fascia, and the triangular ligament, the fascia of this region is scarcely more important than the superficial fascia and fascial muscle covering of the rest of the body. The triangular ligament is a strong double fascia, filling in the subpubic angle, its base or posterior border lying just in front of the anus. It is pierced by the urethra and the vagina, and its value as a supporting structure in this way is impaired, but its posterior border, the ligament of Savage, is well developed, and, being reinforced by the deep layer of the superficial fascia, is one of the important structures. The deep layer of the superficial fascia is also triangular, being attached on either side to the rami or the pubis and ischium. Poste-

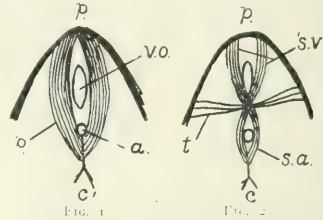


FIG. 1.—p, Pubes; v. o., vaginal orifice; o., pubococcygæus; a., anus; c., coccyx.

FIG. 2.—p, Pubes; s. v., sphincter vaginae; t., transversus perinæi; s. a., sphincter ani; c., coccyx.

riorly it blends with the triangular ligament behind the transverse perineal muscles, while in front it is continued through the labia majora up over the abdomen. The muscles next considered lie between this fascia and the triangular ligament.

The muscles with vital attachments in the perinæum lie below the pubococcygæus and the triangular ligament. They are, to ignore unimportant subdivisions, four in number, the sphincter vaginae, the sphincter ani, and the two transverse perineal muscles. These four muscles form a cross (Fig. 2), meeting at the central tendinous point of the perinæum. The two sphincter muscles make a muscular band, reaching from the subpubic angle to the tip of the coccyx. The two transverse perineal muscles leave this band almost at right angles, stretching laterally from the central tendinous point to the rami of the ischia. Crossing between the two ischial rami at the posterior border of the transverse muscles is the ligament of Savage, which is, as already stated, the posterior border of the triangular ligament of the perinæum.

These five structures are the important "intrinsic" structures of the perinæum that may be seriously injured in laceration. The principal support they give is to the ampulla of the rectum, and to this alone.

The sphincter vaginae in the act of defaecation draws the vaginal orifice forward into the angle between the two pubococcygæi muscles, and constricts the orifice in this way (Fig. 3). Besides it shifts the central tendinous point of the perineum forward, and the anal orifice as well, and straightens out the lower portion of the rectum, setting the anus directly under the ampulla. When the perineum is torn down to the sphincter ani and this muscle, through injury to the sphincter vaginae, usually loses its anterior at-

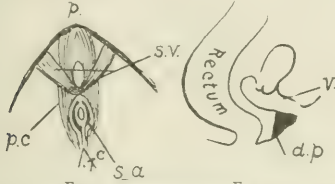


FIG. 3.

FIG. 3.—p, Pubes; s.v., sphincter vaginae; p.c., pubococcygæi; c., coccyx; s.a., sphincter ani.

FIG. 4.

FIG. 4.—v, Vagina; d.p., destroyed perineum.

tachment, and the anus drops back towards the tip of the coccyx. This exaggerates the pouching forward of the rectum (Fig. 4). This pouching is still further exaggerated by the loss of perineal support. In the act of defaecation the vaginal orifice is not carried forward and closed, the anus is not drawn forward so as to straighten out the lower portion of the rectum, and the whole force of straining falls on the anterior wall of the ampulla of the rectum, and as its support is gone, we have the formation of a rectocele. This rectocele tugging through the attachment of the posterior vaginal wall on the cervix uteri causes displacement. This is the most direct effect that laceration of the perineum has in causing visceral ptosis. This fact is evidenced by the relative infrequency of visceral ptosis in complete laceration. Since perineal lacerations do not directly cause ptosis we cannot expect to relieve ptosis by restoration of the perineum. This has been my experience, and I

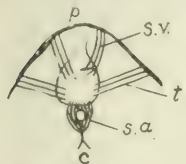


FIG. 5.

FIG. 5.—p, Pubes; s.v., sphincter vaginae; t, transverse rectocele; s.a., sphincter ani; c., coccyx.

think that of every one else. We can restore the perineal body, but restoration of the vagina, bladder, uterus, or even the rectum to its normal position and function is quite another proposition. The prevention of ptosis and disturbance of function, rather than the restoration of position and function, is the province of perineorrhaphy.

For prophylaxis the primary operation should always be done, unless there is some direct contra-indication.

The structures torn in incomplete perineal tears retract, some laterally, and some directly forward, as must follow from the anatomy already given, while the anus drops directly backward. There is no retraction up the vagina, so to speak, except that of the mucous membrane torn loose around the vaginal orifice. That the sulci on either side of an old rectocele, marked by their apices, the extent of retraction of the torn fibres of the levator ani is a ridiculous statement, in view of what we know about that muscle. The sulci are formed as follows: The

vaginal wall is closely attached laterally at the outlet, and when the posterior wall bulges through, there must be a line of folding between the attached and unattached vaginal wall. This fold forms the sulcus on either side. With forward and lateral retraction of the torn structures, and with posterior displacement of the anus, in restoration our sutures must make tension in the opposite direction. They must pull from either side toward the median line, and from before backward, and from behind forward, all at the same time. The two ends of the sphincter vaginae must be brought together, and the anterior extremity of the sphincter ani brought forward against them. The transverse perineal muscles and the torn ends of the ligament of Savage must be bunched laterally against this point of union (Fig. 5). Layer suturing will not do this. You can bring the lateral structures together, but you cannot at the same time bring the anus forward and

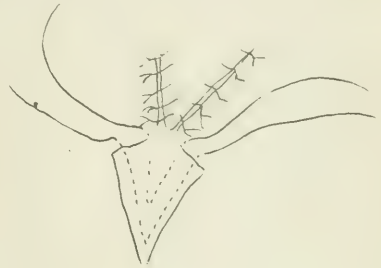


FIG. 6.

carry the sphincter vaginae backward. For this reason, layer suturing tends to construct a long perineum, and this perineum has a tendency to cave in. The same result is gotten by mass sutures, passed from the skin surface of the perineum.

Mass sutures passed from the vaginal surface, dipping well out laterally and going back far enough to catch the sphincter ani, do the work. They coapt in addition the torn vaginal mucous membrane accurately, and when given a slight obliquity from above down to the surface of the perineum, draw the mucous membrane back towards the vaginal orifice, from which it has usually retracted, and are sure to catch the torn triangular fascia. Tears of the vagina may require suturing in almost any direc-

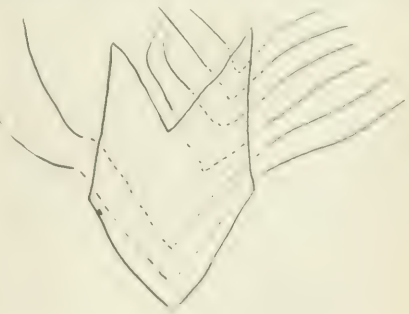


FIG. 7.

tion, and the skin wound may require a few interrupted sutures, but the important sutures are the few required for the perineal structures, and they should be passed as described. These sutures are tied on the vaginal mucous membrane, and not on the skin, so they cause little pain by cutting. Sutures of large iodized, and chromicized, if preferred, catgut passed in this way, and not tied too tight, will get the most satisfactory results in primary perineorrhaphy. Catgut is used because silkworm gut has too great a tendency to cut out in primary repairs. If the tear is complete, the rectal wall and rectal sphincters should be sutured first with interrupted catgut sutures, which do not pierce the rectal mucous membrane, and then the rest of the wound sutured as described.

As to secondary perineorrhaphy, in incomplete lacerations, I prefer Emmet's outline of denudation, because I think it removes more of the redundant mucous membrane, and allows for the most satisfactory reduction of the calibre of the vagina. However, I pick a point higher up on the rectocele as the cap, for I do not bring the central tongue of mucous membrane out to the vaginal orifice, but merely to the upper vaginal aspect of the restored perineum (Figs. 6 and 7). The perineal portion of the denudation is sutured with two or three silkworm gut mass sutures which pass from side to side, starting from the lateral margins of the vaginal incision, going well out laterally and dipping deep enough posteriorly to be buried in the bottom of the denudation (Fig. 7). When these sutures are shot, no wound is left on the skin surface of the perineum except a small puckered opening in the skin itself that I close with two or three catgut sutures. I should have said that the sulci are first sutured with iodized catgut.

In secondary operations for complete tears I make the ordinary tail denudation, close the rectal tear, and bring the torn sphincter ends together with catgut. The rest of the wound is then sutured, as described, using catgut for the vagina and silkworm gut for the perineum.

I have, within the last few months, done nine secondary perineorrhaphies under local anaesthesia, using a one half of one per cent. and a one tenth of one per cent. solution of cocaine. Suprarenal extract is added to these solutions in strength of one to five thousand. Anaesthesia was complete and perfectly satisfactory in every case. One patient had the largest rectocele I have ever seen, and required extensive denudation. The only untoward accident occurred in this case. The patient was a Syrian woman, and I attempted to do the operation at a hospital clinic before a large crowd of students. While I was injecting the cocaine, the patient went to the bad. Her pulse became so rapid and weak I could not count it. We gave her whiskey and encouragement, she had already had morphine, and she reacted. The moment I began work again she went to the bad once more. I sent her back to the ward, and while her circulation reacted promptly, and she started to feel all right in a short while, her temperature went to 96° F. and stayed subnormal for some hours. Two days later I did the operation privately, under cocaine, without any trouble whatever. This was probably not cocaine poisoning, but it is not above suspicion.

A BRIEF REPORT OF FURTHER EXPERIENCES IN THE USE OF PARATHYROID GLAND FOR PARALYSIS AGITANS.*

BY WILLIAM N. BERKELEY, A.B., M.D.,
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The curious and remarkable symptoms following complete parathyroid excision are now familiar. In brief, the animal operated on begins in about twenty-four hours to show enormously hurried respiration, tachycardia, profuse salivation, constant twitching and shivering of the voluntary muscles, rigidity, and intermittent convulsions. He refuses food, wastes rapidly, and within a few days, sometimes within a few hours, dies—quite often during a convulsive seizure.

The literature of this subject is now immense; even a brief list would cover many pages. In the hands of competent laboratory workers all over the world the results have been virtually uniform, and may be considered as scientifically established.

The essential metabolic chemistry of the process is quite unknown. We may presume that the gland secretes something itself essential to the organism, or something antitoxic to irritant waste products formed elsewhere, or perhaps something complementary to the secretion of the thyroid gland. The close proximity of the parathyroids to the thyroid in all vertebrates so far examined lends some color to this last hypothesis, but other guesses can be made as well, and a fast line must be drawn between conjecture and proved truth.

Passing this point, the further question arises, is there any disorder of the human frame, analogous to exophthalmic goitre or Addison's disease, owing its origin to disease of the parathyroid glands? This is a legitimate subject for experimental and clinical study, and by methods already quite well understood we may look for an ultimate solution of the problem.

If there be any such disease the symptoms in the laboratory animal point rationally to one of the convulsive nervous diseases as the thing we are searching for, and students of the subject have not been backward in suggestions. Exophthalmic goitre was proposed some years ago by Gley (1) and afterwards given over. Epilepsy, and later tetany, have been brought forward by MacCallum (2), of Baltimore, and others. Vassale (3) and other Italian students have recently suggested, with some encouraging therapeutical experiments to back the idea, a connection between parathyroid insufficiency and puerperal eclampsia.

Over two years ago the Swedish neurologist Lundborg (4) and I (5), independently and along different lines of reasoning, formed the notion that paralysis agitans is the disease, or one of the diseases, in question. It is only fair to say that Dr. Lundborg's paper antedated mine by nearly a year. R. L. Thompson (6) has called attention to an interesting paragraph of Victor Horsley's in the *British Medical Journal* for 1885 foreshadowing the same conception, though Horsley knew nothing at that time of the specific physiology of the parathyroid glands and had only accidentally removed them in thyroid extirpation in dogs.

*Read before the Section in Medicine, New York Academy of Medicine, October 10, 1903.

Avoiding questions of priority, about which there will be no quarrel, this paper is meant to set forth briefly some further work of mine on paralysis agitans—work which has brought some new facts to light, and seems worth writing about.

I shall consider (1) laboratory work, (2) autopsy findings, and (3) clinical results from administration of the gland.

The laboratory work will be the subject of an extended paper by Dr. S. P. Beebe, of the Cornell Medical College, and myself later in the year. It will be enough to say now that with Dr. Beebe's special equipment and large experience it has been recently possible to prepare, from carefully identified ox gland, a highly concentrated parathyroid nucleoprotein in hypodermic form. The action of this proteid on dying parathyroidectomized dogs is quite marvellous. It unquestionably contains a large portion of the active principle of the gland.

The difficulties of daily hypodermic medication, however, in chronic diseases, require no comment, and a preparation for exhibition by the mouth appeared almost essential. After having given up all the commercial parathyroid powders as untrustworthy, I finally hit on the plan of pulverizing and preserving the gland *in toto*. My process is confessedly provisional, but is simple:

Ox glands are gotten on ice fresh from the abattoir. They are carefully identified, trimmed with sterile instruments, pressed dry between folds of sterile gauze, minced in a small, finely cutting sausage machine (which must be scalded before using) and rubbed up in a sterile mortar with an excess of milk sugar. To this mass 1 per cent. boric acid is added and a trace of essential oil—usually peppermint. The preparation is dispensed in capsules, each capsule corresponding to one half grain of fresh ox gland. The process calls for some technical skill in pharmaceutical work, but is the best I have so far tried. Of the hypodermic dose is $\frac{1}{2}$ c.c. per day. Of the capsules 3 to 5 per day are enough. Both should be kept on ice. They do not appear to "go bad" in less than six weeks after making. The hypodermic injection should be given with rigid aseptic precautions. It works better under the skin than in the muscles. The site of injection is a little sore for half a day, but no abscesses have been reported, so far as I am informed. Veins should be avoided with special care, for most nucleoproteids tend to excite thrombosis when injected directly into the blood current.

Passing to the second head, it is now possible to collate twelve recent autopsies, carefully made upon cases of Parkinson's disease, in which the parathyroids were objects of special research. Of these nine have been reported by R. L. Thompson (4, c.), two by C. D. Camp (7), and one by myself (8).

Thompson has published an elaborate and careful description of his cases, and concludes that "there is no morphological ground for the assumption that the parathyroid glands are insufficient in paralysis agitans." My own case, on the contrary, showed a definite degree of destructive sclerosis, but whether enough really to embarrass the function of the gland is a subject open to discussion. Of the two cases reported by Dr. Camp, a detailed description

is given. The author's statement, however, is definite enough:

"I was able to examine the parathyroid glands from two of my patients, and in the opinion of Dr. Allen G. Smith, professor of pathology at the University of Pennsylvania, they were both in a distinctly pathological condition. In one there was some colloid material; . . . in both there was a peculiar infiltration with fat, especially in relation to the blood vessels."

He concludes:

"This pathological evidence of disease of the parathyroids in paralysis agitans, when considered together with the experimental evidence and the therapeutical results of Berkeley, suggests that the parathyroid glands play an important part in the pathogenesis of paralysis agitans."

Critical comment on twelve cases would, of course, be provisional. In the light of these conflicting opinions no definite conclusions could be drawn. We must also note that the histology of the glands of internal secretion generally gives only a very elementary notion of their function. For example, from undoubted cases of Graves's disease thyroids are still sometimes taken in which the histology is quite negative as regards the hyperplastic changes ordinarily found. Any one will recall, also, the extraordinary destruction of hepatic tissue occurring in the fatty degeneration of phthisis or the malignant infiltration of secondary cancer. Yet the autopsy table is sometimes the first place where such changes are discovered, symptoms *intra vitam* being entirely negative. In respect of the parathyroids we must further note that fatty infiltrations and increased interlobular connective tissue are everyday appearances; and, indeed, the histology of the gland varies so greatly within seemingly normal limits that it would be safe to question the diagnosis of any pathologist who has examined the glands from less than seventy-five autopsies. This part of the subject must therefore be left till more reports are in.

We next take up the third point, the clinical facts.

And first I would beg to note that a properly identified gland must be used. Much of the commercial material can be given by the tablespoonful without damage or help. The only glands available for practical use are human glands gotten at autopsy, and ox glands. Horse gland is too expensive, rabbit gland and sheep gland are too small and hard to find. Virtually, for a long time to come, experiments will have to be made with ox gland. Apparently bits of lymph node, thymus, accessory thyroid and fat have done duty in many laborious experiments. One writer tells of giving twelve fresh glands every morning to one of his patients—an astonishing dose—"without effect." Two German writers have recently announced some work upon tetany with "parathyroid glands." They gave bullock's or sheep's thyroid minced up with the adjacent fat—in the charitable hope that some of the parathyroid glands *might* be included somewhere in the mixture. The larger ox parathyroid lies in the upper and of the thymus gland near the cornu of the hyoid bone, and can be found, after sufficient instruction and practice, by any butcher who is handy with the knife and has good eyes.

They received a number of letters from medical men describing experiments with the remedy; many of these attempts have been successful.

discouraging for both patient and physician, for the simple reason that almost anything bought at the pharmacy under the trade name of parathyroid gland was considered good enough to work with.

A second point is that nothing much in the way of favorable results can be hoped for except from relatively small doses continued through a long period of time. Some patients have begun to respond in a week; some have shown no effects, good or bad, in less than six weeks. In some cases three months of patient and careful administration will have to be allowed before any conclusion, good or bad, is drawn. The extremely chronic way in which the disease approaches would seem, indeed, to indicate that *slow regression* of the bad symptoms should be the rule rather than the exception.

A third point is that the temperament of these patients is peculiarly unstable. They are easily depressed, easily encouraged, given to rapid changes of opinion and mood, and very easily subject to suggestion. It is, therefore, positively essential to eliminate these factors before drawing a conclusion.

As regards the present status of work with a properly identified medicament, I should estimate that some seventy-five patients, in the hands of myself or of medical friends and helpers, have been treated. The remedy has been so far rather expensive and hard to get in large quantities. Many of the patients received it for a short while only. I now have notes or personal knowledge of thirty cases. Of these, two declined to continue the remedy; two have not been heard from; five denied any benefit; three showed temporary improvement only, and eighteen were progressively benefited during the entire period in which they were under treatment.

The benefit consisted in diminished rigidity, lessened pain, salivation¹ cured, shaking diminished or cured, voluntary control of the muscles greatly increased, and restlessness and insomnia nearly or quite abolished.

The early cases in younger patients responded with more speed and completeness, but unfortunate bedridden patients who had suffered for fifteen years with the disease have quite often been remarkably helped. One man of fifty-five years, with a rapidly progressive type of the disease, bedridden for six months, restless, sleepless, and greatly discouraged, was able to sleep again in three weeks, and is now for nearly a year back at his work, going downtown every morning on the trolley alone.

Of another patient, who had been ill of the disease for some years, and began treatment last February, his wife writes: "He is improved beyond our most sanguine expectations. . . . He is in excellent spirits, and, in fact, I really expect that he will yet be entirely well."

If one should ask me whether, from the considerations just advanced, I believed I had proved a *specific nexus* between Parkinson's disease and the parathyroid glands, I should frankly confess the evidence quite inadequate. The gland material has a remarkable "antispasmodic" action which may prove symptomatically helpful in numbers of different diseases. I do state, however, that no remedy so far suggested for paralysis agitans has had so happy or so permanent an effect. When a more

perfect form of administration has been devised—possibly even a grafting of the fresh gland from one human being to another—the effects may be still more satisfactory.

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62 EAST FIFTY-EIGHTH STREET.

SARCOMA OF THE EYELID.

*With the Report of a Case in an Infant Seven Weeks Old.**

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Philadelphia,

Demonstrator of Surgical Pathology at the Medicochirurgical College of Philadelphia.

The case which I wish to bring to the attention of the society is of peculiar interest for several reasons—first, because of the tender age of the patient; second, because of the situation of the growth, and, finally, because of the peculiar microscopical picture which the growth presents.

CASE.—The patient, Albert H., an apparently healthy child, was noticed, when about seven weeks old, to be developing a small growth on his lower right eyelid. This growth, which was very small at first, grew gradually until it attained the size of a small pea. Then, two months after the first appearance of the growth, the child was brought by his physician to see Dr. L. Webster Fox, to whom I am indebted for the privilege of reporting this case. Dr. Fox informs me that on examination the growth had all the earmarks of a simple lipoma, which was the diagnosis made at the time.

On February 27, 1907, a small incision was made over the growth, large enough to introduce a pair of long, narrow forceps, which were insinuated under the skin until they completely encircled the growth. It was then crushed between the blades of the forceps and brought out of the wound by a twisting motion. Even after the removal of the growth there was nothing about it to cause a suspicion of malignancy, it being soft and rather light in color. Its nature could not be studied grossly owing to the crushing it had sustained. As a matter of routine, however, it was sent to the Laboratory of Surgical Pathology for examination.

Gross examination was very unsatisfactory, owing to the crushed condition of the specimen, so it was fixed and imbedded in paraffin and sectioned.

Microscopical examination revealed a somewhat varied picture according to the portion of the tumor examined. Portions of the tumor were quite compact and cellular, while other parts appeared to be riddled with spaces which were apparently fat globules before fixation, etc. The entire tumor was broken into lobules, many of which were separated one from another by a very delicate sheet of connective tissue, others by very thin walled blood vessels.

The size and shape of the cells constituting the cellular portions of the tumor varied greatly. In portions of the tumor, especially toward the edges, the cells were spindle in shape and all followed the same direction, running parallel with the outlines of the particular lobule in which they were found. In the central portions of the mass the cells were of varying shapes, some being somewhat spindle, others more polygonal, and still others apparently round. The protoplasmic outlines were not very distinct, the protoplasm of the different cells seeming to a certain ex-

*Read before the Pathological Society of Philadelphia, October 4, 1907.

tent to fuse. There was no intercellular stroma between the individual cells.

Some portions of the tumor contained abundant blood channels having no definite walls except those composed of the cells of the tumor proper. In places there were some signs of interstitial hæmorrhage which was probably caused by operative insult to the tissues. There did not appear to be any melanotic deposit in any part of the tumor.

The portion of the tumor which appealed to me as of particular interest was that in which the sarcomatous cells could be seen to be growing around what appeared to be fat spaces. This was significant as a manifestation either of spreading infiltration into the surrounding fatty tissues, or, what might be more likely in view of the lobulation of the tumor (not alveolation), an evidence that the tumor was originally a lipoma which had undergone sarcomatous degeneration and was still in the process of that change. The subsequent history, in which it was found that a recurrence appeared in two weeks, rendered it improbable that healthy tissues had been invaded during the extirpation of the growth, but more likely that a small, microscopical portion of the tumor had been left behind, which would tend to substantiate the view of the lipomatous origin of the growth.

In calling attention to this case, the youth of the patient appears to me to be a most striking fact. While the most frequent neoplasms found, sarcoma in infants under one year of age is, nevertheless, rather rare. Petit, in reviewing 5,329 cases occurring within six years in the surgical and ophthalmological wards of the Bordeaux Childrens' Hospital, found that sarcoma was present in thirty-one cases up to fifteen years, constituting 0.58 per cent. of the total number of cases, but of these only one was under the age of eighteen months, or less than 0.02 per cent. Proportionately the greatest number were between the ages of eighteen months and five years, eleven being found as compared with nineteen for the next ten years.

Of the sarcomata in the literature, occurring within the first year of life, by far the greatest number are tumors of the kidney. Most of these tumors, according to Walker, are probably embryonal in nature, many doubtless from misplaced adrenal deposits. Although resembling sarcomata in many of their characteristics, they are not true sarcomata and will not be classified as such. When they are excluded from the list, the sarcomata occurring during the first year are found to occupy a very insignificant place among the maladies of that period.

After a fairly thorough search of the literature, I have been able to find but few examples of purely sarcomatous tumors affecting infants under one year of age. In 1901 Pepper reported a case of congenital lymphosarcoma of the liver and stated that he was able to find but five similar cases in the literature reported by Heaton, Orr, Parker, de Ruyter, and Meisenbach.

Curtis reported a very rare case of congenital periosteal, round and spindle celled sarcoma of the acromion process the size of a hen's egg. While sarcomata in bones play a very important rôle among the sarcomata in childhood, Petit finding fifteen osteosarcomata among the thirty-one cases he studied, I have records of only two occurring within the first year. Curtis's case is also one of the few showing any tumor formation of considerable size at birth.

Fisk, in 1866, reported a case of congenital growth of small size situated in the interscapular space, which, when removed, developed a recur-

rence which rapidly became general. Coley's fluid was used without effect, the child dying within a very short time.

Weinlechner reported two cases of congenital sarcoma, one a fibrosarcoma of the subcutaneous tissues over the scapula and the other a sarcoma of the parotid and sternomastoid. The only other example of congenital sarcoma that I have been able to find is that reported by Mandillon, who, in an infant four days old, found a mixed cell sarcoma of the right shoulder, the size of an orange.

Marshall reported a very interesting case of spindle cell sarcoma, situated between the superficial and deep muscles of the calf. The tumor was first noticed a fortnight after birth, from which time it appeared to grow rapidly until twice the size of the other leg, causing bowing forward of the tibia and fibula.

Jacobi reported an exceedingly rare case of sarcoma of the cutis, discovered one month after birth. He quotes Neuhaus's case in an infant five days old and Karewski's case in an infant seventeen weeks old, but asserts that they are not identical with his and are not true sarcomata cutis.

Battle observed a case of melanotic, alveolar sarcoma in a child of six weeks, originating at the site of the upper left incisors; and de Beurman and Gougerot, a case of multiple subcutaneous round cell sarcoma in an infant, appearing at two months of age.

Carr reported a round cell sarcoma of the back at three months; Carpenter a sarcoma of the dura mater in a child four months old; and Stowell, a fibrosarcoma of the liver at nine and a half months of age.

The case described by Clark, occurring in the testicle, is of a rather indefinite nature, and is probably some form of embryonal rest tumor. Of the sarcomata affecting the eyelids in infants under one year, I have found but three, viz., those reported by Wood at six weeks, Samelson in a child of ten months, and Jacobi, a congenital angiosarcoma.

From these reports it would appear that sarcomata of the eyelid are not comparatively so rare in infancy as in later life, the cases mentioned here constituting 16 per cent. of the infantile sarcomata collected. I believe, however, that this is more apparent than real, because I feel that I have overlooked sarcomata in other regions of the body because of their varied forms of classification, whereas I do not believe that I have missed many, if any, reports of sarcoma affecting the eyelid.

As a final reference to sarcoma in the first year of life, I would call attention to the fact that, after the kidney, the liver appears to be the most frequent site, constituting 31.5 per cent. of the cases in this list, while the region of the shoulder and back include 21 per cent. of the total. The majority of the growths were of the round cell or the mixed round and spindle celled variety.

When we consider our case from the standpoint of its situation, we find that sarcoma of the eyelid is a rather rare condition, a very careful search of the literature revealing but forty-four cases, including the one reported in this paper. My records of some are incomplete, because the original articles were not available or the reports were not complete.

Of the twenty-eight cases in which I have the

age incidence, the first decade appears to be the most frequently affected, there being eight from birth to ten years, or 28.5 per cent. of the total number. Of these eight, four were found in the first year, or 14.33 per cent. of the total. When those occurring to the age of twenty years are compared to the whole number, they constitute 42.8 per cent. After the twentieth year they are evenly distributed in the different decades until the seventy-sixth year, which is the oldest recorded case. It will be seen from this statement that, although it is found at all ages, the affection is principally of early life.

In the thirty-one cases in which I have record of the region affected, the upper lid is the seat of disease in 54.8 per cent., the lower lid in 29 per cent., all four lids in 6.5 per cent., the inner canthus in 6.5 per cent., and the outer canthus in 3.2 per cent. Of twenty-two cases, twelve were males and ten females.

In thirty-two cases the nature of the cells composing the growth was obtainable and averages as follows: Round cells, 37.5 per cent.; spindle cells, 31.2 per cent.; mixed round and spindle cells, 15.6 per cent.; fibrosarcomata, 9.6 per cent., and giant cell sarcomata, 6.1 per cent. Of thirty-seven tumors, 29.7 per cent. were melanotic, 10.8 per cent. cylindromatous, and 5.4 per cent. angiomatous in nature.

It is interesting to note that of the four cases in which trauma was distinctly mentioned as a causative factor, all were upon the upper eyelid and all occurred between the ages of four and fourteen years.

In concluding, I wish to call attention to the final results in the case reported in this paper, which, taken in conjunction with a number of others reported by Dr. Pfahler, appear to present a possibility of more favorable prognosis in a condition which has always been considered as offering but little hope of cure. As stated in another portion of this paper, two weeks after removal of the growth a recurrence was noted nearly equal in size to the original tumor. Treatment by the Röntgen rays was then begun, and after five months' treatment the growth entirely disappeared. The child has since remained entirely healthy and free of any signs of tumor formation, a lapse of nine months since the time of the original operation.

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2131 NORTH FIFTEENTH STREET.

PÆDIATRIC HINTS.

Easy Rules for Calculating in the Percentage Method of Infant Feeding, and for Remembering the Weights and Heights of Children at Various Ages.

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The superiority of the percentage method of infant feeding over others is quite generally admitted, yet a surprisingly large number of physicians prefer to use proprietary milk food and "half and half" mixtures because they cannot "juggle the figures." Some blame the mothers, saying that very few are intelligent enough to properly prepare the food according to the percentage method. But there will not be much difficulty with parents who can read, if the directions are always given clearly in writing. Hand the mother a slip as follows:

Take 10 ounces from the top of a quart bottle of milk (10 ounces are about $\frac{1}{3}$ of the bottle). Place in a pitcher and stir up.

Use of this,	6 ounces;
Use of lime water,	1 ounce;
Use of boiled water,	13 ounces;
Use of milk sugar,	12 spoonsful.

Mix these together in another pitcher and give 3 ounces every $2\frac{1}{2}$ hours, with only one feeding at night.

However, to actually simplify the figuring of top milk mixtures, the following suggestions are offered:

For using top third, top half, and whole milk, 20 oz. mixtures: To determine the number of ounces of top milk to be taken, multiply the percentage of proteid desired by 6.

Thus: Wanted the number of ounces of top milk needed for fat 2.5, sugar 6.0, proteid 0.83. Then $0.83 \times 6 = 4.98$ or 5 oz. As the fat is here three times the proteid, it means that we are to take 3 oz. for top third. Or: Wanted fat 3.15, sugar 7.0, proteid 1.53. How many ounces of top milk are needed? According to the rule $1.53 \times 6 = 9.30$ oz. The fat being twice the proteid, it means 6 oz. of top half.

To determine the percentage of proteid and fat in any given mixture: Divide the number of ounces of top milk taken by 6. This gives the percentage of proteid. To find the percentage of fat, multiply this figure by 3 for top third, 2 for top half, and 1 for whole milk.

Thus: Wanted the percentage of fat and proteid in a 20 oz. mixture in which 7 oz. of top third were used. Then $7 \div 6 = 1.16$ proteid; $1.16 \times 3 = 3.48$ fat. Or: Wanted the percentage of fat and proteid in a 20 oz. mixture in which 8 oz. of top half were used. Then $8 \div 6 = 1.33$ proteid; $1.33 \times 2 = 2.66$ fat.

It will be seen, therefore, that to remember the rules for ascertaining the number of ounces of milk to be used, or the percentage of the fat or proteid in a mixture, one must simply think of the number 6.

But a 20 oz. mixture is rarely enough for a day's feeding, except in the first couple of weeks. Therefore, in most cases, the physician orders a larger quantity, which must be figured out on a basis of the 20 oz. mixture. This is not an easy matter, and though the textbooks give tables in which the number of ounces of top milk to be taken is worked out for various percentages and mixtures of different sizes, still they are of little service to the practitioner, who must have his information at his finger tips, not in the books. To do away with this extra figuring and, with the necessity of consulting the books, and therefore to make the practical use of percentage feeding easier,

Use for 10% milk a 40 oz. mixture and 1 oz. of top	milk = $\frac{1}{4}\%$ fat.
Use for 7% milk a 42 oz. mixture and 1 oz. of top	milk = 1 oz. of top
Use for 4% milk a 40 oz. mixture and 1 oz. of top	milk = $\frac{1}{10}\%$ fat.
	milk = 1 oz. of top
	milk = $\frac{1}{10}\%$ fat.

Then, to determine the number of ounces of top milk to be taken, multiply the percentage of proteid desired by 12. Or, multiply the percentage of fat wanted in top third mixtures by 4, top half mixtures by 6, and whole milk mixtures by 10. Thus, wanted a day's food for an average healthy child ten weeks old. A suitable formula for such an infant would be: Fat, 3.0; sugar, 6.0; proteid, 1.0. Then, according to our rule, to find the number of ounces of top third to be ordered, multiply the proteid 1.0 by 12 = 12; or multiply the fat 3.0 by 4 = 12. Therefore, 12 oz. are needed and our directions would be:

Use of top third,	12 ounces;
Use of lime water,	2 ounces;
Use of boiled water,	24 ounces;
Use of milk sugar,	12 spoonsful.

Mix these together and give 4 ounces every $2\frac{1}{2}$ hours; one feeding at night.

Or, wanted the directions for making up the food for a baby seven months old. Here a fat 4.0, sugar 7.0, proteid 2.0 formula would be needed. Again, according to the rule, $2.0 \times 12 = 24$; or $4.0 \times 6 = 24$. Then 24 oz. of top half are needed and the instructions read:

Use of top half,	24 ounces;
Use of lime water,	4 ounces;
Use of boiled water,	24 ounces;
Use of milk sugar,	12 spoonsful.

Mix these together and give 6 ounces every 3 hours in 24 hours at night.

The actual waste of materials, i. e., milk, sugar, and lime water, necessitated by the making up of these mixtures, which are slightly in excess of the day's need, is trifling, while the saving of labor, both to the physician and mother, is great. The chances of error are very much reduced, particularly for the mother. For, if she becomes accustomed to make up a fixed quantity daily—40 or 42 oz.—the matter of merely increasing the number of ounces of the ingredients from time to time, according to directions, becomes a simple process.

Another matter which is a source of much trouble to many doctors is remembering the average weights and heights of normal children at various ages. Every one who has children in his practice knows how important this is. At the same time one cannot carry tables about with him. Therefore, for most purposes, the following simple rules (which work out very closely) will be found serviceable:

Weight First Twelve Months.—Third to seventh month, add 10 to the month; other months, add 8 to the month.

Thus: What should be the weight of a child at the fourth month? $4 + 10 = 14$ lbs. Or: Wanted the weight of a baby at the tenth month: $10 + 8 = 18$ lbs.

There is only one month in which this rule gives an answer which is not close enough to the average to be right. That is the eighth month. According to the rule, a child at the eighth month should weigh 16 lbs., while the average is 17 lbs.

Weight of a Child at Any Age.—Multiply the age of the child plus 1 by 5 and add 10; except for the twelfth, thirteenth and fourteenth years add 15, 20, and 25 respectively.

Thus: What should be the weight of a child aged four years and three months. Then $4 + 1 = 5$; and $5 \times 5 = 25 + 10 = 35$ lbs. Or: How much should a child weigh at the thirteenth year? Then $13 - 1 = 12$; $12 \times 5 = 60 + 20 = 80$ lbs.

To show how closely this rule works out, the following table is given, showing the averages given by Holt at the various ages and the figures obtained by the rule for the corresponding year:

Age in years.	Holt's averages. Pounds.	Obtained by the rule. Pounds.
1	19.6	20
2	25.5	25
3	31.	30
4	34.5	35
5	40.5	40
6	44.4	45
7	48.8	50
8	54.3	55
9	59.	60
10	65.3	65
11	71.3	70
12	80.5	80
13	89.7	90
14	99.6	100

Height of a Child at Any Age.—Up to the sixth year, multiply the year by 3 and add 26. After the sixth year, multiply the year by 2 and add 32.

Thus: How tall should a child be at four years? $4 \times 3 = 12 + 26 = 38$ inches. Or: What should be the height of a child nine years old? $9 \times 2 = 18 + 32 = 50$ inches.

Again, to show how very near to the actual averages the rule strikes, the following table is made for comparison:

Age in Years.	Holt's averages. Inches.	Obtained by the rule. Inches.
1	28.9	29
2	32.5	32
3	35	35
4	38	38
5	41.5	41
6	43.9	44
7	46.	46
8	48.1	48
9	49.8	50
10	52.	52
11	53.9	54
12	56.4	56
13	58.4	58
14	60.6	60

The suggestions offered in this paper are so simple that one can become thoroughly familiar with them after a very short time, and then he will find them extremely handy.

410 EAST EIGHTY-FOURTH STREET.

Therapeutical Notes.

Effects of Wine Upon Typhoid Bacilli.—Sabrazé and Mercandier, in a communication to the *Annales de l'Institut Pasteur* (April, 1907), report that by experimentation they had found that claret wine kills the bacillus of Eberth in two hours, in its pure state, and in four hours when diluted one half with water. White wine kills the same microorganisms in twenty minutes. Champagne destroys them in ten minutes. Used as a disinfecting agent for drinking water, which, owing to failure in boiling or imperfect filtration, is suspected of containing pathogenic germs, the mixture of wine and water should be made six hours in advance of the meal in the case of white wine, or twelve hours in the case of red wine, instead of diluting the wine at the table. The old established practice of diluting the wine in the cask believed to be followed by some "wine dealers" is therefore not without a certain justification.—*Journal de médecine de Bordeaux*, September 15, 1907.

Treatment of Cerebrospinal Meningitis by the Subcutaneous Injection of the Fluid Obtained by Lumbar Puncture.—Radman (*Semaine médicale*, No. 28) reports two successful cases of the injection of cerebrospinal fluid obtained from the patient himself by lumbar puncture in the treatment of cerebrospinal fever. He found the meningococcus in the fluid, of which 35 c.c. were drawn from the spinal canal, and 8 c.c. were immediately injected under the skin of the arm. There was no local reaction. Three days later the temperature had fallen, and at the end of fifteen days all the morbid symptoms had disappeared. The object of the treatment is to provoke a curative reaction.

Applications for Furuncle and Mosquito Bites.—Gallois prescribes a solution of metallic iodine in acetone (40 per cent.) to abort boils and to relieve the irritation following bites of insects, especially mosquitoes. It forms a sort of varnish in drying, which relieves the itching and checks inflammation. Generally one application is sufficient, but if required it may be repeated at the end of five or six hours. The discoloration lasts about twenty-four hours, and is easily removed with soap and water.

A paste of cigar ashes mixed with a drop of water is often effective, or the bite may be rubbed with a piece of dry soap. In the last two methods, it is the alkaline salts which relieve the itching.—*Bulletin général de thérapeutique*, September 30, 1907.

Guaiaicol Cinnamate.—In the intestinal tract, guaiacol cinnamate becomes decomposed and liberates the guaiacol. The powder is said to be without smell or taste, and has been employed in obstinate diarrheas and at the beginning of tuberculosis. It is given in doses of 1 gramme daily, in four doses, to children at the breast, or 1 gramme 50 centigrammes to older children. Adults can take 1 gramme four times a day.—*Journal de médecine de Paris*, September 29, 1907.

Artificial Serum Improved.—Fleig maintains that the following is greatly superior to the ordinary salt solution for subcutaneous and intravenous administration. It has the power of preserving the vitality of isolated organs when immersed in it and kept at a proper temperature. Spermatozoa remain alive in it for several days:

R	Sodium chloride, . . . . .	.650 grammes;
	Potassium chloride, . . . . .	.030 gramme;
	Calcium chloride, . . . . .	.020 gramme;
	Magnesium sulphate, . . . . .	.030 gramme;
	Sodium bicarbonate,	1.0 gramme;
	Sodium glycerophosphate,	1.0 gramme;
	Glucose,	1.0 gramme;
	Distilled water, q. s. ad,	1.000
	Oxygen, to saturation.	

M.

The glucose and the oxygen are not essential and may be omitted, but are regarded as beneficial.—*La Tribune médicale*, September 21, 1907.

Frost Bites, or Chill Blains.—*L'Etoile médicale* (through *Bulletin général de thérapeutique*) extols the following method of treating frost bites, with a formula by Jadassohn. The feet are to be bathed from one to three times a day, in water as hot as can be borne, for a period of ten to fifteen minutes. They are then carefully dried, and, if the frost bites are ulcerated, they are washed with alcohol. In the evening the following ointment is used with prolonged massage, and a layer of it applied to the lesions. It consists of:

R	Ichthyol,	1.0 to 5.0 grammes;
	Resorcin,	1.0 to 3.0 grammes;
	Purified wool fat, . . . . .	.550 grammes;
	Olive oil,	10.0 grammes;
	Distilled water,	50.0 grammes.

M.

If the ulcers are extensive this ointment is to be applied twice daily. [A three per cent. phenol ointment, made with petrolatum (unguentum phenolis, U. S. P.), applied without friction, has a local anæsthetic effect and promptly relieves the irritation of chill blains, which are so annoying to children in winter.]

Tuberculous Adenitis Treated by Radiotherapy.—Barton (*Lyon médical*) reviews the treatment of lymphangitis of tuberculous origin, and reports twelve cases of chronic adenopathy treated by radiotherapy. He found it a valuable adjunct to the usual treatment, and states that in some cases it acts with the certainty of a true specific. In fact, under the influence of the irradiations, he had seen the adenopathies melt away completely in the more favorable cases. The effect is seen first upon the peradenitis, which surrounds the glands and agglomerates them in one solid mass. This exudation

disappears and the individual ganglia become recognizable. Subsequently, the action is slower, but the glands gradually become smaller, become harder and more fibrous, and either completely disappear or leave a small fibrous residue under the skin, which, however, finally disappears in two or three months. In very large growths the mass may be reduced to a size which is more easily dealt with by surgical operation. The good effects are obtained by eight to twelve sésances; but these should be methodically spaced, in order to avoid radiodermatitis. They should be spread out, according to circumstances, over two, three, or four months. When the cases are of long standing and the glands are beginning to soften in their interior, the effect of treatment may be to hasten suppuration. In these cases a fine needle may be used with which to aspirate the abscess; subsequently, under the irradiation, the sinus rapidly heals and does not leave a visible scar. In old suppurating cases with large sinuses, the treatment has an excellent effect, and promotes rapid healing. Scars may generally be avoided by early intervention. After the treatment there is a temporary rise of temperature of short duration. When used prudently, the treatment is free from danger, and the reporter has seen no bad results in his experience. He also gives general treatment with codliver oil, arsenic, and iodotannates as adjuncts.

Treatment of Vascular Nævi by Radium.—Wickham and De Grais have shown that radium may be utilized with advantage in all forms of vascular nævus, even those regarded as incurable, and state that the forms most easy to cure are those most highly colored and which are rather prominent. The radium is incorporated in a sort of varnish, which is painted on the lesion. The scars are soft, reniform, decolorized, and of fine appearance. The applications cause no pain, so that comparatively large surfaces may be treated, even in infants, and they can be made during sleep.—Report to the Académie de médecine, Paris, in *La Clinique*, October 11, 1907.

Salicylated Sugar as a Wound Dressing.—G. Meyer (*Zentralblatt für Chirurgie*, August 17, 1907) has found powdered sugar, containing 2 per cent. of salicylic acid, very useful in treating recent wounds. He sterilizes the sugar at 140° C., stirring it constantly in order to keep the powdered form, and adding the salicylic acid, so as to thoroughly mix the powders. When dusted on freely, wounds assume a granulating appearance and cicatrize without delay. It is regarded as contraindicated in impure, suppurating, and bleeding wounds. It should not be applied upon an exposed bony surface, for it may cause necrosis. It is best employed in simple wounds, before they have commenced to granulate.

Atropine in Asthma.—Paul Febray (*Pester med. wirtsch. Anz.*, de Pressa, 1907, No. 28, through *Gazette médicale de Paris*, October 15, 1907) points out the neglect that has befallen the treatment of asthma by atropine, which Froussieu recommended seventy years ago, and he thinks that this treatment merits revival. He reports a case of asthma of twenty years' standing; the patient had employed numbers of remedies without benefit, except that temporary relief was obtained from hypodermics of morphine, and who was promptly

and permanently relieved by atropine. The treatment extended over six weeks with a perfect result. He commenced with half a milligramme (gr. $\frac{1}{160}$), and gradually increased to two milligrammes (gr. $\frac{1}{80}$) of atropine daily. Some patients can take 3 to 4 milligrammes daily. The agent may be given by the mouth in the form of pills, or by hypodermatic injection. Sometimes dryness of the throat, or disturbance of vision or accommodation occurs, requiring suspension of the treatment. This action of atropine in asthma is explained by its antispasmodic properties.

Methylene Blue for Cracked Nipples.—Dresch (*Gazette médicale de Paris*, October 15, 1907) states that, for several years, he has employed a 3 per cent. solution of methylene blue (Methylthionine hydrochloridum, U. S. P.) as a topical application to the nipples, during nursing, in order to prevent and cure fissures or excoriations. The results are alleged to be excellent; the method is convenient, economical, and does not require any precautions as to nursing. The procedure is as follows: Both the nipples and the mouth of the child are washed with a warm solution of sodium bicarbonate (2 per cent.). Then, with a piece of absorbent cotton on a probe, the solution of methylene blue is to be applied to the nipples. This is best done immediately after nursing, when the nipples are at the maximum of erectility. The methylene blue has a local anæsthetic effect, and also is an agent that is very favorable to keratinisation, the latter being of considerable importance in an organ which is constantly being macerated with saliva and the milk. The infant nurses from the nipples without showing inconvenience or the slightest disgust. Its mouth becomes discolored with the blue stain, but the urine is not sufficiently discolored to stain the napkins, although it may contain traces, but this is of no importance. Daily applications for a week or ten days usually suffice to effect the cure.

Death from Use of Potassium Chlorate Lozenges.—Ide reports (*Revue médicale de Louvain*, August 15, 1907) the case of a man, thirty-two years of age, who had a slight sore throat, who, buying some potassium chlorate lozenges, swallowed twenty of them. They were compressed tablets of pure potassium chlorate, the quantity contained in the entire amount swallowed being 6.0 grammes (3iss). The succeeding night the patient experienced abdominal pain, vomited, and had dark liquid stools. The next day there was cyanosis; the vomiting persisted, and there was suppression of urine. A few drops of urine emitted were muddy and of a reddish brown color; it was found to contain albumin and hæmoglobin. The following day there was no vomiting, but cyanosis and anuria persisted. Coma followed, and he died on the eighth day after taking the poison.

Improved Staining Methods for Examining Blood.—Manuel Toussaint (*Boletín del Instituto patológico*, Mexico, April, 1907) proposes and highly recommends the following method of coloration of blood smears, permitting the recognition of bacteria and of the different forms of blood cells: 1. Fix with acetone for eight minutes. 2. Stain four or five minutes with the solution of

Sahli. 3. After washing with distilled water, apply solution of tannic acid (one half of 1 per cent.). 4. Then wash, dry the preparation, and examine it in oil. The blood globules are perfectly defined; if there are bacteria present they take an intense blue color. The hæmatozoa have an obscure violet color. The spirothæta of syphilis is clearly shown. A method, still more certain, although a little less rapid, depends upon employing a mixture of violet of dahlia and of brilliant green: 1. Fix in alcohol ether (twenty minutes) or an alcohol formaldehyde (fifteen minutes). 2. Expose to a staining mixture, formed by equal parts of saturated solution of dahlia in formaldehyde, and of brilliant green in distilled water, diluted with twice its volume of water, during a quarter of a minute, while gently heating (without boiling). 3. Wash with distilled water. The author has found this mixture employed as (1907) gives the following formulæ for eruptions on the face:

Dry Eczematous Eruptions on the Face.—The *Bulletin général de thérapeutique* (October 15, 1907) gives the following formulæ for eruptions on the face:

R Sodium borate, 0.50 gramme;
Tincture of benzoin, gtt. xv;
Zinc oxide, 2.0 grammes;
Petrolatum, 18.0 grammes.
M. S.: Apply at night, in a thin layer, to the affected area.

The following is more delicate:

R Tannin, 2.0 grammes;
Calomel, 1.0 gramme;
Glycerite of starch, 30.0 grammes.
M. S.: To be applied each night.

Eczema Impetiginoides in Infants.—Butte (*Journal de médecine de Paris*, October 20, 1907) calls attention to the presence of lice as a cause of impetigo in some infants. The treatment in such cases should commence with lotions of spirits of camphor or camphorated alcohol to destroy them. The local treatment of impetigo consists in permanent applications, upon compresses of moist aseptic gauze, wet with a solution of boric acid in boiling water (40 per cent.). These compresses may be changed two or three times daily, as they dry quickly. Each dressing should be preceded by spraying boric acid solution over the surface with an atomizer. If these measures do not succeed, a more energetic antiseptic is advised, such as this lotion of Alibone:

R Distilled water, 200.0 grammes;
Camphor, to saturation, q. s.;
Copper sulphate, 2.0 grammes;
Zinc sulphate, 7.0 grammes;
Saffron, 0.40 gramme.

M.

This solution may be diluted with twice its bulk of boiled water and applied several times a day, or compresses of gauze may be applied permanently, moistened with a one to five dilution, and changed twice daily. When the crusts have fallen off, an ointment of neutral petrolatum, containing 6 per cent. of boric acid, may be applied. In rebellious cases calomel ointment (10 per cent.) may be substituted, or yellow oxide of mercury (5 per cent.), or a glycerol of oil of cade. As a prophylactic measure the children should either be isolated or have their head well covered with bandage.

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THE CLEVELAND MILK CONTEST.

The city of Cleveland has shown itself more alive than most of our municipalities to the importance of a pure milk supply. It was fitting, therefore, that the Bureau of Animal Industry of the United States Department of Agriculture should cooperate with the Cleveland Chamber of Commerce in organizing a meeting at which all dairymen furnishing milk to the city were encouraged to exhibit their milk and cream in competition for a number of prizes. The meeting was held in March of this year, and it has resulted in the issue by the bureau of an instructive pamphlet entitled *A City Milk and Cream Contest as a Practical Method of Improving the Milk Supply*, prepared by Mr. C. B. Lane and Mr. Ivan C. Weld. The meeting was well attended, the specimens sent were numerous, and the great majority of the dairymen must have profited by the occasion.

All the milk was drawn on March 11th, and the rating was done on March 14th, the milk having in the mean time been kept cold. The points considered in the scoring were the flavor, the chemical composition, the number of bacteria, the acidity, and the general condition of the package and its contents. The exhibition brought out the fact of the highly satisfactory condition of most of the milk supplied to the city of Cleveland, and, inasmuch as the exhibitors were encouraged to make and get all the information they could, it is in the highest degree probable that the milk furnished to Cleveland will henceforward be of a more satisfactory character.

wholesome emulation will be started in other towns, too, can hardly be doubted.

The prime requisites in milk are that it should come from cows that are not tuberculous and are not fed on anything injurious to the flavor, that it should be drawn and stored with the most minute regard to cleanliness, and that it should be kept cool till it reaches the consumer. To secure all these conditions calls for great care and involves increased expense. It is no more than fair, then, that the producer of clean milk should be paid a better price for his product than is given to him who trusts to pasteurizing for correcting in some measure, though by no means satisfactorily, the defects of his milk. It is undoubtedly getting to be more and more the practice of the great collectors of milk, those who distribute it to the consumers, to discriminate in price in favor of those dairymen from whom they obtain milk of the best quality. The consumer ought not to object to a slight increase of price, though it is unsatisfactory to reflect that it is not always the purveyors of the best milk who are the first to raise the retail price.

GENERAL ANÆSTHESIA WITH SIMULTANEOUS ARTIFICIAL SEQUESTRATION OF A PORTION OF THE CIRCULATION.

The need of impregnating with the anæsthetic the entire amount of the blood contained in the organism in order to bring about unconsciousness, *i. e.*, saturation of the organs contained in the skull and more particularly the cortex, is a great disadvantage. Duly impressed by this fact Klapp¹ has recently advocated, before giving a general anæsthetic, the application centrally of bandages about the limbs so as to shut off the circulation in both artery and vein, whereby the sequestration in the extremities of a large amount of blood uncontaminated by the anæsthetic is accomplished. It requires no great physiological intuition to perceive that such a procedure makes it possible to anæsthetize the subject with a much smaller quantity of the anæsthetic than would ordinarily be required, since, when the bandages are applied to all four extremities, for example, only the blood contained in the head and trunk need be impregnated.

Long anticipating Klapp, this very procedure was devised and employed, and these very arguments adduced, by an American neurologist, Dr. J. Leonard Corning, twenty years ago. These proposals

of course, followed in the New York Medical Journal.

ical Journal" at that time; and subsequently a brief synopsis of his undertaking was embodied in his book on *Pain*.³

At the time of putting on record these ideas, Corning, at the invitation of the present senior surgeon of the Manhattan Eye and Ear Hospital, Dr. David Webster, put his theory to the proof in the case of an alcoholic, who, refractory to the influence of a general anæsthetic given in the conventional way, yielded speedily to the ether when the latter was administered after previous sequestration of the blood contained in the extremities, this being accomplished by the application of bandages at the proximal ends of the legs so as to shut off the circulation in both artery and vein. The quick emergence of the subject from the influence of the anæsthetic after the removal of the bandages was another notable feature in the case.

It is a peculiar coincidence that not only the procedure itself, but also the very arguments used by Klapp to support it, are those put forward by Corning in his papers twenty years ago. How exactly a certain individual, writing twenty years after another, can agree with his predecessor, abundantly appears from a comparison of the recent outgivings of Klapp with those of Corning printed in this *Journal* a score of years ago.

"THE EDUCATION OF THE NEGLECTED RICH."

In the *Evening Post* for September 28th, and later in the *Educational Review* for November, President Nicholas Murray Butler, of Columbia University, calls attention to a phase of an American educational problem that deserves widespread attention. As well as he has stated it, and it is a striking contribution to a topic of serious import, the criticism of the educational methods adopted for the sons and daughters of very rich men could go much further and serve as a basis for an interpretation of a notable defect in American public life and a warning for those who would avoid certain miseries and disasters in the after lives of their children.

The subject has an important bearing from the medical point of view, which can be here pointed out in only a fragmentary sort of way. That the ills are very old, and are not exclusively American, is granted, but there are methods now peculiarly in vogue in the educational field that will certainly perpetuate the difficulties rather than obviate them.

In pointing out the defects of education among the very rich Dr. Butler first calls attention to the lost opportunities to learn when young the value of discipline and its associations. The necessity for

doing life's small tasks regularly and punctually in the formative years of character building is too frequently lacking, and in later years the distractions of town houses and country houses, of European trips and Florida flights, lead to that desultoriness of method which acts disastrously in the years of later life. The forced development of idiosyncrasies, of personal, one sided aptitudes, without the controlling perspective, and the waxing of class consciousness either as a snobbish outgrowth or as an abnormal introspection, are sure to bear their fruits.

And what are some of these fruits? "It is genuinely distressing that the names of the great fortune builders in America should in the second and third generations be so frequently associated in the public mind with bad habits, wasted lives, and frivolous occupations," writes Dr. Butler. But this is an entirely inadequate view of the situation, and calls attention to only one of the ills that lie open to all, whether they run or not.

It is in the field of a faulty hygiene of the nervous system that the full harvest of poor educational methods for our rich is garnered. This accounts for the skeletons in the closet that make the lives of so many of the rich unhappy and unenviable. The hysterias, mismatings, jealousies, insanities, and even crimes are the direct results of poor educational facilities. The mind as the organ by which man adapts himself to his environment, especially as that environment is extremely complex, and greater complexity is a characteristic of the higher social life, is the more in need of development along fundamental lines that lead to clear judgment and fine character, if man is to take his place in the higher spheres of social evolution.

We believe that the true aristocrat is a needed factor in the higher development of society; and the children of the rich have the opportunity, but only too often lose it by reason of the very factor that Dr. Butler so ably points out—they do not get the proper training. The hygiene of the nervous system is a neglected factor for too many. And the women suffer more than the men, and unfortunately hand down their disordered nervous systems to after coming generations. Thus is destroyed in a few centuries what master minds have developed, and, rightfully used, could minister to the advancement of self, family, and society.

If hysteria in the well to do is to diminish; if the perverted New England conscience is to escape its full fruition in the delusional states; if scandal and license in high places are to disappear and cease to be fomenting factors of social unrest, leading to misery and crime among the well to do, then proper education for the upper social classes must provide

³ From the *Journal of Nervous and Mental Disease*, 1901, 10, 1-14.

its full measure of hygienic factors which make for a sounder nervous system.

PHYSICAL AND PSYCHICAL THERAPEUTICS.

At the last meeting of the Louisiana State Medical Society, Dr. William S. Thayer delivered an address on The Importance of Simple Physical and Psychical Methods of Treatment, which has appeared in the *New Orleans Medical and Surgical Journal* and in the *Bulletin of the Johns Hopkins Hospital* for November. Dr. Thayer began his address by making the statement that the end of the efforts and studies of the physician should be to prevent, ameliorate, or heal disease. He called attention to the fact that, while the nineteenth century witnessed great advances in anatomy, physiology, pathology, bacteriology, physiological chemistry, physical diagnosis, and other branches which are of great importance in diagnosis, no corresponding advance was made in the art of practice; in fact, a considerable amount of therapeutic pessimism was developed. While this is inevitably the result of careful studies of the natural history of disease so far as it refers to pure drug therapeutics, it has been the direct sources of all the notable researches in biological therapeutics, for example.

Drug therapeutics, as Dr. Thayer rightly points out, may, in many cases, be very well compared to the random dropping of chemicals into a glass containing a fluid of unknown composition. Indeed, a sarcastic Frenchman once said that the art of medicine consisted in putting drugs of which little was known into a system of which less was known. But the therapeutic pessimism which has developed with a better understanding of disease processes has been productive of much good along the lines of physical and psychical therapeutics. Baths, massage, mechanical appliances, diet, suggestion, and a number of similar methods have been advanced and advocated, not always wisely, to be sure; but in all these methods, properly applied in suitable cases, there is a possibility of great benefit to the patient. It must be borne in mind, however, that he who would presume to advise a sick person to submit to hydrotherapy, for example, ought to know just as much about the natural history of disease as he who would undertake to treat the same disease with stuff out of a bottle.

Dr. Thayer calls particular attention to the necessity of ordering massage for patients who are convalescent from acute diseases, such as typhoid fever and pneumonia. The massage, to be sure, must be very carefully supervised; but, as Dr. Thayer points out, we should never think of ordering a prolonged rest cure for a neurasthenic without also giving di-

rections for massage and hydrotherapy in order to prevent the atrophy of the muscles which inevitably follows long disuse. So the pneumonia patient, as soon as his temperature becomes normal, may very well receive a general massage daily instead of being allowed to lie in bed for a week or ten days without using his muscles at all.

THE INTERNATIONAL SOCIETY OF TROPICAL MEDICINE

During the fourteenth International Congress of Hygiene and Demography, which was held in Berlin in September, a number of the members of the congress who were especially interested in tropical medicine organized the International Society of Tropical Medicine. The objects of the society, as stated in the *Journal of Tropical Medicine and Hygiene* for October 15th, are, first, to bring together the societies of tropical medicine of different countries for the purpose of an exchange of views; second, to hold a congress of tropical medicine once in three years. The affairs of the society are in the hands of a committee of management composed of two representatives of each national society of tropical medicine. This committee of management shall determine the time and place of the congresses, and is to meet in London within one year to consider further necessary arrangements. Sir Patrick Manson was elected president, and Professor G. H. F. Nuttall was elected secretary general and treasurer. The representatives of the United States present at the meeting of organization were Dr. H. G. Beyer, of the navy, and Dr. Richard P. Strong, of the Government Biological Laboratories at Manila.

NECATOR AMERICANUS IN THE PHILIPPINE ISLANDS.

In a paper read at the fourth annual meeting of the Philippine Islands Medical Association, which appeared in *Philippine Journal of Science* for August, Dr. Clarence L. Cole calls attention to the fact that *Necator americanus* (*Uncinaria americana*) is a common parasite among the natives of the Philippine Islands. In the Twenty-eighth Company of Philippine Scouts 52 per cent. were found to be infected with this parasite. In addition, seventy-six officers and men of the regular army have been treated for uncinariasis in the division hospital at Manila since its organization in 1898, and in thirty-eight patients admitted to the hospital for other diseases necator eggs were found in the stools. The infection occasions a great loss of time to the government, entails an increased expense for hospital supplies, and makes every one suffering from it dangerous to his neighbors. A slight increase in the

systematic expenditure for the purpose of eradicating this infection would be productive of excellent results.

GANGOSA IN THE PHILIPPINE ISLANDS.

Gangosa is a destructive ulcerative and gangrenous disease which attacks the palate and the nose. It is quite common in Guam and the Fiji Islands. It is also known as rhinopharyngitis mutilans. Stitt (*United States Naval Medical Bulletin*, July) has reported a case in a white man which he saw at a naval hospital at Canacao, P. I., which had been contracted probably on the island of Guam. In the *Philippine Journal of Science* for August, Musgrave and Marshall report a case of gangosa occurring in a male Filipino, aged twenty-nine years, who had never been away from the Batan Islands, where he was born, or the Island of Luzon. There is an autopsy report appended to the paper, with the details of the histological examination of the tissues. Neither acid fast bacilli nor treponema were found in scrapings from the lesions. The authors seem inclined to regard the condition as distinct from syphilis, yaws, and tuberculosis, although they say that it will require careful observations on several cases under prolonged treatment before a positive expression of opinion can be made upon this point.

News Items.

Dr. J. N. Hurty, secretary of the Indiana State Board of Health, will address the Cincinnati Antituberculosis Society on Tuesday evening, November 26th.

Philadelphia Personals.—Dr. John Stewart Kulp, of Sturgis, S. Dak., is registered at the Philadelphia Poly-clinic and College for Graduates in Medicine.

St. Mary's Hospital, Philadelphia, has purchased the dwellings at 1743 and 1745 Frankford avenue for the purpose of building an addition to the hospital.

Chelsea, Mass., Naval Hospital.—The Navy Department intends asking Congress for an appropriation of \$200,000 for the extension and repair of this hospital.

Benefit for Wesley Hospital, Chicago.—The bazaar of nations, given under the auspices of the Methodist churches of Chicago, in aid of Wesley Hospital, was a great success, the net proceeds amounting to \$10,000.

Medical Inspection of Schools.—Dr. G. T. Lamarche has been appointed by the Board of Health of Springfield, Mass., to assist Dr. T. F. Reardon in the medical inspection of schools.

Medical Society of the County of Albany, N. Y.—At a meeting of this society held recently, Dr. Nathaniel Bowditch Potter, of New York, read a paper on Oponins and Oponic Therapy.

Plague in Japan and Cholera in Turkey.—We learn from press dispatches that plague has broken out in Osaka, Japan, and that several cases of cholera have been reported in Constantinople, Turkey.

The Clinical Society of the Elizabeth, N. J., General Hospital held a meeting on Tuesday, November 10th, when a paper entitled *Some Observations on Infant Feeding* was read by Dr. F. H. Pierson.

The American Hospital for the Diseases of the Stomach opened its new building, in Philadelphia, on Tuesday, November 10th. Dr. J. M. Tyson and Dr. Lewis Brinton made addresses.

The Sixth District Medical Association of Georgia held its annual meeting in Macon on Wednesday, November 13th. An interesting programme was presented, and officers were elected for the ensuing year.

Benefit for the German Hospital, Brooklyn.—The annual benefit for this hospital was held last week, and it is stated that the profits amounted to \$8,500. This money is to be used in building a new wing to the hospital.

The New Jersey State Board of Pharmaceutical Examiners at the recent examinations, held at Trenton, N. J., passed seventeen candidates for registered pharmacists, and seven candidates for registered assistants.

Professor Ira Remsen, of Johns Hopkins University, addressed the Scientific Association of the university on Thursday, November 14th, on the Work of Sir William Ramsay on the Action of Radium Emanations of Copper.

Dr. Joseph L. Price, of Philadelphia, was the guest of Dr. Walter C. G. Kirschner, superintendent of the City Hospital, St. Louis, recently. He held a surgical clinic in the hospital, and opened a section in gynecology in the St. Louis Medical Society.

St. John's Guild held its annual meeting in New York on Tuesday, November 12th. Mr. John W. Weed, president of the society, announced that the Seaside Hospital at New Dorp would be closed this winter on account of the failure to raise the necessary funds.

Charitable Bequests.—By the will of Alexander Maitland, of Princeton, N. J., the Presbyterian Hospital, of New York, will receive \$20,000, and the Presbyterian Rest for Convalescents at White Plains, N. Y., will receive \$10,000.

Medical Inspection of Schools in Halifax.—Arrangements have been made for the medical inspection of the schools in Halifax, Canada. Dr. Allan R. Cunningham and Dr. Frank V. Woodbury have been appointed inspectors.

Medical Men in the Parliament of Belgium.—In a recent issue of the *British Medical Journal* it is stated that the election of Dr. Piérart brings up the total number of members of the medical profession in the Belgian parliament to ten.

A Joint Meeting of Neurological Societies.—A combined meeting of the New York Neurological Society, the Philadelphia Neurological Society, and the Boston Society of Psychiatry will be held in Boston on Saturday evening, November 23d.

The Gloucester County, N. J., Medical Society met at Woodbury, N. J., on Thursday, November 21st. Dr. Henry D. Beyer, of Philadelphia, read a paper on the Treatment of Dysmenorrhea. Dr. George Evans Reading is the secretary of the society.

The Floyd County, Ga., Medical Society.—A special meeting of this society was held in Rome, Ga., on Thursday, November 14th. A paper on Enteropneosis was read by Dr. William P. Harbin, and one on Croup was read by Dr. Robert H. Wicker.

Buffalo Academy of Medicine.—The Section in Pathology of this academy held a meeting on Tuesday evening, November 10th. Dr. A. T. Kerr, professor of anatomy in Cornell University, Ithaca, N. Y., read a paper on the Shape and Relation of the Stomach.

A Sewage Disposal Plant for the City Home of Allegheny is to be erected at the city home at Claremont. The permit was issued from the office of the State Commissioner of Health recently. A similar plant is being erected for the Allegheny County Workhouse.

Rabies in Brooklyn.—Nine cases of hydrophobia have been reported to the department of health of Brooklyn since November 1st, and officials of the department have issued a warning to all persons bitten by dogs in Brooklyn to make haste to receive prompt treatment.

The Third Harvey Lecture will be delivered by Dr. D. L. Edsall, of the University of Pennsylvania, Philadelphia, on Saturday, November 30th, at 8.30 p. m., at the New York Academy of Medicine, the subject being *The Bearing of Metabolism Studies on Clinical Medicine*.

The Mount Moriah Hospital is being erected at 138 and 140 Second street, New York, by the Federation of Galilean Jews. The cornerstone was laid on Sunday, November 17th, \$5,000 was received for the benefit of the hospital.

The Jefferson County, Ala., Medical Society held a meeting on Monday, November 11th. Dr. George S. Brown read a paper on the Operative Treatment of Fractures and Dislocations, and Dr. W. S. Wilder spoke on the Treatment of Fracture of the Elbow. A general discussion followed.

A Postgraduate Course in Medicine.—The third weekly meeting of the postgraduate course of the Clark County, Ky., Medical Association was held on November 13th. The subject was Tumors, and lectures were delivered by Dr. I. N. Ruddell, of Louisville, and Dr. J. M. Melloy, of Sellersburg.

A Plague of Rats in San Francisco.—There has been an enormous increase in the number of rats in San Francisco, and a bonus is being offered for their destruction. Apart from their general destructiveness, they carry and transmit bubonic plague, and have often aided in spreading this pestilence through Asiatic cities.

The Hartford, Conn., Medical Society.—At the regular meeting of the Surgical Section of this society, to be held on Monday evening, November 25th, papers on the Pathology, Diagnosis and Treatment of Renal Tuberculosis will be read by Dr. W. R. Steiner, Dr. Martin W. Ware, of New York, and Dr. C. E. Taft.

Rochester, N. Y., Academy of Medicine.—The regular meeting of this academy was held at the Rochester Club on Friday evening, November 15th, and the following papers were read: A Working Formula for the Treatment of General Peritonitis, by Dr. W. B. Jones, and A Report of a Case of Primary Sarcoma of the Lung, by Dr. F. W. Seymour.

The Buffalo Medical Clinic held its regular monthly meeting on Thursday evening, November 14th, at the residence of Dr. John Middleton, with the president, Dr. Frost, in the chair. The paper of the evening was entitled Lumbar Puncture, and was read by Dr. A. H. Clark. Dr. F. J. Parmenter demonstrated a simple method of milk analysis for clinical purposes.

Banquet to Dr. Musser in St. Louis.—Dr. John H. Musser, of the medical department of the University of Pennsylvania, was the guest of honor at a banquet of the Alpha Omega Fraternity at the St. Louis Club, on Friday evening, November 8th. The following evening he addressed the St. Louis Medical Society on the Fundamental Principles of Therapeutics.

Medical Lectures for the Public.—The New York Academy of Medicine has arranged to hold a number of lectures during the winter which will be open to laymen. Cards of invitation have been sent out, giving a list of the subjects. They will include addresses on sanitation, hygiene, and subjects having a direct bearing on the preservation of health.

Springfield, Mass., Academy of Medicine.—At a meeting of this academy, held on Tuesday evening, November 12th, Dr. O. W. Roberts read a paper on a New Treatment of Typhoid Fever, and Dr. Joel E. Goldthwaite, of Boston, read a paper on the Present Conception of Non-tuberculous Affections of the Joints.

The Anniversary Meeting of the New York Academy of Medicine.—The anniversary meeting and reception will be held on Friday evening, November 29, 1907, at 8.30 o'clock. The anniversary discourse will be delivered by Colonel W. C. Gorgas, Surgeon, U. S. A., Chief Sanitary Officer, Isthmian Canal Commission. Subject: Sanitation of the Canal Zone. *Stenographic illustrations.*

Scientific Society Meetings in Philadelphia for the Week Ending November 23, 1907.—The Philadelphia Academy of Natural Sciences, the American Association of Natural Scientists, the Society of Naturalists and Physicists, the Physiological Society of Pennsylvania. *Tuesday, November 26th.* Meeting of the Philadelphia Academy of Natural Sciences, 8.30 p. m. The subject of the evening will be the "Evolution of the Human Brain," by Dr. J. H. Hodge.

To Investigate Military Medical Supplies.—A board of investigation has been organized to examine the military medical supplies of the United States. The board includes ambulances, medical wagons, transport wagons, and the various medical supplies used by the army. The board will report to the War Department on the efficiency of these supplies.

Meeting of the Red Cross Society. The third annual meeting of the Red Cross Society of the United States will be held in New York City on December 1st.

National Red Cross Society was held in New York on Tuesday afternoon, November 19th. An address was made by Major Charles Lynch, of the Medical Department of the Army. Major Lynch represented the United States Army in both the Russian and Japanese armies in the late war in the Far East.

Afternoon Pharmaceutical Meetings.—The second of this series of meetings was held in the Philadelphia College of Pharmacy on Tuesday, November 19th. Dr. A. Parker Hitchens spoke on the Opsonic Theory and Bacterial Vaccines; the Opsonic Theory in Relation to Tuberculosis was the subject of an address given by Dr. E. Burville Holmes, and Mr. M. I. Wilbert gave a quarterly review of the progress in pharmacy.

Black Hills, S. Dak., Medical Association.—At the annual meeting of this association, held recently in Deadwood, S. Dak., the following officers were elected: President, Dr. W. G. Smith, of Sturgis; vice-president, Dr. A. G. Allen, of Deadwood; secretary, Dr. Felix Ashcroft, of Deadwood; treasurer, Dr. F. S. Howe, of Deadwood; censors, Dr. A. M. Giffen, of Rapid City, and Dr. J. W. Freeman, of Lead.

American Urological Association.—A stated meeting of the New York Society of this association will be held at the New York Academy of Medicine on Wednesday, November 27th, at 8.30 p. m. The following papers on Uric Acid will be presented: Formation, Elimination and Effect on the General System, by Dr. E. E. Smith; Effect on the Urinary System, by Dr. James Pedersen; Treatment, Dietetic and Medicinal, by Dr. F. Le Roy Satterlee.

The Medical Society of the County of New York.—The annual meeting and election of this society will be held on Monday evening, November 25th, at the New York Academy of Medicine. Dr. Floyd M. Crandall will read a paper on the Legal Work of the County Medical Society, and a paper on the Relation of the Medical Society of the County of New York to the District Attorney of New York County will be read by Robert C. Taylor, Esq., Assistant District Attorney.

Lithuanian Hospital Association of Chicago.—This association has been organized for the purpose of building a hospital on the cottage plan in the southwestern part of the city. It is proposed to acquire a twelve acre tract of land at Western avenue and Forty-sixth street, upon which the buildings will be erected. The hospital will comprise six hundred one story buildings, of fire proof construction, an administration building and a central heating, refrigerating and lighting plant.

An International Institute for the Study of Nervous and Mental Diseases.—It was announced at the International Congress of Psychiatry and Neurology, held in Amsterdam recently, that arrangements had been made for the establishing of an international institute for the study of the causes of mental and nervous affections. The King of Italy has offered the use of a villa near Lugano, but the institute will later be transferred to Zurich.

The Sixteenth International Medical Congress will be held in Budapest, August 29 to September 4, 1909. The congress is divided into twenty-one sections, and the opening and closing sessions, which are of a general character. Preliminary programmes, containing announcements regarding conditions exacted of members and participants, may be obtained either from Dr. John H. Musser, chairman of the American committee, 1027 Chestnut street, Philadelphia, or from the secretary general of the congress, Budapest, viii, Esterhazy-utca 7.

Medical Inspection of Soldiers Under Orders for Service in the Tropics.—Medical officers of the United States Army will hereafter make a strict examination of all soldiers who have been ordered to Cuba or the Philippine Islands, and any who are found to be afflicted with

any tropical disease will be ordered to take transports either to Cuba or the Philippines will be vaccinated.

White River, N. H., Medical Association.—A meeting of the White River Medical Association was held on November 18th, at the residence of Dr. J. H. Hodge.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

November 14, 1907.

1. Muscle and Tendon Transference,
By E. H. BRADFORD and ROBERT SOUTTER.
2. The Seashore Treatment of the Tuberculous Arthritis
of Children, By ALBERT H. MILLER.
3. Two Cases of Hæmorrhage Following the Removal
of the Tonsils, By E. A. CROCKETT.
4. Congenital Dextrocardia, By W. F. DOOLITTLE.
5. An Abdominal Lesion Simulating Cancer,
By BENJAMIN B. CATES.

1. **Muscle and Tendon Transference.**—Soutter draws the following conclusions from a collection of thirty-five cases of tendon transference: Tendon transference is a procedure which offers with a minimum of risk a chance of great benefit. In none of the cases reported was the patient not benefited by operation, either by an improved position, or gain in functions. The immediate result in all was favorable, and the ultimate result in a number of cases surprisingly good. A comparative study of the writer's cases previously treated by simple tendon transference without periosteal insertion, and of tendon shortening of the relaxed tendons, with the results gained by the careful employment of silk strand elongation of efficient muscles and periosteal insertion into selected and mechanically favorable points on the foot and tibia, demonstrates the superiority of the newer over the older method. The strictest aseptic and antiseptic precautions are demanded. All of his operations mentioned were performed not only with all aseptic details as to the patient, instruments, and dressings, but with the use of gloves and masks by the surgeon, his assistants, and the assisting nurses. The amount of benefit finally gained in function and correction of disability is in favorable cases so great as to justify an expectation of equal benefit in all cases. Even in extensive paralysis something can often be done to improve the condition.

2. **The Seashore Treatment of the Tuberculous Arthritis of Children.**—Miller observes that the results obtained by seashore treatment are so far superior to those to which we have been accustomed that even the limited experience seems to have demonstrated as true the following principles: 1. Fresh air and an abundance of food, combined with sea bathing and freedom from unnecessary restraint, bring about a continuous, uniform, and rapid improvement in all cases of tuberculous arthritis of children. Orthopædic restraint should be applied only to the joint affected. Otherwise, activity should be encouraged. The beneficial effect of sea bathing more than compensates for any theoretical injury done by leaving off orthopædic apparatus for a short time daily. 2. Tuberculous sinuses which are bathed in sea water daily and which have no other treatment save a protective dressing improve with surprising rapidity. In most of his cases of tuberculous arthritis the patients were so improved by the summer treatment that they could safely return to their homes for the winter. A few cases required treatment during the whole year.

4. **Congenital Dextrocardia.**—Doolittle remarks that dextrocardia, a local transposition, is compara-

tively rare and should not be confounded with the not uncommon cardiac displacement due to disease. Blodgett states that in the examination of 20,000 recruits for the German army only two cases of dextrocardia were encountered. The condition is said to have been very exceptionally noted at birth, and generally was not suspected during life. Ballentyne, in his recent work on *Antinatal Pathology and Hygiene* (1906), states that there had appeared no evidence of the transmission of this anomaly by heredity. He cites E. Rogi's cases of brother and sister as being quite unique as an instance of family tendency. While dextrocardia is said to have been noted twice the number of times in males than it has in females, which may be accounted for by military and insurance examinations, yet many cases may indicate a tendency for transmission, under certain circumstances, in the male line. Aristotle was the first to describe transposed organs. It is of further historical interest that the wife of Henry IV of France (mother of Louis XIII) had the heart to the right of the sternum. Several theories as to the cause of this anomaly have been advanced. However, Ballentyne states that the inverted position of single organs is not to be regarded as directly related to the causes of situs transversus viscerum (due to malformation of the germs, Winslow), but is ascribed to local anomalies in development, which belong to a later stage in embryological formation.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

November 16, 1907.

1. The Criminal Responsibility of Insane Persons,
By MORTON PRINCE.
2. Alcoholic Insanities. A Study of Four Hundred and
Thirty-Seven Cases, By ALFRED GORDON.
3. The Disadvantages of Low Proteids in Infant Feeding,
By ALFRED HALL.
4. Prophylaxis in Epidemic Cerebrospinal Meningitis,
By A. SEIBERT.
5. Materia Medica and Pharmacy in Hospital Practice,
By M. I. WILBERT.
6. Intravenous Treatment of Syphilis,
By G. FRANK LYDSTON.
7. Plea for Physical Examination of All School Children,
By LINSLEY R. WILLIAMS.
8. Aeropathy or Compressed Air Illness among Tunnel
Workers, By SEWARD ERDMAN.

2. **Alcoholic Insanities.**—Gordon believes that alcoholic insanity presents special characteristic features, which it is not difficult, in the majority of cases, to distinguish from other analogous conditions. Acute cerebral alcoholism presents three states, viz., delirious, confusional, and stuporous. The intensity of these states varies according to whether we deal with a subacute form or with delirium tremens. The chronic form leads inevitably to dementia. In the course of development of the latter, delusions with hallucinations and illusions may and may not manifest themselves. If the latter symptoms may sometimes present a picture of any other psychosis, this resemblance is only apparent, as in the majority of cases close observation will enable us to find the proper interpretation. If the symptoms proper of cerebral alcoholism may sometimes develop in individuals affected with other psychoses, who happen to commit excesses or do so because of the perverted mode of thinking or feeling caused by the psychoses, it does not follow that alcohol is capable of producing these psychoses.

The conception of alcoholic melancholia, mania, paranoia, or paresis is unscientific, as it is not based on accurate observations.

4. Prophylaxis in Epidemic Cerebrospinal Meningitis.—Seibert remarks that epidemic cerebrospinal meningitis is communicable only by direct contact with fresh mucus from the nasopharynx of patients. A person who has taken the germ from a patient may acquire meningitis. Such a person may only acquire meningococcus pharyngitis and, thus acting as intermediary host, may carry this infection to others, near and far. It is necessary to find a therapeutical remedy which will kill the meningococcus in the nasopharyngeal mucus and mucosa. That the usual methods of disinfection, without destroying the organisms in the upper pharynx of all persons exposed to contact infection, cannot prevent the spread of this disease is the unanimous opinion of those best able to judge. During the last twelve years the author has used a solution of equal parts of resorcin and alcohol to disinfect the nasopharynx. The alcohol must be heated before the resorcin is added. A plug of absorbent cotton wound around the end of an applicator, dipped into this solution, is introduced into the nasopharynx. Swabbing is not necessary. Two applications, one past each side of the uvula, are sufficient. The curved end of the applicator must be long enough to reach the ceiling of the nasopharynx. The cotton must be well soaked with the solution, but only so that dripping does not occur. The applicator must be bent so as to suit the length of the respective nasopharynx. After two seconds the cotton may be withdrawn. The stomach must be empty. The contractions of the soft palate instantly press the fluid out of the cotton and into every fold of the mucous membrane. The alcohol penetrates deep into the mucosa with the resorcin, and there destroys every organism it comes in contact with. These applications are best repeated every forty-eight hours. Six treatments usually suffice to stop all secretions of postnasal mucus in a chronic case. In recent cases two applications in one sitting usually suffice. Infants one month old bear this treatment as well, and often better, than adults. Hundreds of cases treated solely in this manner have always given the desired result. The first application is usually felt during the next twenty-four hours, the later ones cause no inconvenience. The two cardinal symptoms of postnasal catarrh, namely, secretion of mucus and multiple swelling of the posterior cervical lymphnodes, usually disappear after three to six applications.

6. Intravenous Treatment of Syphilis.—Lydston reports ten cases in which he has used the intravenous injection with mercuric chloride, in all of which the action was superior to that of any other method. In malignant cases and lesions that seriously menace the integrity of the nervous system or viscera, intravenous injections would appear to afford a safe and sure method of relief. The speedy mercurialization of the blood with consequent prompt systemic effect of the drug, the relatively large doses permitted, the freedom from the painful effects of subcutaneous and intramuscular injections, and in general the absence of gastrointestinal disturbances, especially commend the intravenous treatment. Judging from

the series of cases, bowel irritation is exceptional from the use of large doses of mercury intravenously. There is apparently no tendency to sudden severe salivation from the intravenous use of large doses of the drug, although the mouth reacts promptly in some cases.

8. Aeropathy or Compressed Air Illness Among Tunnel Workers.—Erdman has had experience with the so called caisson disease, as he belongs to the medical staff of the contractors building the East River tunnels from Thirty-fourth street, New York, to Long Island City. He observes that the only active treatment of compressed air illness which is at once the rational treatment, and by all odds the most efficient, consists in recompression in a specially constructed lock, called "the medical air lock." There are two such locks adjacent to the physician's office in Thirty-fourth street. Each is similar to the tunnel lock in shape, but is divided into two compartments, the inner one corresponding to the tunnel, the outer corresponding to the entering lock. By this arrangement the physician or attendant can go in and out to the patient without disturbing the pressure in his chamber. The inner chamber is fitted with two wire couches, a telephone, electric lights, clock, pressure gauge, and glass porthole, through which the patient may be watched. It is heated by electricity to avoid danger of a steam leak. It is, indeed, gratifying and little short of miraculous to see a man completely paralyzed from his waist down or bent double with excruciating pains in his abdomen or legs placed in this lock, the pressure turned on, and long before the tunnel pressure is reached the paralytic is walking about, and the sufferer is smiling. In treating the patients, the pressure is rapidly raised to tunnel pressure, and at once very slow decompression is instituted at the rate of two minutes to one pound. Frequently after this treatment the pains return and recompression once, twice, or more times is advisable. For persistent pains, defying recompression, counter irritation, heat locally applied, massage, hot baths, or exercise, often accomplished the desired result; also the Faradic current is frequently of benefit. Very rarely anodynes are necessary; in these cases the pains may continue for two or three days and then finally wear off. Ergot, as advocated by Dr. Smith, has given no results. In 1,343 cases of 1,419 patients treated by recompression, complete relief being afforded 869, or 64 per cent.; 50 per cent. were completely relieved by one recompression; 28 per cent. were so much relieved as to be able to go home and carry out therapeutical measures, and only 8 per cent. failed to get relief at all. The cases of collapse and cardiac weakness naturally received appropriate stimulation. Retention of urine demands the catheter, and mild abdominal pains may sometimes be relieved by the administration of aromatic ammonia, ginger, peppermint, etc.

MEDICAL RECORD.

November 16, 1907.

1. Diseases of the Gastrointestinal Tract on the Borderland between Surgery and Internal Medicine.
By JOHN C. HEMMEYER.
2. Skin Grafting without Anæsthesia, By JULIUS T. ROSE.
3. The Relationship of Trauma to Insanity.
By ARTHUR CONKLIN BRUSH.

4. Cryptorchism Complicating Imbecility,

By B. S. TALMEY.

5. Radiograph of Mummified Foot.

By EUGENE H. EISING.

1. **Diseases of the Gastrointestinal Tract on the Borderland between Surgery and Internal Medicine.**—Hemmeter, in speaking on this subject, reviews the history of sixty-six cases of rectal cancer, in forty-eight of which the patient did not consult a physician until four months had elapsed since the first noticeable symptoms had become manifest. Taking them as a whole, five months had elapsed on the average before these patients had consulted him, and even of those who consulted him before three months had elapsed, only ten were operable upon; and of those ten only six lived two years after the operation. In thirty-six cases of carcinoma of the colon, twenty-one cases had symptoms of severe intestinal abnormalities existing from two to nine years prior to their consulting him. Of sixty cases of cancers of the small intestine, the average time from the appearance of the first symptoms to the consultation with the physician varied according to the situation of the cancer. In twelve cases of carcinoma of the lower ileum, this period was six months and fourteen days. There was a total of 162 cancers of the intestine as they presented themselves in private practice, all coming too late for an early diagnosis and arriving at a time when the most enterprising surgeon would decline to do anything more than an exploratory laparotomy. In the present state of our knowledge, therefore, the time of the early recognition of carcinomas of the digestive tract is so problematical that it will only exceptionally be possible. It is, therefore, of utmost importance that the researches of a biological and pathological nature aiming toward a serum diagnosis of malignant tumors should receive the encouragement of endowed institutions for medical research. About tuberculous peritonitis he formulates these three conditions under which a patient should be operated upon: 1. A diffuse tuberculous peritonitis, with high fever, is not a proper condition for operation. Such patients should be given a chance for improvement under conservative treatment. 2. Diffuse or localized forms of tuberculous peritonitis, with the objective signs of extensive irritation of the peritoneum (irritation meaning sensitiveness, not necessarily inflammation), and with symptoms of intoxication of the entire body. In these the operation should be postponed. 3. A general systemic infection and pronounced weakness should contraindicate the operation. Extensive tuberculosis of other organs (lungs, larynx, liver, pleurae), he thinks, is a contraindication for operation. Of eighty such cases, eleven patients could not be traced for a sufficient length of time; of the remaining sixty-nine cases, twenty were operative. Seven patients have been cured by operation, which makes a recovery of a little over one third of the cases. Seven of the twenty were males and thirteen were females. Of the seven cures, five were men. Forty-nine cases were treated medically; included in this medical treatment is the aspiration of extreme ascitic effusion by means of the same apparatus which is used for the aspiration of large pleuritic effusion. Thirty-two of the forty-nine patients treated by the conservative method were reported dead within eight

months to one year after they were first seen. Seventeen were reported still living one year after they were first examined for treatment. Five were living three years after the first conservative treatment, two four years after the treatment, six two years after the treatment, and four one year and three months to one year and five months after the first conservative treatment. All in all, this makes seventeen lasting cures out of forty-nine cases treated by the conservative method. This is about one third of the cases treated medically. While the results are about the same as for surgical treatment, it is necessary to point out that the duration of the cure after the time of the first medical treatment was much longer in those cases that were treated conservatively than in those cases that were treated by operation.

2. **Skin Grafting without Anæsthesia.**—Rose, of Brooklyn, remarks that the pain in skin grafting without an anæsthetic will be slight, and only for a moment, quite different from the long period of suffering and distress which accompanies a general anæsthetic, and then it is so very important in its results. The method should be: (1) Wash the skin with soap and hot water and flush it off with salt solution; (2) cut the graft with a sharp razor and spread it at once with a probe over the wound; (3) apply the dressing of silver leaf, silk protective tissue, gauze, and bandages; (4) redress in five days. The skin will have healed in ten days to two weeks. The following may be noted as possible causes of failure: (1) Grafts were moved in some way; (2) circulation was poor, œdema of the part; (3) fever, indigestion, menstruation, etc.; (4) unhealthy granulations to begin with; (5) pressure on the grafts; (6) hæmorrhage under the grafts; (7) antiseptics, either on the grafts or the granulations, or both; (8) grafts not applied early enough to avoid the growth of scar tissue, hence subsequent contraction, disfigurement, disability, etc. The author adds the history of seven cases.

3. **The Relationship of Trauma to Insanity.**—Brush says that it is a well established fact that secondary or organic dementia is never directly due to an injury, but is the natural result of other conditions which may be so caused, as cerebral hæmorrhage, meningitis, epilepsy, acute primary traumatic insanity, and acute primary dementia. It can be asserted, then, if such a chain of events is established, that the organic dementia is a natural result of the injury to the brain. As a result, the patient slowly develops loss of memory, especially for recent events, mental confusion, and defective reasoning, groundless likes and dislikes, deterioration of character, and occasionally delusions and hallucinations. Once developed, it is an unquestioned fact that the condition is permanent in character, but not necessarily in degree, as periods of temporary or permanent improvement are frequently seen. It has been the writer's experience that in young and healthy persons some degree of improvement can be noted after several years. This statement is based upon the condition noted in one hundred and six cases. Of these, forty had improved, twenty six improved, but relapsed, and thirty-nine had progressed. General paresis or

paralytic dementia is a disease which was ascribed to head injury by many medical writers, but at the present time the majority of such writers consider the disease of syphilitic origin.

BERLINER KLINISCHE WOCHENSCHRIFT
October 21, 1907.

1. Concerning the Pathologicohistological Changes Induced by Alcohol, By P. VON BAUMGARTEN.
2. Experimental Contribution to the Action of Yohimbin on the Female Genital Apparatus, By F. DAELS.
3. Concerning Combination Treatment of Malignant Neoplasms, By C. BECK.
4. Concerning the New Method of Quantitative Determination of Pepsin of Jacoby and Solms, By J. WITTE.
5. Attacks of Dysentery of Nervous Origin, By A. MUSZKAT.
6. A Case of Actinomycosis of the Lungs, By A. BULLING and W. RULLMANN.

1. Pathologicohistological Changes Induced by Alcohol.—Von Baumgarten alleges that the results of his experiments on animals show that there is no basis for the clinical theory that chronic imbibition of alcohol is apt to call forth serious necrobiotic and cirrhotic changes of the parenchymatous organs, particularly of the liver. The only pathological change ascribable to the alcohol which was regularly found at the postmortem examination of the animals that died of acute alcoholic intoxication consisted of the presence of numerous hæmorrhagic erosions of the gastric mucous membrane in rabbits. In the experiments of some authors it has been questioned whether such erosions were not mechanical and due to the introduction of the stomach tube, but in these cases this cause is excluded, because the stomach tube was not used.

2. Yohimbin.—Daels asserts, as the result of his experiments, that yohimbin does not possess all the powers that have been claimed for it, and that its use is not unattended with danger, but confirms Toff in the statement that it is a drug of value in cases of menstrual irregularity and pain due to an insufficient supply of blood to the uterus.

3. Combination Treatment of Malignant Neoplasms.—Beck recommends as extensive an extirpation as possible of the malignant growth, with an attempt to secure primary union of the wound, or where large defects are produced to cover such defects by means of an immediate plastic; a few weeks later exposure of the cicatrix to the x rays at two day intervals until reaction occurs.

4. Quantitative Determination of Pepsin.—Witte recommends the test suggested by Jacoby and Solms as easily performed, cheap, and sufficiently accurate for practice.

5. Attacks of Dysentery of Nervous Origin.—Muszkat reports a case in which the patient, a woman thirty years of age, suffered from whitish, fluid, mucous, rectal discharges, wholly unaccompanied by pain, that persisted for some time. Proctoscopic examination was not painful, and revealed little except a hyperæmic condition of the mucous membrane. The few similar cases which have been reported are discussed, together with the peculiarities presented by this case.

6. A Case of Actinomycosis of the Lungs.—Bulling and Rullmann contribute a well observed

and studied case to the literature on this disease. The patient was a woman, thirty-four years of age; the diagnosis was made in 1897 from the bacteriological examination of the sputum; treatment was maintained up to the patient's death in 1906. The findings at autopsy are given briefly.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.
October 29, 1907.

1. Physiology and Pathology of Infantile Nourishment, By PFAUNDLER.
2. Contributions to the Theory of Immunity. Opsonins, By STRUBELL.
3. The Question of the Surgical Treatment of the Commencing Tuberculous Phthisis of the Apex of the Lung, By HART.
4. Clinical and Bacteriological Remarks Concerning Epidemic Cerebrospinal Meningitis, with the Histories of Three Sporadic Cases, By BENNECKE.
5. The Connection between Bronchial Asthma and Pulmonary Œdema, By VON HÖSSLIN.
6. Carbohydrate Uria in Delirium Tremens, By KAUFMANN.
7. Delirium Tremens after Deprivation of Alcohol, By HOSCH.
8. Multiple Cavernous Hæmangioma in the Intestine, By SAKAYE OHKUBO.
9. Sarcoma and Traumatism, By ORTH.
10. A Means for Securing Constant Poles in the Wims-hurst Electric Machine, By MAYERHAUSEN.
11. The School for Tropical Medicine in Liverpool, By NEUMANN.

1. Physiology and Pathology of Infantile Nourishment.—Pfaundler's paper is divided into four chapters; the first, by Pfaundler himself, entitled infantile nourishment and allied theories, is devoted to the consideration of the questions: 1. Does milk contain hæmolytic or bacteriolytic complement? 2. Can complement introduced into the infant with the milk pass the digestive tract and become a true bodily constituent of the infant? 3. How is the complement constituent formed in the infant according to race, individual, age, nutrition, etc.? The second chapter, by Dr. Moro, deals with the behavior of the serum complement in the infant, the third with potential complement constituent in natural and artificial feeding, and the fourth with dystrophy of the infant. The final two chapters are by Professor Pfaundler.

3. Surgical Treatment of Commencing Tuberculosis of the Apex of the Lung.—Hart is commendatory of the theory advanced by Freund that a certain kind of alveolar emphysema of the apex of the lung is due to a faulty development of the cartilage of the first rib, which produces a stenosis of the upper aperture of the thorax and exerts injurious pressure upon the adjacent lung tissue, while as a result of the greater rigidity of the shortened cartilage and of the tendency to various processes of ossification the functional capacity of the tissue of the apex of the lung is injured. The operative procedure advocated by Freund to correct this condition also meets with his approval.

5. Connection between Bronchial Asthma and Pulmonary Œdema.—Von Hösslin reports a case of pulmonary œdema which occurred in a woman, thirty-two years old, who had been subject to attacks of asthma, and argues from this a relation between the two conditions.

7. Delirium Tremens after Deprivation of Alcohol.—Hosch reports the case of a man, thirty-five years of age, who had been a hard

drinker and developed delirium tremens, preceded by an epileptic attack. There was no history of traumatism, and Hosch believes that the exciting cause of the epileptic attack and of the delirium tremens was a sudden deprivation of alcohol.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

November, 1907.

1. Gastromotor Insufficiency due to Perigastric and Duodenal Adhesions, By F. BILLINGS.
2. Chylous Ascitis and Chylous Pleurisy in a Case of Lymphocytoma involving the Thorax Duct, By G. DOEK.
3. A Contribution to the Study of Long Continued Fevers, By H. C. MOFFITT.
4. True Intestinal Dyspepsia, By M. EINHORN.
5. Paroxysmal Tachycardia, By E. SCHMOLL.
6. Dilatation of the Heart, By T. A. CLAYTON.
7. A Résumé of the Physiology of the Kidney with a View to Therapeutics, By V. E. HENDERSON.
8. Otitic Brain Abscess, By E. B. DENCH.
9. Actinomycosis of the Skin of the Foot, By L. BUEGER.
10. Hemorrhages in the Course of Bright's Disease, with Especial Reference to the Occurrence of a Hemorrhagic Diathesis of Nephritic Origin, By D. RIESMAN.
11. A Clinical Study of Five Hundred Cases of Conjunctivitis, By H. MCKEE.
12. The Oponic Index in Erysipelas and its Relation to Treatment by Inoculation of Killed Streptococci, By E. H. SCHORER.

1. **Gastromotor Insufficiency Due to Perigastric and Duodenal Adhesions.**—Billings observes that when the motor power of the stomach is insufficient its contents will be only partially discharged, or it will become entirely empty only after a long time. The causes for gastromotor insufficiency are: 1, a deficient muscular tone, or myasthenia, and, 2, mechanical hindrance. The former of these is very common, and if without dilatation does not show motor insufficiency to a degree to produce stasis of stomach contents. The latter is usually due to stenosis of the pylorus and results in dilatation and stasis. The motor function is very important in the digestive process, and its insufficiency may be due to perigastric and duodenal adhesions. The adhesions are most frequently due to cholecystitis, but may also result from ulcer of the stomach or duodenum. Perigastric adhesions have acute or chronic symptoms, according to the age of the adhesions. If they produce narrowing of the gut or the pylorus, with impairment of motility, surgical interference will be required. If they are not dense in character and are not associated with atony or myasthenia of the stomach, surgical procedures will not be indicated, especially if there is gastroptosis and the patient is neurotic.

3. **Long Continued Fevers.**—Moffitt narrates an interesting case of this character, fatal after an exploratory abdominal section, and gathers together a not inconsiderable literature of the subject. In these reported cases febrile periods of three to seven days alternate with afebrile intervals of about the same duration. As the disease progresses the febrile periods lengthen, and continued fever of a remittent type may be present for weeks or months. In the author's case the last attack of fever was of seventy-six days' duration. The temperature usually rises and falls slowly, but there may be an abrupt rise, with or without a chill. Sweating is not uncommon. In the intervals

between the first few febrile attacks the patients may look and feel perfectly well, but weakness, anæmia, and cachexia gradually appear. Fever is frequently the first symptom, which may be followed by pain in the abdomen, icterus, and enlargement of glands in general. Regularly repeated attacks of pyrexia during long periods of time suggest tuberculous lymphoma, Hodgkin's disease, or sarcoma. In some cases the liver alone is involved.

5. **Paroxysmal Tachycardia.**—Schmall gives a study of nine cases to show that in this condition we are dealing not with a single pathological entity, but with different pathogenic forms. The condition is characterized by periods of rapid pulse rate, of sudden onset, and abrupt termination. The heart rhythm is double or four times the normal, and there may be tricuspid insufficiency during the tachycardia. The attacks are characterized by sudden onset of tachycardia, sudden termination, and absence in most cases of pronounced subjective symptoms except at the beginning and the end of the paroxysm. There may be a feeling of chest constriction, as in angina, choking and air hunger, and distressing palpitation at the beginning of the attack, and equally distressing symptoms at the end. The rapid pulse rate may last only a few minutes, or it may be prolonged for days. Four ætiological groups are considered: 1. Cases occurring in patients with previously damaged heart. 2. Cases in patients with dysthyreosis. 3. Cases in patients with central nervous lesions. 4. Cases of apparently functional character.

6. **Dilatation of the Heart.**—Clayton thinks this condition results from one of the following factors: (1) An increase in the amount of work to be done by the heart, as in chronic nephritis, valvular disease, etc.; (2) an impairment of the power of the myocardium from degenerative changes, toxic conditions, etc.; (3) failure of the cardiac muscular tone, as in severe nervous shock, etc. The symptoms are sleeplessness, dyspnoea, œdema of the lungs, congestions of abdominal organs and the resulting consequences. The diagnosis is made from the foregoing symptoms and from the throbbing of the præcordium, the distension and pulsation of the jugulars, and the increased cardiac dulness. This condition must be distinguished from simple hypertrophy and pericardial effusion. In attempting to relieve this condition the two cardinal points to be considered are: (1) To lessen the amount of work which is required of the heart and (2) to increase the power of the heart to do its work. The first is accomplished by bodily and mental rest, light diet, purgation, relaxing the peripheral vessels, and bleeding, the second by administration of cardiac stimulants, baths, judicious exercise, etc.

7. **Physiology of the Kidney.**—Henderson thinks it desirable to summarize the existing views as to the physiology of the kidney. As to Brown-Séquard's theory concerning an internal secretion of the organ, he believes it less plausible than when first enunciated. Great loss of functioning kidney substance does lead to abnormal metabolism, but does not prove an internal secretion. The synthetic function of the organ enables it to form lactic acid from glycogen and lactic acid, and oxalonic acid, from glycogenic acid and glucose.

and various carbonic acids. The analytic function enables it to split uric acid into urea and to oxidize other purin bodies. By dehydration it also derives kreatinin from kreatin. These functions are subordinate to the main function of excretion of urine from the tubules. The author is unable to indicate the probable cause and method of treatment of uræmia. There is still great lack of knowledge concerning the kidney and its function, and this explains the fact that we are unable to force it to excrete when it is diseased.

8. Otitic Brain Abscess.—Dench analyzes a series of cerebellar and a series of cerebral abscesses. In the former the abscess is usually due to infection of the lateral sinus or of the petrous portion of the temporal bone. The possible symptoms are headache, vomiting, vertigo, nystagmus, slow pulse, retraction of the muscles of the neck, stupor, strabismus, unequal pupils, irregular respiration, and optic neuritis. The mortality is about 70 per cent. in cases which are submitted to operation. In cerebral abscess, of the one hundred cases examined more than three fourths followed chronic middle ear suppuration. Symptoms which were prominent in many of the cases were headache, vomiting, slow pulse, vertigo, coma, stupor, mental dulness, and aphasia. Optic neuritis was frequently observed, less frequently nystagmus, unequal pupils, convulsions, and paresis. The best results from operation in these cases were obtained when the abscess was drained through the tegmen. In cases in which delay is possible it is desirable to perform the operation in two stages, with an interval of twelve or twenty-four hours between them.

10. Hæmorrhages in Bright's Disease.—Riesman states that there are four ways in which the relation of the hæmorrhagic diathesis to renal disease may be interpreted: 1. The hæmorrhagic diathesis may be an accident not related to the nephritis, as when caused by septic infection or ulcerative endocarditis. 2. It may be the cause of the nephritis. 3. The two may be due to the same cause. 4. The renal disease may be the cause of the hæmorrhagic diathesis, by hypertension, arterial disease, or toxæmia. The conclusions from the author's study are: 1. Bright's disease may cause hæmorrhage from the nose, uterus, lungs, and stomach, into the brain, eye, and ear, also an hæmorrhagic diathesis. 2. This diathesis is characterized by bleeding into the skin and from the mucous membranes. 3. Its true cause is unknown; it is probably a toxine analogous to the hæmorrhagin of snake venom. 4. In the other types of bleeding, arterial disease and hypertension are the chief factors. 5. The prognosis in all cases of nephritic hæmorrhage is unfavorable, and is generally hopeless when the hæmorrhagic diathesis exists.

ANNALS OF SURGERY

November, 1907.

1. Multiple Carcinomata Following Chronic X Ray Dermatitis, By C. A. PORTER and C. J. WHITE.
2. Puerperium, By D. C. SINGLEY.
3. Cutaneous Horns, By J. C. ROY.
4. Nerve Dissociation, By M. E. BAER.
5. Nerve Dissociation. A New Method for the Surgical Relief of Certain Painful or Paralytic Affections of Nerve Trunks, By W. W. BARCOCK.

6. Operations on the Spinal Column, By W. S. BAER.
7. The Surgery of the Thoracic Duct, By H. P. DE FOREST.
8. Dermoid Cyst of the Head, By J. S. HORSLEY.
9. Stylohyoid Ossification, By T. DWIGHT.
10. Acute Dilatation of the Stomach, By J. C. BLOODGOOD.
11. Tuberculosis of the Cæcum, By C. G. CUMSTON.
12. Strangulation Resulting from Distension of Hollow Viscera, By C. VAN SWALENBURG.
13. Abnormal Ileocecal Fold as a Cause of Partial Occlusion of the Bowel, By C. H. WHITEFOOT.
14. A New Liver Suture, By V. B. KNOTT.
15. The Operative Treatment of Calculi Impacted in the Pelvic Portion of the Ureter, By H. M. RIGBY.

1. Multiple Carcinomata Following Chronic X Ray Dermatitis.—Porter and White offer the following conclusions: 1. For the atrophic condition of the skin and the telangiectases nothing can be done. 2. Hypertrophic changes, keratoses, and warts may with safety be treated in the usual manner. If such treatment fails, excision with or without skin grafting will probably relieve the pain and result in a cure. 3. Excision and grafting will prove to be the best treatment for recurrent fissures. 4. All ulcerations which, under ordinary treatment, remain open, after three months should be thoroughly excised and very carefully examined. The subsequent treatment depending upon the microscopic examination should be skin grafting, further excision and grafting, or amputation. 5. As the history of most of such cases of severe and chronic dermatitis dates back to early exposures, it is hoped that with greater knowledge their number will diminish. 6. All persistent x ray ulcerations should be excised as early as possible to prevent subsequent malignant degeneration.

5. Nerve Dissociation a New Method for the Surgical Relief of Certain Painful or Paralytic Affections of Nerve Trunks.—Barcock draws the following conclusions: 1. The surgical dissociation of nerve fibres may be carried out without producing gross evidence of reduction in the conducting power of the nerve. 2. Dissociation is probably not so likely to produce paralysis as thorough nerve stretching. 3. In certain cases of neuritis, nerve dissociation is less dangerous and more potent in relieving symptoms than nerve stretching. 4. In certain cases of motor paralysis following inflammation or injury of nerve trunks dissociation may be followed by remarkable and almost immediate return of function. 5. In the treatment of certain forms of peripheral paralysis due to interruptions of nerve paths by masses of fibrous or other tissue, the operation of nerve dissociation is worthy of trial. Especially is it warranted in cases of brachial birth palsy, where no great lesion is found in the nerve trunks or where extensive resections, anastomoses, or forms of nerve bridging, by catgut or other foreign materials, would otherwise be employed.

6. Operations on the Spinal Column.—Baer narrates three cases of spinal injury and concludes: 1. The spine is the seat of numerous affections which differ materially in their aetiology. 2. These affections simulate the symptoms of other diseases to such an extent that mistakes in diagnosis are frequently made and patients subjected to therapeutic remedies which cannot be beneficial to them. 3. In cases of persistent sciatica or pain along other nerves

a radiograph of the spine should be made to determine whether there is not some point of bony pressure causing the trouble. 4. Operations on the spine for the removal of these troubles can be made in many cases with perfect ease and safety. 5. Operation offers the quickest and most certain mode of treatment in a majority of such conditions.

7. The Surgery of the Thoracic Duct.—De Forest offers the following conclusions: 1. The thoracic duct probably has collateral branches which are always able, in case of accident, to perform the functions of the main duct. Further anatomical investigation of this subject is very desirable. 2. The sudden closure of the duct in man has had as its result only transitory disturbance in the nutrition of the body. 3. Chylorrhoea occurring after a wound of the duct must, if possible, be immediately controlled. 4. The wounded thoracic duct may be treated precisely as a wounded bloodvessel would be treated. 5. Suture is the ideal method. If it is technically possible it is to be preferred, since the duct then remains potent. 6. In all cases in which suture can be performed a ligature should be applied. If ligature is technically impossible, suture of the surrounding tissue, or application of clamps or tamponading, should be resorted to.

AMERICAN JOURNAL OF OBSTETRICS.

November, 1907.

1. Back to an Old Idea, for it Introduces a New Principle in Surgery, By R. T. MORRIS.
2. Observations and Reflections on Gallstone Diseases, By H. O. PANTZER.
3. Tuberculosis of the Kidney, with Report of Cases, By R. B. HALL.
4. The Toxæmia of Pregnancy as observed by the Gynecologist, By R. R. HUGGINS.
5. Present Treatment of Puerperal Sepsis, By J. E. CANNADAY.
6. End Results in Operations for Prolapsed Uteri, By J. W. KEEFE.
7. Phlebitis following Abdominal Operations, By O. G. PFAFF.
8. Formation of an Artificial Vagina by Intestinal Transplantation, By J. F. BALDWIN.
9. Some of the Causes of Painful Menstruation in Young Unmarried Women, By W. A. B. SELLMAN.
10. The Menstrual Function. Its Influence upon Chronic Inflammatory Conditions of the Appendix, By F. REDER.
11. Lithopædion or Lithiokelyphopædion, Thirty-Two Years Old, Successfully Removed from a Woman Sixty-seven Years and Seven Months of Age, By H. E. HAYD.
12. Ophthalmia Neonatorum, a Pathological Anachronism, By F. P. LEWIS.
13. Premature Interruption of Pregnancy, By J. A. LYONS.
14. Typhoid Perforations, By J. PRICE.
15. When Shall We Perform Myomectomy and When Hysterectomy in Uterine Fibromyomata? By J. N. WEST.
16. Enucleation of Large Extramural Intraligamentary Uterine Myomata without Mutilating any Pelvic Organ. Two Cases and Remarks, By H. HEMMEL.
17. A Case of Subperitoneal pelvic Fibroid Complicating a Four Months' Pregnancy. Hysterectomy. Enucleation of Fibroid. Secondary Hemorrhage One Week after the Operation. Pelvic Abscess. Rectovaginal Fistula. Recovery, By G. F. ZIMMER.
18. Temporary Uterovaginal Fistula after Panhysterectomy for Fibroid of the Uterus, By J. JONES.
19. Editorial Operations during Pregnancy, By J. H. CALDWELL.
2. Observations and Reflections on Gallstone Diseases. Pantzer notes the frequency of infectious

diseases in the gallbladder, also that the infection is paramount in significance compared with the influence of the gallstones. Kehr thinks infection is present even in the mildest form of colic. Riedel thinks that dropsy of the bladder is the starting point of acute cholecystitis, and that the immediate cause of the colic is usually not known. The author believes there are cases which are unattended by infection at the time of the attack of colic, and also cases in which an associated high temperature may be due to a complicating disease. He also questions Riedel's statement that dropsy always begins an attack of cholecystitis. Every case of gallstone colic with raise of temperature demands examination to detect inflammation gangrene and pericystic involvement, or excessive enlargement and possible rupture. Absence of fever indicates a condition which is devoid of danger and warrants delay in surgical procedures. A favorable condition also exists when the gallbladder is neither tender nor enlarged.

3. Tuberculosis of the Kidney.—Hall states that renal tuberculosis is a localized affection limited to one kidney in the majority of cases. If a very early diagnosis could be made, the percentage of unilateral cases would be found to be still larger. The disease may be limited to the kidney, to the exclusion of the ureter and bladder. Rarely is the disease secondary to tuberculosis of the bladder. When the latter occurs the prognosis is far less hopeful. The principal symptoms are lumbar pain, dysuria, polyuria, frequent micturition, pyuria and hæmaturia with acid urine, tubercle bacilli in the urine, loss of flesh, night sweats, pallor, and elevation of temperature. The use of the x ray is valuable in deciding as to the presence of stone. Cystoscopic examination should be made in all cases, and the urine should be collected from each kidney for examination after irrigating the bladder with normal salt solution. Renal tuberculosis should be suspected in those who complain of irritable bladder, in which some other good cause does not account for this condition. An early operation with drainage would result in saving many kidneys which are destroyed by a few months' delay.

5. Present Treatment of Puerperal Sepsis and Puerperal Sepsis.—Cannaday remarks that the accepted treatment of puerperal sepsis is not experimental nor based on theoretical deductions, but on the knowledge that all offending material should be removed from the uterine cavity. The dull curette should be used for the purpose if the finger is ineffectual. If there is an offensive discharge with bleeding, the sharp curette, followed by thorough irrigation, may be used. The treatment of puerperal sepsis is as yet undetermined and unsatisfactory. Yeasts, nucleins, sera, and opsonins have all been tried with more or less satisfaction, and with one of these, in all probability, lies the treatment of the future. The genitourinary and eliminative organs must be encouraged to activity, the skin being frequently bathed, the bed kept warm, and the elimination of the poison favored by abundance of pure air, abundant drinks of water, and large quantities of saline solutions by the bowels or under the skin. Heart tones are about the only medicinal agent which are indicated.

7. **Phlebitis Following Abdominal Operations.**—Pfaff thinks he is justified in presenting the following propositions: 1. Many supposed cases of this condition are simply extensive aseptic blood clots without any true inflammation. 2. An abnormal plasticity of the blood must be present in order that thrombosis should result from surgical treatment. 3. The clot usually sustains a mild infection, which is introduced into the wound at the time of the operation, an invasion of the vein wall resulting. 4. As stagnation is such an important element in the aetiology of this condition, the liability to thrombosis will be lessened by getting the patient out of bed as early as possible. 5. As an abnormally high degree of plasticity of the blood is essential in developing the disorder, the blood should be tested by some recognized standard in every case, and if found in a dangerous condition operation should be deferred until it can be brought back to a normal condition.

THE JOURNAL OF NERVOUS AND MENTAL DISEASE.

November, 1907.

1. A Case of Aphasia, both "Motor" and "Sensory," with Integrity of the Left Third Frontal Convolution; Lesion in the Lenticular Zone and Inferior Longitudinal Fasciculus, By F. X. DERCUM.
2. Dispensary Work in Nervous and Mental Diseases, By SMITH ELY JELLIFFE.
3. Traumatic Lesion of the Pons and Tegmentum with Direct Retrograde Degeneration of the Median Fillet and Pyramid, and of the Homolateral Olive, By ADOLF MEYER.

1. **A Case of Motor and Sensory Aphasia.**—Dercum, after describing his case, says: "The question arises, how can such a lesion give rise to aphasia—to motor aphasia or the anarthria of Marie upon the one hand and to sensory aphasia or aphasia of Wernicke on the other? The lesion of the lenticular zone readily explains, according to Marie's view, the anarthria. It would seem further that the degeneration of the posterior longitudinal fasciculus produces sensory or Wernicke aphasia by isolating the zone of Wernicke and, secondly, the degeneration of this fasciculus also produces alexia because it cuts off all communication between the zone of Wernicke and the visual centres. His case, therefore, has been one of great interest, for it is most suggestive. We know very little of the function of the striated body. It is a structure which is persistent throughout all the vertebrate forms, and in the lower vertebrates, as is well known, it constitutes all of the cerebrum. Even when we ascend the scale as far as birds we find that in them the pallium, the part corresponding to our cortex, is still very rudimentary and that the striated bodies must carry on the cerebral function. In man the striated body has retained so great a size that it cannot possibly be regarded as a rudimentary or vestigial organ. In spite of the enormous development of the pallium, this organ has persisted in the higher vertebrates to such a degree as to necessitate the inference that it has most important functions. That the striated body should be concerned in speech presents nothing inherently improbable. While he does not mean to compare the speech of the parrot with the speech of man, the facts justify the inference that the parrot talks with his striated body; this view has also been expressed by Kalischer. Unfortunately physiologists have thus

far given us but little information as to the function of the striated body; it is possible that the propulsive movements of Majendie, the circus movements of Nothnagel, have something to do with movements of coordination. However, the facts of the special disturbances stated by Majendie and by Nothnagel have been questioned and denied, and we are of necessity forced to draw our inferences from pathological and clinical evidence. The function performed by the lenticular nucleus appears to be one of coordination of complex muscular movements, and motor speech is preeminently a function requiring the coordination of complex movements; e. g., the movements of the tongue, palate, lips, larynx, and of the muscles concerned in expiration. A derangement of this intricate coordination means of necessity abarthria, means of necessity the impossibility of speech enunciation. Just in proportion as the substance of the lenticula is destroyed, so must there be an absence of motor speech; just in proportion as the function of the lenticula is deranged, so must there be present an anarthria.

THE MILITARY SURGEON.

November, 1907.

1. The Ideal Medical Department in the Field, By VALERY HAVARD.
2. What Is the Most Effective Organization of the American National Red Cross for War, and What Should Be Its Relations to the Medical Departments of the Army and Navy? (Enno Sander Prize Essay), By CHARLES LYNCH.

2. **The American National Red Cross in War.**—Lynch in his Enno Sander Prize Essay observes that so far the work of the American Red Cross has been entirely devoted to relief of suffering in disasters. But we should be prepared for war, although war seems a remote possibility to us. He says that the working personnel which the Red Cross may be called upon to supply in time of war will consist mainly of physicians, possibly pharmacists, both men and women nurses, bearers, cooks, drivers, and laborers. In addition a number of men of business experience will be required for positions connected with administration, the collection and distribution of supplies, and like duties. Women nurses, generally, in both the empires of Russia and Japan, are largely educated under Red Cross auspices. In both countries this is necessary, as otherwise not enough trained women nurses could be procured for the needs of the army and navy in war. Fortunately there is no necessity for us to educate women as nurses, as the various hospitals and training schools throughout the country furnish so many that an adequate supply would always be available for any war. To us, therefore, the more simple alternative is presented of merely enrolling women nurses who have already received their professional training, and the same is true of physicians and pharmacists, if the latter are to be employed. The supply of men nurses, of whom many are likely to be needed, offers a much more serious problem, and one to which no very satisfactory solution can be given. Obviously our Red Cross cannot maintain hospitals for training such nurses, and the country generally affords no great number. Probably the best plan in practice will be to employ women as nurses wherever they can be used, and to assign all men procurable who have had any experience in nursing to that par-

ticular duty. Considerable difficulties are apparently experienced in all countries in securing a competent force of Red Cross bearers. If such men could be enrolled by the branch societies in time of peace and then given simple instruction in first aid and bearer duties, preferably as companies, this would be the most satisfactory plan. It is practically the method followed in Great Britain. Even on the advent of war, by organizing such companies, a great deal can be accomplished, and it would probably not be difficult to obtain men at this time. The business men required for administrative positions can hardly be given special training in peace. There will be great advantage, however, in enrolling as large a personnel of all classes as possible in time of peace, so that the Red Cross may have something to depend upon if war comes; moreover, naturally all men and women enrolled will take some interest in Red Cross matters, so they will be better prepared to perform the duties which fall to them in war than persons who have previously given no attention to voluntary aid work. There is no question but that the working personnel of the Red Cross, when employed in the army or the navy, should be under army or navy discipline and command as the case may be. This should be settled at the outset, and none should be accepted except with this understanding. Infractions of law or discipline on the part of individuals of the Red Cross should ordinarily be punished by summary discharge by the senior medical officer, with report to the immediate commander and to the surgeon general, but for more serious offenses the same officer should prefer charges in the proper form. Special orders will, of course, be required for Red Cross personnel as well as for officers and soldiers, and their actions must be equally governed by such orders. While the value of women as army nurses is now universally admitted, their sphere of usefulness is limited, whether they belong to the army or to the Red Cross. Perhaps it would not be wise for us to confine the services of women nurses absolutely to home territory and to hospital ships by iron rules as do the Japanese, but it should be understood with us that women will only be used under the rarest circumstances on the lines of communication, and that they will never be employed with the advance. The experience gained from Russia in her recent war with Japan was that with women in the field medical organizations at the front, on account of the danger from the fire of the enemy these were likely not to be carried far enough toward the line during battle to be effective. This is not an imputation on the courage of the women nurses of the Russian army, for this would be unjust, as many of them expressed themselves fearlessly; it shows rather the effect that the presence of women had upon the minds of the enemy's commanders.

THE JOURNAL OF THE MEDICAL ASSOCIATION

November 7, 1907.

1. Glaucoma Iridectomies. By R. A. DODD.
2. Malignancy of the Antrum, Nasal Sinus, and Maxilla. By A. LEVY, JR.
3. The After History of Two Cases of Interscapulothoracic Amputation for Sarcoma. By ALBERT THOMPSON.

1. **Glaucoma Iridectomies.**—BERRY remarks that statistics of the results of glaucoma operations

are apt to be misleading. Even the question as to whether a correct diagnosis between simple glaucoma and optic atrophy has been made in many cases included in such statistics, is open to doubt. Iridectomy is capable of permanently arresting glaucoma at all stages and in whatever form it makes its appearance. The longer the disease has lasted, irrespective altogether of the destruction which it has caused, the less likely is iridectomy to succeed. Iridectomy should in all cases be done as soon as there is evidence of the disease being confirmed, and it should also always be tried as a first measure, however far the disease has advanced. The operation should be followed up by treatment with miotics, and this treatment should be continued indefinitely. In operating, the incision should be made with a keratome, and placed as peripherally as possible without leading to difficulties. The amount of iris removed need not be as great as originally recommended by von Graefe. Cases in which iridectomy followed up by miotics fails should be treated by the formation of a cystoid cicatrix, the section into the eye being made so as to include the tissues behind the root of the iris.

4. **The After History of Two Cases of Interscapulothoracic Amputation for Sarcoma.**—Thompson says that, since the publication in 1887 of Paul Berger's well known monograph on interscapulothoracic amputation, the operation has been established on a firm basis. The mortality, which previous to 1887 was as high as 29 per cent., has, like that of all major operations, as a result of improvements in wound treatment fallen considerably, and in the last series of cases recorded by Jeanbrun and Riche it amounted to 7.8 per cent. The only addition which has been made to the details of the operation is the injection of cocaine or one of its derivatives into the brachial nerve cords before dividing them, with the object of minimizing shock. Reference is made by most writers on the subject to the rapidity with which the shock of the operation is recovered from, and the rapidity of healing and recovery of strength, the patient as a rule being able to leave his bed within a few days of its performance. This is due in part only to the excellence of the operation, which is so planned that the loss of blood is reduced to a few teaspoonfuls; the rapidity of recovery is also to be associated with ridding the patient of a painful disease and the return of refreshing sleep, and, which is probably still more important, the arrest of the absorption of toxic products from the malignant growth on account of which the operation has been undertaken. It is frequently observed in cases of rapidly growing sarcoma, especially in young people, that the irregular fever, the quickened pulse, the pallor, and other signs of toxæmia, disappear as soon as the growth is removed. The after history in many of the cases subjected to interscapulothoracic amputation for sarcoma is in sad contrast to the brilliant results which immediately follow the operation. We believe it would be sadder still if it were possible to follow out all the cases. The author reports two cases of his own. In the first of these cases the disease reappeared before the end of two years in the form of a rapidly growing tumor in Scarpa's triangle; while in the second, because the patient left the hospital, there were already signs of the presence of the disease in

the pleura, and she succumbed to this within four months of the first appearance of the primary growth. He adds four more cases. The first was a man, twenty-five years old, in whom the thigh was amputated through its middle third for periosteal sarcoma springing from the inner condyle of the femur; he died a year later of a secondary growth in the skull. The next was a girl, twelve years old, in whom amputation was performed through the middle third of the thigh for periosteal sarcoma of the tibia. She died nine months later of secondary growths in the lung. The next was a boy, nineteen years old, in whom, after amputation at the hip, he removed the right half of the pelvis for sarcoma commencing in the femur; he died of secondary disease in the lung three months later. The next was a boy, eleven years old, in whom he performed amputation at the hip for periosteal sarcoma of the femur; he died six weeks later of disease in the lung. The last, and only encouraging one, is that of a woman, thirty-nine years of age, who was the subject of periosteal sarcoma of the upper end of the femur; the bone gave way at the commencement of the operation; he disarticulated at the hip, after ligaturing the common iliac artery by the transperitoneal method two years and a half ago, and she is living and in the best of health at the present day. Although the histological examination of the growth was undertaken in every case, the number observed is too small to allow of any conclusion being drawn as to the relations between the minute structure of the tumor and its liability to give rise to metastasis.

THE PRACTITIONER.

November, 1907.

1. The Lower Limit of Age for School Attendance.
By A. NEWSHOLME.
2. On the Nature of the Expansion Phase of the Cardiac Cycle and the Phenomena Associated with It.
By T. S. WILSON.
3. Movable Kidney.
By C. M. H. HOWELL and H. W. WILSON.
4. The Opsonic Treatment of Pulmonary Tuberculosis by Tuberculin.
By E. TURTON.
5. Rectal Feeding: A Review,
By F. C. MOORE.
6. Notes of Surgical Cases,
By J. C. RENTON.
7. Some Unusual Abdominal Cases,
By T. B. HENDERSON.
8. Weak Hearts in General Practice,
By G. LAMBERT.

1. **Limit of Age for School Attendance.**—Newsholme laments that so large a proportion of the school children in Great Britain are under five years of age. He thinks it inadvisable to send children to school before this age, and believes it to be unjust to the children, to their parents, and to the taxpayers. He thinks it doubtful whether educational advantage commensurate with the risk is secured by the attendance at school of children between five and seven years of age. The evils in school attendance under five are injuries to the eyes, injury to the health in breathing polluted air, and danger from communicable disease.

2. **Expansion Phase of the Cardiac Cycle.**—Wilson states that his object is to advocate the view that the ventricles of the heart are filled by their own muscular action and not by the auricular contraction and to show that this theory suffices to explain the various phenomena observable in valvular disease of the heart. He thinks the belief is gaining ground that the heart is a double acting pump filling its chambers by its own back stroke,

and that the ventricles are not dependent upon the auricles, or other outside agency, so far as the reception of the main part of their charge is concerned. The cardiograph shows conclusively that the phase of ventricular contraction is followed by an active expansion movement. The points which he adduces seem to him to give undoubted support to the view that true muscular expansion plays a most important part in the heart's action.

3. **Movable Kidney.**—Wilson states that, since this disease is rarely fatal, a complete case, observed clinically as well as postmortem, is a rarity. Information derived from surgical procedure is also limited, because through the usual lumbar incision for nephropexy only the kidney and its pedicle can be examined, the idea of its relations being imperfect. Experimental work by the author shows that the kidney may become movable in three ways: 1. By rapid absorption of the fatty capsule it may prolapse and become movable within its perinephric sheath. 2. Its mobility may be increased by bulging of the perinephric fascia or by loosening or stretching of the attachments to the vertebral column. 3. In traumatic cases by rupture of the true suspensory ligament of the kidney, which is followed by forward falling of the upper renal pole.

4. **The Opsonic Treatment of Pulmonary Tuberculosis by Tuberculin.**—Turton records seventeen cases of all degrees of severity, of early and late development. In all of them the treatment has been continued more than six months, and all of them have been in private practice, hence without the restraining advantages of hospital or sanatorium life. Most of the patients were compelled to continue their occupation while under treatment, thus modifying the results. All of them were treated by the injection of Koch's new tuberculin, and the opsonic index has been the only guide to treatment. An opsonic chart was kept in each case, showing the rise and fall of the opsonic index. The clinical results in the successful cases have been improved general health, gradual fall of evening temperature, return of the appetite, and increase in weight. In five cases treatment was manifestly begun at too late a stage. Improvements in preparing the tuberculin offer chances for still better results.

5. **Rectal Feeding.**—Moore concludes that it appears to be established that it is possible, by rectal feeding, to introduce a certain quantity of food into the organism, but that this amounts at best to a pronounced subnutrition. Only in exceptional cases, in which the metabolic processes have been gradually reduced to an abnormally low level, is it possible to provide such a quantity of proteid as will establish nitrogenous equilibrium, and so prevent disintegration of the proteid tissues of the body or of food-stuffs having a total energy value beyond one quarter of that dissipated by the organism. In the average case rectal feeding is accompanied with loss of weight, and the subnutrition may even induce a condition of acid intoxication, especially in females. The best results are to be obtained by enemata composed of predigested proteids, of albumoses or peptones, of emulsified fat, of glucose in per cent. concentration, and of 1 per cent. of sodium chloride.

6. **Notes of Surgical Cases.**—Renton reports

ten cases of gastroenterostomy operated on posteriorly without a loop, with satisfactory results in all cases but one. The indication was pyloric stenosis and in one case a large pyloric tumor. The Fowler position was found advantageous, and feeding was begun twelve hours after operation. In gastroenterostomy for bleeding ulcer, the ulcer usually heals, but in one of the writer's cases it was followed by fatal hæmorrhage on the fifth day. Five cases were operated on for perforated gastric ulcer. The ulcer was excised when it was deemed necessary; in the other cases it was merely closed by a sufficient number of sutures. Intestinal obstruction was operated upon in four cases. Great difficulty is often encountered in finding the source of trouble in such cases. Other conditions requiring operation, and upon which comment was made, were appendicitis, cholecystostomy, ectopic gestation, and prostatectomy. The anæsthetic was ethyl chloride, followed by the A. C. E. mixture or by ether.

8. Weak Hearts in General Practice.—Lambert believes that in all weak hearts one or more of the following factors contribute to produce morbid effects: 1. Morbid conditions of the cardiac muscle cells, impaired functional activity, degeneration. 2. Degeneration changes in the arterial system, especially in the aorta and coronary arteries. 3. Deficiency in quality or quantity of the general blood stream. 4. Derangement of nervous control by the cardiac centre and nerves. The classification which is made upon an ætiological basis, with remembrance of the four factors above mentioned. It includes (1) the anæmic with disability due to disturbed nutrition of the myocardium, (2) the neurotic with heart weakness produced by degeneration of the vagus, (3) the alcoholic, with fatty degeneration, together with weakness of the aorta and coronary arteries, (4) the postfebrile with parenchymatous degeneration due to the poison of infectious disease, (5) the athletic, which is due to severe or prolonged physical exertion, and (6) the senile, with gradual impairment of the power of executing regular, rhythmic, efficient contractions.

Proceedings of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of October 23, 1907.

The President, Dr. JAMES B. WALKER, in the Chair.

The Ætiology and Treatment of Thrombosis, Based Upon Studies of the Coagulation Time of Blood.—Dr. G. MORTON ILLMAN and Dr. HARRY A. DUNCAN read a paper with this title (to be published).

Dr. HOBART A. HARE asked whether control experiments had been made upon persons not receiving the citric acid, to determine the variations which took place under natural conditions; and whether the authors' conclusions that the bodily juices were responsible for coagulation had been reached by exclusion or as the result of some definite experiments proving that point.

Dr. F. P. HENRY referred to the fact that the left common iliac vein was crossed and presumably slightly compressed by the right common iliac

artery as a mechanical cause often assigned for the very great prevalence of thrombosis in the left lower extremity.

Dr. L. JAY HAMMOND asked what effect, if any, etherization had upon the clotting of the blood.

Dr. ILLMAN said there was a normal clotting time of the blood just as there was a normal temperature, and that the clotting time varied as the temperature did. No experiments in regard to the clotting time of the blood following etherization had been made.

Intraspinal Injections of Magnesium Sulphate in Tetanus.—Dr. J. NORMAN HENRY said that, of four patients treated by intraspinal injections of magnesium sulphate, but one had recovered. All, however, were relieved of convulsions and were able to sleep for varying periods after each injection. The periods of relief lasted usually at least twenty-four hours. In several instances, following the administration of the salt, there were rather alarming symptoms of cerebral and respiratory depression. A cumulative action was noted in two cases.

Dr. HARE believed that the tonus of the solution should be regarded in connection with the danger of absorption of the drug by the tissues to be affected.

The Anæsthesia Peril in American Hospitals.—

Dr. JOHN B. ROBERTS expressed the opinion that there were no powerful drugs given so carelessly and recklessly and by such incompetent hands as general anæsthetics. While some American hospitals, particularly the smaller ones and those of a semiprivate character, had experts to give the anæsthetic, it was not, in his belief, the common practice in American hospitals. Many operators seemed more interested in the mechanical details of the operation itself than in studying the availability of different anæsthetic agents prior to the operation and watching the progress of the anæsthesia during its course. A great deal too much ether or chloroform was often given, and general anæsthesia was frequently resorted to when it was unnecessary. The administration should stop long enough before the end of the operation to allow the patient to show evidence of return to consciousness at about the time the dressing was completed. While improvement in technique and asepsis had lessened the dangers of operative surgery, the same progress had not been made in care and discrimination in the use of anæsthetic agents. Inexperienced administrators and carelessness in giving the powerful drugs used for the purpose, it was thought, were causes of death oftener than was perhaps appreciated. Fatal issues were probably not infrequently attributed to shock when they really were the results of the improper use of ether or chloroform. The damage was often one showing no marked symptoms at the time of the operation, but developed later from the poisonous action of the anæsthetic upon the organism.

The solution of the difficulty offered was to encourage the development of anæsthetic specialists and the insistence upon instruction in medical schools and hospitals on the part of resident physicians in the science of administering anæsthetics. He

thought it probable that a considerable number of young men would devote themselves to this specialty if assured of a proper fee, which the patient should pay in addition to the fee given the operator. One tenth the amount paid to the surgeon for the actual operation was suggested as a suitable fee for the anesthetist.

Dr. THEODORE A. ERCK knew of but one hospital in the city that employed a salaried anesthetist, and the results were most satisfactory.

Dr. HARE referred to the diminished danger in the present administration of ether or chloroform by the drop method, and thought the chief danger lay in what might be called the secondary stage, the period following etherization.

Dr. ROBERTS agreed with Dr. Hare that to a certain extent there was perhaps less danger now than formerly, because of better teaching in the colleges, but emphasized the point that it was not altogether that a man was not careful, but the fact that he did not know as much as he ought to know about the dose and about the possibilities of the results. He admitted that it was difficult to prove, but felt convinced that a good many patients died in institutions from either giving rise to secondary results, or from ether causing death upon the operating table or shortly afterward.

The Gordon Reflex, with Special Reference to a Case of Spinal Trauma.—Dr. GEORGE E. PRICE dealt with the history, the technique, the cause, and the clinical value of the Gordon "paradoxical" reflex, and reported a case of spinal trauma (probably minute hemorrhages into the cord) in which for forty-eight hours the Gordon reflex was the only sign of motor disturbance with the exception of exaggerated reflexes. Babinski's sign, disappearing ankle clonus, sphincter weakness, and muscular paresis followed in the order named, lasted for a few days, and then gradually disappeared, the Gordon reflex being the last to leave.

The points emphasized were the importance of the reflex as a sign of irritation or lesion of the upper motor segment, and especially its value as an early or delicate sign of such condition. The Gordon reflex was first demonstrated before the Philadelphia Neurological Society in 1904, and was said to consist in extension of the great toe upon pressure or irritation of the deep flexor muscles of the calf of the leg.

Book Notices.

Principles of Obstetrics in Original Contributions by American Authors. Edited by REUBEN PETERSON, A. B., M. D., Professor of Obstetrics and Gynecology in the University of Michigan, etc. Illustrated with 523 Engravings and 30 Full Page Plates. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. 1087.

This work forms one of the volumes of a series known as *The Practitioner's Library*. The name of its distinguished editor is a guarantee of its excellence, supplemented by the names of the individual writers, Dr. Charles Sumner Bacon, of Chicago; Dr. Montgomery A. Crockett, of Pinchurst,

Dr. W. A. Newman Dorland, of Philadelphia; Dr. G. Carl Huber, of Ann Arbor; Dr. Hugo Ehrenfest, of St. Louis; Dr. Henry Foster, of Chicago; Dr. Walter P. Manton, of Detroit; Dr. John T. Moran, of Washington; Dr.

Benjamin R. Schenck, of Baltimore; and Dr. Alfred Scott Warthin, of Ann Arbor.

The important subject of embryology is very satisfactorily handled by Dr. Huber. The physiology, diagnosis, and management of pregnancy are well presented by Dr. Manton. Normal labor is clearly treated of by Dr. Dorland. The puerperal state is satisfactorily dealt with by Dr. Lewis. Lactation is acceptably expounded by Dr. Bacon. The maternal complications of pregnancy are duly set forth by Dr. Ehrenfest. The pathology of the ovum is clearly delineated by Dr. Warthin, Dr. Lewis, Dr. Ehrenfest, and Dr. Schenck. Dystocia is considered by Dr. Moran and Dr. Ehrenfest (pelvimetry). Obstetrical injuries, hemorrhage, and eclampsia are treated of by Dr. Moran. Puerperal diseases are set forth by Dr. Lewis and Dr. Bacon. The obstetrical operations are dealt with by Dr. Crockett. The anatomy, physiology, and pathology of the newly born infant are expounded by Dr. Lewis and Dr. Bacon.

The essays which go to make up this volume are all of such excellence that it would be invidious to single out any one of them for specific comment. The book as a whole is a safe and readily comprehensible guide to the practice of obstetrics.

The Principles and Practices of Modern Surgery. By ROSWELL PARK, A. M., M. D., LL. D. (Yale), Professor of the Principles and Practice of Surgery and of Clinical Surgery in the Medical Department of the University of Buffalo, etc. With 722 Engravings and 60 Full Page Plates in Colors and Monochrome. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. ix-1074. (Price, \$7.)

Dr. Park, in the preface to this work, states that it succeeds the third edition of the *Treatise on Surgery by American Authors*. The author is such a well known surgeon that a book which carries his imprimatur is sure to receive the proper attention. Our expectations are fully realized. It is only natural and in accordance with the wide scope which surgery has attained in the last thirty years that an author should give preference to methods and modes of operations which have proved successful in his hands. So with Dr. Park's work. Attention should be called to his views on the proper anesthetics. In this chapter (The Choice of Anesthetics) he says that "the choice will depend upon who is to be the anesthetizer as well as upon the actual condition of the patients. If an inexperienced person is to administer the anesthetic, ether is safer than chloroform, though slower. On the other hand, when given by an expert, after due preparation of the patient, chloroform is ordinarily preferable." This is rather against our tenets on anesthesia; statistics have proved that the comparative safety of ether and chloroform is shown by one death under ether to five under chloroform. Hewitt, combining the statistics of Julliard, and Ormsby in *Anesthetics and Their Administration*, find that among 676,767 administrations of chloroform there occurred 214 deaths, or one in 3,162; while among 407,553 ether administrations 25 deaths were recorded, or one in 16,302. As far as statistics and experience can be relied upon, the preference of the anesthetic should certainly be for ether.

The book is divided into six parts, which follow each other in logical sequence: Surgical pathology;

surgical diseases; surgical principles, methods, and minor procedures; injury and repair; surgical affections of the tissues and tissue systems; and special, or regional, surgery. In Part II, on Surgical Diseases, the author speaks of autoinfection, especially in surgical patients; the surgical fevers and septic infections; surgical diseases common to man and the domestic animals; syphilis, chancre, and venereal diseases; gonorrhœa; scurvy and rickets; the status lymphaticus; special aspects and sequels of other infections and diseases; poisoning by animals and plants; and acute intoxications, including delirium tremens. This one part may serve as an illustration of the wide field the author accords to his principles and practice of modern surgery. It will be seen, therefore, that Dr. Park does treat not only of surgery proper, but also of the *Grenzgebiete*. He exemplifies John Hunter's view that the better a general practitioner is the better surgeon he may become, if he should possess the necessary attributes. He must not only be a good general practitioner, but he should also be fully conversant with the laboratory, and Dr. Park pays special attention to this subject.

The book contains a great many illustrations, which are well selected and well executed. The very explicit index is of great help and advantage. The book will without question be welcomed by the general practitioner and will certainly be appreciated by the specialist.

Some publishers have lately adopted a size for their publications which is absolutely too large; so with this book, it will not go into the ordinary bookcase; could not a smaller size be selected?

Le Travail intellectuel et les fonctions de l'organisme

Par A. MAIRET, professeur de clinique des maladies mentales et nerveuses à la faculté de Montpellier, et J. E. FLORENCE, chef de laboratoire de la clinique des maladies mentales et nerveuses. Montpellier: Coulet et Fils; Paris: Masson et Cie, 1907. Pp. 128.

In 1884 Mairet made a study of the relation of the urinary ingredients to intellectual work, special attention then being concentrated on the elimination of urea and phosphoric acid. Studies were also made on the urines of epileptics, hysterical persons, and patients with various mental disorders. These studies, while not offering specific clues, yet pointed to the general conclusion that intellectual work was accompanied by some more or less definite types of tissue change, and led the authors to prosecute the studies set forth in the present volume.

The research, for it is but a short and interesting monograph, leads the authors, in brief, to the following conclusions: (1) Intellectual work (a) diminishes the absorption, (b) slows general nutrition, and (c) increases the activity of the nutrition of the brain. (2) During the period of repose which follows that of intellectual work there arise, by a phenomenon of compensation, an increased activity of the general nutrition and a diminution in the rapidity of the nutritive interchanges in the brain.

The Diseases and Treatment of Diseases of Women. By HARRY STODOL, CLARENCE M. D., Clinical Professor of Gynecology, Washington University, St. Louis. With Sixty Hundred Illustrations. St. Louis: C. V. Mosby Medical Book and Publishing Company, 1907. Pp. xiv+790.

This is one of the best works on gynecology that

we have ever seen. It owes its excellence chiefly, we think, to the fact that its author is able to think of something besides operative measures, showing no contempt for pessaries, but giving indeed a true exposition of their *modus operandi* and a reasonable rating of their value. The book is strong, however, even in the matter of operations, as is shown in the masterly statements concerning the numerous operations for retroversion of the uterus. Another feature which makes the book of immense value to the general practitioner and to the comparatively inexperienced specialist in gynecology is the amount of attention given to diagnosis, to which 303 pages are devoted.

All the fault that we can find with Dr. Crossen's book is of a minor kind, relating chiefly to misspellings. Perhaps we must come to such "simplified spelling" as "curet" and "curement," but surely Dr. Crossen would not seriously defend "dissicated" (for desiccated), "pruritis" (for pruritus), and "membraneous" (for membranous), all of which are invariably used in the book so far as we have noticed. Such blemishes, we are bound to believe, will be eliminated from subsequent editions.

Stoffwechselspsychosen. Die Störungen des Sauerstoffgaswechsels im menschlichen Organismus. Von Dr. med. WALTHER EWALD, Sekundärarzt am städtischen Siechenhaus in Frankfurt a. M. Würzburg: A. Stuber, 1907. Pp. 57.

The view that many mental disorders are only a symptom picture of disturbed chemical functions has been fruitful in giving to psychiatry a much keener insight into the nature of many of these diseases. Kraepelin's early work on the action of drugs on mental functions, and his masterly review of the subject of the infection and exhaustion of mental disturbances, which appeared twenty years ago, were forerunners of much that is in the minds of many psychiatrists of the present day when they think of the autointoxications as causative of disturbed mental states.

The author makes a special study of modifications in the oxidative capacity of the body in relation to mental disease. He shows that in both acute and chronic alcoholism one finds a general diminution of the alkalinity of the blood. At the same time the specific oxygen capacity is diminished, as well as the oxygen necessity of the body. The specific gravity of the blood undergoes no marked changes, although it increases somewhat as delirium tremens develops. If there are sufficient decomposition products in the blood to bring about an epileptic attack, one finds in every case a high specific gravity. In stuporous states on an epileptic basis he believes that there is a diminution in the specific oxygen capacity to at least half.

Paresis is a disease in which by-products cause a marked diminution in the alkalinity in the blood. According to the psychical picture, one finds the specific oxygen capacity increased or diminished—reaching its maximum in the expansive forms. The specific gravity is normal, but shows some increase as an accumulation of bye products takes place. This accumulation may be regarded as a cause of the paralytic attacks.

The study, though short and not convincing, is very interesting and preparing.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Metabolism and Practical Medicine. By Carl von Noorden, Professor of the First University Medical Clinic, Vienna. Volume III. The Pathology of Metabolism, by Carl von Noorden, H. Salomon, A. Schmidt, A. Czerny, H. Steinitz, C. Dapper, M. Matthes, C. Neuberg, O. Loewi, and L. Mohr. Anglo-American Issue, under the Editorship of I. Walker Hall, Professor of Pathology, University College, Bristol, etc. Chicago: W. T. Keener & Co., 1907. Pp. xx-527 to 1320. (Price, \$6.)

A Manual of the Practice of Medicine. Prepared Especially for Students. By A. A. Stevens, A. M., M. D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania, etc. Eighth Edition, Revised, Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 558. (Price, \$2.50.)

Synonymik der Dermatologie. Von Dr. Johannes Fick, Wien. Wien und Leipzig: Alfred Hölder, 1908. Pp. 68.

Der Abstinenzismus und seine Bedeutung für das Individuum und für die Gesellschaft. Von Dr. Gustav Kabrhel, Berlin: August Hirschfeld, 1908. Pp. 138.

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Miscellany.

The International Congress on Tuberculosis.

—Progress along all lines connected with the International Congress on Tuberculosis, which is to take place in Washington from September 21 to October 12, 1908, was shown by the reports presented at a meeting of the committee of arrangements, held in New York, at the Associated Charities Building, Monday evening, October 28. Dr. Lawrence F. Flick, of Philadelphia, chairman of the committee, presided, and the other members present were Dr. Joseph Walsh, Philadelphia, secretary; Dr. John S. Fulton, Washington, secretary general; Mr. William H. Baldwin, Washington; Dr. Hermann M. Biggs, New York; Dr. Frank Billings, Chicago; Mr. Edward T. Devine, New York; Mr. Livingston Farrand, New York; Dr. J. C. Greenway, Greenwich, Conn.; Dr. Charles J. Hatfield, Philadelphia; Dr. Abraham Jacobi, Dr. Alfred Meyer, Mrs. James E. Newcomb, New York; General George M. Sternberg, Washington, and Dr. William H. Welch, Baltimore.

The meeting was the first held since Dr. Flick's return from abroad, and his reports of his visits to the International Conference on Tuberculosis in Vienna and to the International Congress on Hygiene and Demography, at Berlin, were interesting features of the session. More than a thousand delegates were registered at Vienna, he said, and the gathering at Berlin was quite as large. The leading men in both associations were looking forward with a great deal of enthusiasm, Dr. Flick said, to the meeting in Washington next year, and about four hundred of the members of the foreign organizations might be expected to attend the congress. The conference selected this country as its place of meeting in 1908, just as the congress did two years ago. The conference and the congress were two distinct organizations. The International Conference on Tuberculosis met every year and kept up a continuous organization, with headquarters in Berlin. The International Congress on Tuberculosis met only once in three years and did not maintain an international bureau in the intervals. Dr. Flick stated that at the international conference interest centred especially in the time worn subject of the routes of invasion for the tubercle bacillus. It seemed to have been demonstrated that the disease might be contracted by both the respira-

tory route and the alimentary route. Though this did not make us much wiser in a practical way, still it was somewhat comforting to know that the respiratory route was less important than it was once thought to be. On the other hand, that information was compensated by the importance of the alimentary route.

In connection with his account of the progress made in the preliminary arrangements for the International Congress on Tuberculosis, Dr. John S. Fulton, the secretary general, reported that ten distinguished foreigners had consented to participate in the series of special addresses that were to form a part of the program. The names of these eminent specialists follow: Dr. R. W. Philip, Edinburgh; Dr. C. Theodore Williams, London; Dr. Arthur Newsholme, Brighton, England; Dr. C. H. Spronck, Utrecht, Holland; Dr. Karl Turban, Davos-Platz, Switzerland; Dr. Gotthold Pannwitz, Charlottenburg; Dr. Emil von Behring, Marburg; Dr. A. Calmette, Lisle, France; Dr. Maurice Letulle, Paris, and Dr. S. Kitasato, Tokyo, Japan. Dr. Fulton also reported that up to the date of the meeting the governors of twenty-three States had lent official auspices to the congress. This not only insured official representation so far as that many States were concerned, but it insured an active organization in each of these States that would be interested in the Congress.

The States in which this action had been taken so far were California, Utah, Montana, North Dakota, Minnesota, Wisconsin, Illinois, Iowa, Indiana, Michigan, Ohio, Kentucky, Kansas, Tennessee, South Carolina, North Carolina, Maryland, New York, Massachusetts, Vermont, Maine, West Virginia and Missouri.

Reporting on the formation of State committees, the secretary general said that such committees had been appointed in nearly all of the States in the United States; that several had already organized and were earnestly at work. He reported also that replies had been received from various foreign countries in reference to the appointment of committees, and the replies indicated that the countries addressed will be represented in nearly every instance by exhibits as well as by delegates.

Report of the Department of Sanitation of the Isthmian Canal Commission for the Month of August, 1907.—During August, 1907, the total population of the Canal Zone, including the cities of Panama and Colon, was 105,931; there were 219 deaths, corresponding to an annual death rate of 33.75 in one thousand of population. There were 8 deaths from typhoid fever; 68 from malarial fever; 1 from malarial cachexia; 2 from hemoglobinuric fever; 8 from dysentery; 4 from amœbic dysentery; 1 from clinical dysentery; 6 from beriberi; 7 from septicæmia; 17 from pulmonary tuberculosis; 1 from tuberculous meningitis; 4 from general tuberculosis; 4 from cancer; 1 from epidemic cerebrospinal meningitis; 3 from tetanus; 2 from bronchopneumonia; and 47 from pneumonia. Among the 4,200 American whites there were 3 deaths, corresponding to an annual death rate of 8.57 in one thousand of population. The morbidity rate was 29 in one thousand. The rainfall was plentiful, and natural conditions were favorable to the development of malarial fever. New camps are constantly being opened, and it is not always possible to have the vicinity of such

camps in proper sanitary condition before the laborers are installed in them. The rapid progress of construction of the canal produces a constantly changing surface topography, so that new anopheles breeding places are often produced near camps and settlements. Consequently, the malarial status of a settlement may suddenly be changed for the worse. On this account the malarial sick rate from week to week varies from 2 to 50 in one thousand employees. There have been no epidemic diseases in the Canal Zone for four months.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending November 15, 1907.

Smallpox—United States.

Places.	Date.	Cases.	Deaths.
California—Los Angeles.....	Oct. 20-26.....	1	
Illinois—Chicago.....	Nov. 3-9.....	2	
Illinois—Rockford.....	Sept. 1-30.....	5	
Illinois—Quincy.....	Oct. 1-31.....	1	
Indiana—Anderson.....	Oct. 1-31.....	16	
Indiana—Elkhart.....	Oct. 27-Nov. 2.....	3	
Iowa—Cedar Rapids.....	Oct. 1-31.....	1	
Kansas—O counties.....	Sept. 1-30.....	23	
Massachusetts—Somerville.....	Nov. 3-9.....	1	
Missouri—St. Joseph.....	27-Nov. 2.....	2	
New Hampshire—Franklin.....	Oct. 31.....	1	
New Jersey—Newark.....	Nov. 3-9.....	1	
Oregon—Portland.....	Sept. 1-30.....	1	
Tennessee—Nashville.....	Nov. 3-9.....	3	
Washington—Spokane.....	Oct. 27-Nov. 2.....	1	
Wisconsin—La Crosse.....	Oct. 27-Nov. 2.....	2	

Smallpox—Foreign.

South Africa—Cape Town.....	Sept. 22-28.....	1	
South Africa—East London.....	Sept. 22-28.....	2	
Brazil—Pernambuco.....	Aug. 15-31.....	96	
Canada—Halifax.....	Oct. 20-Nov. 2.....	1	
China—Shanghai.....	Sept. 23-29.....	5	
Chile—Iquique.....	Oct. 6-12.....	Present.	
Columbia—Cartagena.....	Oct. 16-22.....	Present.	
Egypt—General.....	Sept. 1-16.....	24	6
France—Paris.....	Oct. 13-19.....	1	
India—Bombay.....	Oct. 23-29.....	1	
Italy—General.....	Oct. 13-21.....	35	
Java—Batavia.....	Sept. 22-28.....	18	4
Mexico—Mexico City.....	Sept. 22-28.....	1	
Peru—Lima.....	Oct. 12-18.....	Present	
Portugal—Lisbon.....	Oct. 13-20.....	1	
Philippine Islands—Manila.....	Sept. 23-29.....	1	
Russia—Moscow.....	Oct. 6-12.....	1	
Russia—Odessa.....	Oct. 6-12.....	1	
Russia—Riga.....	Oct. 13-19.....	3	
Russia—St. Petersburg.....	Sept. 20-26.....	2	
Russia—Warsaw.....	Oct. 13-19.....	9	
Turkey in Asia—Bagdad.....	Sept. 22-28.....	Present	

Cholera—Foreign.

China—Shanghai.....	Sept. 23-29.....	5	
India—Madras.....	Oct. 13-19.....	1	
Japan—Formosa.....	Sept. 23-29.....	1	
Japan—Kawasaki.....	Sept. 23-29.....	1	
Japan—Saito.....	Sept. 23-29.....	1	
Japan—Yokohama.....	Sept. 23-29.....	1	
Japan—Osaka.....	Sept. 23-29.....	63	40
Malabar—Dahly.....	Sept. 23-29.....	6	3
Philippines—Manila.....	Sept. 23-29.....	1	4
Madagascar—Mondovani.....	Sept. 23-29.....	Present	
Strait Settlements—Singapore.....	Sept. 23-29.....	1	1
Strait Settlements—Penang.....	Sept. 23-29.....	1	
Sumatra—Larung.....	Sept. 23-29.....	1	

Cuba—Cibahana Province—Bama.....	Nov. 9.....	1	
Cuba—Palos.....	Nov. 5.....	1	
Cuba—Matanzas Province—Cienfuegos.....	Nov. 5.....	1	

Cholera—Foreign.

Algeria—Oran.....	Sept. 23-29.....	1	
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Cholera—Foreign.

Brazil—Pernambuco.....	Aug. 15-31.....	1	
Brazil—Rio de Janeiro.....	Oct. 1-31.....	1	
Brazil—Rio de Janeiro.....	Oct. 1-31.....	1	
Chile—Punta Arenas.....	Oct. 1-31.....	1	
Chile—Lima.....	Oct. 1-31.....	1	
China—Hongkong.....	Oct. 1-31.....	1	
India—Bombay.....	Oct. 1-31.....	1	
Japan—Osaka.....	Sept. 23-29.....	1	
Peru—Callao.....	Oct. 1-31.....	1	
Peru—Lima.....	Oct. 1-31.....	1	
Peru—Trujillo.....	Oct. 1-31.....	1	

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Non-Commissioned Officers of the United States Public Health and Marine Hospital Service, for the seven days ending November 13, 1907:

CHAPIN, C. W., Assistant Surgeon. Relieved from temporary duty at the Hygienic Laboratory, and directed to proceed to Detroit, Mich., reporting to the medical officer in command for assignment to duty.

CLEAVES, F. H., Acting Assistant Surgeon. Granted leave of absence for twelve days from November 18, 1907.

FOSTER, A. D., Assistant Surgeon. Granted leave of absence for seven days from November 12, 1907, under paragraph 191, Service Regulations; granted leave of absence for twenty-one days from November 19, 1907.

GOLDTHWAITE, H., Acting Assistant Surgeon. Granted leave of absence for one day, November 18, 1907.

JACKSON, J. M., Acting Assistant Surgeon. Excused from duty for fourteen days from November 18, 1907, without pay.

LA GRANGE, J. V., Pharmacist. Granted five days' leave of absence from November 7, 1907, under paragraph 210, Service Regulations.

MAGUIRE, E. S., Pharmacist. Granted leave of absence for thirty days from December 2, 1907.

MARSHALL, E. R., Assistant Surgeon. Relieved from duty at Detroit, Mich., and directed to proceed to Delaware Breakwater Quarantine Station, and assume command.

MASON, W. C., Acting Assistant Surgeon. Granted leave of absence for six days from November 23, 1907.

MISKIMON, R. R., Pharmacist. Granted leave of absence for seven days from November 10, 1907, under paragraph 210, Service Regulations.

STONER, J. B., Surgeon. Leave of absence granted Surgeon Stoner for one month from October 14, amended so as to grant twenty-five days only.

SWEET, E. A., Assistant Surgeon. Temporarily relieved from duty at Fort Stanton, N. M., and directed to proceed to El Paso, Tex., for temporary duty.

VON EZDORF, R. H., Passed Assistant Surgeon. Granted leave of absence for three days.

WIGHTMAN, W. M., Assistant Surgeon. Granted leave of absence for two days from September 12, 1907.

Board Convened.

A board of medical officers was convened to meet at San Juan, Porto Rico, for the physical examination of an officer of the Revenue Cutter Service. Detail for the board: Assistant Surgeon F. A. Ashford, chairman; Acting Assistant Surgeon Pedro del Valle Atiles, recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department of the United States Army for the week ending November 16, 1907:

APPEL, D. M., Lieutenant Colonel and Deputy Surgeon General. Granted fourteen days' leave of absence.

BLOMBERG, H. D., Captain and Assistant Surgeon. Granted leave of absence for one month.

CARSWELL, R. L., Captain and Assistant Surgeon. Advanced from the grade of First Lieutenant to that of Captain, to date from October 27, 1907.

DUNCAN, W. A., First Lieutenant and Assistant Surgeon. Relieved from duty in the Army Transport Service, to take effect upon the next arrival of the transport *Thomas*, and ordered to report to the Army General Hospital, Presidio of San Francisco, Cal., for duty.

GOSMAN, G. H. R., Captain and Assistant Surgeon. Leave of absence extended ten days.

HALLACK, H. M., Major and Surgeon. Granted leave of absence for ten days.

HUNTINGTON, P. W., Captain and Assistant Surgeon. Advanced from grade of First Lieutenant to that of Captain, to date from October 15, 1907.

LESLIE, PHILIP L., Captain and Assistant Surgeon. Ordered to proceed to duty at San Juan, Porto Rico, to San Francisco, Cal., there to perform duty as surgeon of the transport *W. H. Allen*, to date from December 1, 1907, for the Philippine Islands.

MARSH, A. W., Captain and Assistant Surgeon. Ordered to duty at the Indian Agency S. Dak., for duty to field with old second and cavalry.

- POWELL, W. A., First Lieutenant and Assistant Surgeon. Granted thirty days' leave of absence.
- SMART, W. M., Captain and Assistant Surgeon. Ordered to accompany 1st Cavalry from Fort Clark, Tex., to the Philippine Islands.
- TEFFT, W. H., First Lieutenant and Assistant Surgeon. Left Cuba en route to the United States on two months' leave of absence.
- VOSE, W. E., Captain and Assistant Surgeon. Upon arrival at San Francisco, Cal., will proceed to Columbus Barracks, Ohio, for duty.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy for the week ending November 10, 1907.

- BAKER, M. W., Passed Assistant Surgeon. Detached from duty at the Naval Hospital, New Fort Lyon, Col., and ordered to the Naval Hospital, New York N. Y., for treatment.
- BARBER, C. H., Surgeon. Detached from the *Kearsarge* and ordered to the *Wabash*.
- BELKNAP, J. L., Assistant Surgeon. Detached from the *Wabash* and ordered to the Naval Hospital, Boston, Mass.
- BIDDLE, C., Surgeon. Detached from the Naval Training Station, San Francisco, Cal., and ordered to Washington, D. C., for examination for promotion, and then to await orders.
- BISHOP, L. W., Surgeon. Detached from the *Missouri* and ordered to continue at the Naval Hospital, New York, N. Y.; when discharged from the Naval Hospital, New York, N. Y., ordered to the Naval Recruiting Station, Newport, R. I.
- CASTO, D. H., Assistant Surgeon. Detached from the Naval Recruiting Station, Indianapolis, Ind., and ordered to the *Maine*.
- DERR, E. E., Medical Director. Detached from the Navy Yard, Portsmouth, N. H., and ordered to the Naval Recruiting Station, Providence, R. I.
- FIELD, J. G., Surgeon. Ordered to the Naval Training Station, San Francisco, Cal.
- FISKE, C. N., Passed Assistant Surgeon. Detached from the *Yorktown* and ordered to the Naval Hospital, Mare Island, Cal.
- LONGAPAUUGH, R. I., Assistant Surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the *Yorktown*.
- LUNG, G. A., Surgeon. Ordered to the Naval Recruiting Station, Philadelphia, Pa.
- MANCHESTER, J. D., Passed Assistant Surgeon. Detached from the Naval Hospital, Pensacola, Fla., and ordered to the *Panther*, when commissioned.
- MEANS, V. C. B., Surgeon. Sick leave extended three months from November 10, 1907.
- MICHELS, R. H., Passed Assistant Surgeon. Detached from the Naval Recruiting Station, Kansas City, Mo., and ordered to the *Missouri*.
- PAYNE, J. H., Jr., Passed Assistant Surgeon. Detached from the Naval Recruiting Station, Providence, R. I., and ordered to the Naval Recruiting Station, Cleveland, Ohio.
- SHEPARD, G. W., Assistant Surgeon. Ordered to the Naval Hospital, Mare Island, Cal.
- STEADMAN, W. C., Jr., Assistant Surgeon. Detached from the *Franklin* and ordered to the *Louisiana*.
- STEELE, M., Medical Inspector. Detached from the Naval Recruiting Station, Cleveland, Ohio, and ordered to the Navy Yard, Portsmouth, N. H., and to additional duty in command of the Naval Hospital at that yard.
- WARNER, R. A., Assistant Surgeon. Detached from the *Louisiana* and ordered to the Naval Hospital, Pensacola, Fla.
- WHEELER, L. H., Assistant Surgeon. Ordered to the Naval Recruiting Station, Indianapolis, Ind.
- WICKES, G. L., Assistant Surgeon. Ordered to the Naval Recruiting Station, Kansas City, Mo.

- WILLIAMS, R. B., Passed Assistant Surgeon. Detached from the *Maine* and ordered to the *Franklin*.
- WILSON, H. D., Surgeon. Ordered to the *Kearsarge*, December 1, 1907.

Births, Marriages, and Deaths.

Married.

- BRODIE—TUBBEE.—In Washington, D. C., on Thursday, November 14th, Dr. Benjamin P. Brodie, of Detroit, and Mrs. Anne Tallant Tubbee.
- CASKEY—HYDRICK.—In Orangeburg, S. C., on Tuesday, November 12th, Midshipman Carden L. Caskey, United States Navy, and Miss Henrietta Hydrick, daughter of Dr. A. S. Hydrick.
- DEW—DEW.—In Spottsylvania, Va., on Wednesday, November 6th, Dr. Thomas Welch Dew and Miss Alice Agatha Dew.
- GETZOW—CADES.—In Philadelphia, on Thursday, November 14th, Dr. Joseph A. Getzow and Miss Tibby Cades.
- HAGAN—SEATON.—In Washington, D. C., on Thursday, November 7th, Dr. Ernest Reed Hagan and Miss Emma Carter Seaton.
- KELLY—MACDONALD.—In New York, on Tuesday, November 5th, Dr. James A. Kelly, of Philadelphia, and Miss Rose Margaret MacDonald.
- MEANS—RICE.—In New York, on Thursday, November 14th, Mr. W. Gordon Means, of Boston, and Miss Marjorie Rice, daughter of Dr. Clarence C. Rice.
- PAPEN—RAMSDELL.—In Lynn, Mass., on Friday, November 8th, Dr. George W. Papen, Jr., of Albany, N. Y., and Miss Lila T. Ramsdell.
- SMITH—HENRY.—In Morristown, N. J., on Thursday, November 14th, Dr. Henry Lee Smith, of Baltimore, and Miss Elise Garr Henry.
- STEMEN—BEARDSLEE.—In St. Louis, Mo., on Wednesday, November 6th, Dr. George C. Stemen and Miss Madge Beardslee.
- Died.*
- ANDERSON.—In Chuckey, Tenn., on Sunday, November 3d, Dr. Samuel R. Anderson, aged eighty-four years.
- BONNEY.—In Ashmont, Mass., on Saturday, November 9th, Dr. Franklin Bonney, aged eighty-five years.
- BROWER.—In Saranac Lake, N. Y., on Friday, November 8th, Dr. Abram G. Brower, aged sixty-seven years.
- COLLINS.—In Chicago, on Thursday, November 7th, Dr. James H. Collins.
- COWLES.—In New York, on Friday, November 8th, Dr. A. B. Cowles, aged sixty-five years.
- DISBROW.—In Boston, on Saturday, November 9th, Dr. Robert Disbrow, aged sixty-five years.
- ELETT.—In St. Louis, Mo., on Monday, November 4th, Dr. Edward C. Ellett, aged eighty-eight years.
- FITE.—In New York, on Saturday, November 9th, Dr. Campbell Caldwell Fite.
- HAND.—In Milwaukee, Wis., on Thursday, November 7th, Dr. Walter Hand, aged eighty-two years.
- HUNTINGTON.—In Islip, Long Island, on Wednesday, November 6th, Dr. Abel Huntington.
- JACKSON.—In Simcoe, Ontario, Canada, on Monday, November 11th, Dr. Harry B. Jackson, of Detroit, Mich., aged forty-five years.
- MCGEER.—In San Francisco, Cal., on Wednesday, October 30th, Dr. George H. McGeer, Jr.
- PARKER.—In Halifax, Canada, on Monday, November 4th, Dr. D. McN. Parker, aged eighty-five years.
- PERKINS.—In Baldwinsville, N. Y., on Friday, November 8th, Dr. William Wirt Perkins, aged seventy-nine years.
- ROBERTSON.—In Cleveland, Ohio, on Thursday, November 7th, Dr. Fwing Welch Robertson, aged seventy-six years.
- RUGE.—In St. Louis, Mo., on Friday, November 8th, Dr. Louis Krag Ruge, aged seventy-eight years.
- TEMPLE.—In Cincinnati, Ohio, on Monday, November 11th, Dr. Jesse J. Temple, aged eighty-six years.

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Original Communications.

POSSIBLE PROGRESSIVE GROWTH IN MUSCULAR EFFICIENCY AFTER FIFTY YEARS OF LIFE WITHOUT SYSTEMATIC PHYSICAL EXERCISE.*

By HENRY FETCHER,
New York.

The constant reference to the test subject throughout this paper is not intended to be an exploitation of the individual. The use of the personal pronoun is made necessary by the fact that the person studied is the same as the observer who has studied the case.

The history of the case is here briefly given, allowing you to draw your own conclusions from your professional point of view.

In the early forties of his age, the subject of this study had pretty nearly exhausted his natural resources of health and strength, and in consequence was denied a life insurance policy. It is one of the standard jokes in insurance circles that many of the persons who are denied insurance on account of physical disabilities are thereby led to reform their habits and often act as pallbearers for the examining physicians who had refused to grant them policies. This is quite apropos in the present case. I was fully conscious of my own disabilities, and knew that the criticism of my condition was just. The shock of the statement, however, accentuated in such a practical way, led me to consider my own case in the hope of recovering my health. Having had a previous experience which suggested possibilities of recuperation, I determined to follow up the matter hopefully and thoroughly.

I believed the fault, at bottom, was one of malnutrition. Consultations of authorities on dietetics revealed such a confusion of opinion that I was led to infer that no one had struck the golden mean of truth.

Since I had to open up a new line of inquiry, I approached the question just as a business man would approach any subject of economics.

The argument was: If these disabilities were the responsibility of the individual suffering from malnutrition, it was fair to suppose that the violation of natural requirements occurred before the loss of control of the food. If so, it must relate to either the selection of food or to its treatment in the mouth before swallowing. The basis of this approach to the subject was an unbounded faith in

the justice and beneficence of Nature, and that she would be likely to place responsibility within easy reach. This conclusion led first to a consideration of the selection of food, but finally tended more particularly to the treatment of food in the mouth.

Having made a list of all the processes occurring in the mouth—taste, feeling, mastication, insalivation, swallowing, etc.—I began with a study of the first of these functions.

Reference to the books showed that taste was regarded as the lowest of the senses, because it was presumed to cater to undue indulgence and intemperance. In order to study taste, I found it necessary to carefully and observingly masticate and otherwise manipulate the solid food in the mouth, and to sip all liquids that have taste in much the same fashion as wine tasters and tea tasters do.

Pursuit of this practice and observation led to revelations with regard to taste which were astonishing. I found that many foods which had been considered comparatively tasteless—starchy foods, for instance—acquired a sweetness hitherto unknown. In a similar manner many foods that had formerly been quite palatable ceased to be so and were naturally discarded from the experimental list. It was soon observed that much less food completely satisfied the appetite, and that satisfaction was more complete with the smaller quantity than had formerly been the case with a larger amount. In the course of two or three weeks there was a noticeable decrease in the waist measurement, and uncomfortable obesity became modified in a progressive degree. Several other discomforts gradually disappeared also. At the end of four or five months, the insurance standard for normal weight was regained, and the diseases which had been declared chronic and dangerous had apparently vanished. In the meantime, there had been a notable diminution in the waste products of the body, and an increase in working energy.

It is unnecessary to pursue this part of the story further. The recuperation was progressive until the first measure of physical condition was made, in August, 1899, a little more than eight years ago. From May to July of that year I had leisurely ridden, in company with my wife and daughter, several hundred miles on my bicycle in Holland, Belgium, and France. On the Fourth of July, while we were residing in Paris, and to celebrate the day, I rode on on my wheel to the Forest of Fontainebleau, where my friend, the now famous American artist, Edward W. Redfield, was summing. What I returned to Paris the evening after a delightful trip in his company, including an

*A notice appeared before the New York Academy of Medicine, November 14, 1906.

exploration of the forest, I found that my cyclometer registered about 110 miles for that day. It was a great surprise to me that I had accomplished a century and more without fatigue, when fifty or sixty miles in my younger days had constituted a great performance and always resulted in considerable fatigue and usually in much muscular soreness for some days following.

The Fourth of July experience led me to undertake, about a month later, on my fiftieth birthday, a fuller endurance test, to determine, if possible, my maximum efficiency. In the previous year, I may explain, I had published two booklets on my experiments—one called *What Sense, or Economic Nutrition*, and the other *Nature's Food Filter, or What and When to Swallow*. These booklets, now out of print, were afterward embodied in *The New Glutton or Epicure*. That book contains the story of the fiftieth birthday experience, together with Mr. Redfield's testimony. I need only say here that the run continued from a little before 4 in the morning until after 10 at night, and covered a distance of 304 kilometres, about 190 miles, with a loss of about two kilogrammes in weight. After sleeping five hours soundly and restfully, I arose at sunrise and before taking food rode fifty miles more as a test of condition, and did not experience any sense of undue exertion from the day before.

In the autumn of that year we went to reside permanently in Venice, Italy, and there became acquainted with Dr. Van Someren, an English physician and surgeon practising in Venice. We found in Dr. Van Someren an investigator who was open and keen to consider the evidence in my case. I had been keeping careful records of my observations, and by this time they were already voluminous. Dr. Van Someren was associated with Professor Pietro Leonardi, who for twelve years had been professor of physiological chemistry at the University of Pavia, and who is the author of a textbook on that subject.

These men of science became interested in my case and data, and organized a set of experiments which lasted throughout the winter. In the summer the experiments were transferred to the Tyrol, in connection with endurance tests in mountain climbing and bicycle riding. One result of especial interest was the seeming immunity from muscular fatigue and the absence of muscular soreness—no matter how great or how unusual the strain.

In August of that year (1901) Dr. Van Someren read a paper before the British Medical Association which attracted considerable attention at the meeting and especially the interest of Sir Michael Foster, then professor of physiology at the University of Cambridge, England. As a result, both Dr. Van Someren and I were invited to the International Congress of Physiologists at Turin in September, and there Dr. Van Someren read a technical paper on our joint work. As a further result, we were invited to visit four physiological laboratories for the examination of our statements of economy and superior condition, and selected that of the University of Cambridge, owing to the unusual interest of Sir Michael Foster. At the same time, Dr. Henry P. Bowditch, the dean of American physiologists, became interested and has continued to

give invaluable encouragement and assistance up to the present time.

The Cambridge tests, which lasted several months, showed that great habitual economy, especially of proteid food, had been attained with seemingly good results. All the check experiments made proved that the practice of careful mouth treatment of food, and faithful obedience to the calls of appetite, secured for the individuals tested a similar economy of food, especially proteid food, and a similar increase of energy and muscular efficiency.

The facilities for handling a larger experiment at Cambridge being insufficient, Professor Foster devised a plan for an International Organization for the Study of Nutrition, and appealed to the Carnegie Institution for aid. The colleagues selected by Professor Foster for the physiological committee comprised Professor Pawlow, of Russia; Professor Mosso, of Italy; Professor Kronecker, of Switzerland; Professor Zuntz, of Germany; Professor Heger, of Belgium; and Professor Dastre, of France, all from European institutions, and Professor Bowditch, Professor Chittenden, and Professor Welch from American laboratories.

The distribution of subsidies by the Carnegie Institution was delayed for a year, and meanwhile I spent my time trying to induce physiologists to carry on experiments in their own laboratories; Professor Chittenden, of the Sheffield Scientific School, offered to put my allegations to a thorough test, to see if the time elapsed since the Cambridge work had made a difference in the showing. Strongly fixed was the idea that the case was an abnormal one, and that the principle was not generally applicable to humanity at large. The American physiologists were very skeptical as to the possibility of continued efficiency on a low proteid diet.

Professor Chittenden planned an examination which should be conclusive. As he expressed it: "When we get through with you at Yale, the evidence deduced will be accepted by American scientists. Either your assertions will be substantiated or you yourself will be disillusioned. And I will frankly say," he added, "that I believe you will be disillusioned."

The result of two series of observations, as given in Professor Chittenden's report, showed an almost complete nitrogenous equilibrium (daily average of 7.19 grammes intake and 6.90 grammes output) on an average daily consumption of 45 grammes of proteid—less than half that of the minimum Voit standard. To determine the physical efficiency on such a diet, a series of tests were made in the Yale gymnasium, under the direction of Dr. Anderson. These tests occurred in February, 1903. Dr. Anderson reported that on four successive days he had given his test subject the Varsity crew exercises—"which are drastic and fatiguing," wrote Dr. Anderson, "and cannot be done by beginners without soreness and pain resulting. Mr. Fletcher has taken these movements with an ease that is unlooked for. He gives evidence of no soreness or lameness. I am surprised that he can do the work of trained athletes and not give marked evidences of overexertion. My conclusion, given in condensed form, is this: Mr. Fletcher performs this work with greater ease and with fewer noticeable

bad results than any man I have ever worked with."

As a result of this test, verified by incarceration in the calorimeter at Middletown for thirty-four hours on one occasion and eighty-four hours on another occasion, it was decided to organize a large experiment, covering a long period of time and involving several distinct groups of individuals, so as to be conclusive. As this meant large expense and the Carnegie Institution was not yet prepared to finance it, I undertook to provide the necessary means for its accomplishment. Through the good offices of Dr. Bowditch, the Bache Fund of the National Academy contributed \$1,000, and on the recommendation of Major General Wood and Surgeon General O'Reilly, the Secretary of War detailed a company of hospital corps men to put themselves under the orders of Professor Chittenden and Professor Mendel at New Haven. Groups of college athletes and university men of sedentary habits were added, in order to secure a variety of test subjects.

The result of that experiment has been published in book form under the title of *Physiological Economy in Nutrition*, by Professor Chittenden. These experiments have seemed very convincing to all but a few carping critics, some of whom were themselves such poor specimens physiologically that the soundness of their judgment may be questioned.

After the report of this experiment had been made by Professor Chittenden, the Carnegie Institution, Mr. John H. Patterson, and Mr. Henry Clay Butcher, of Philadelphia, made generous contributions to the cost.

In the meantime, Dr. Hubert Higgins, former demonstrator of anatomy at the University of Cambridge, and Professor Heger, director of the Solvay Physiological Institute, Brussels, carried on some experiments to determine more accurately the physiological function of mastication and deglutition. A report of these researches appears in Dr. Higgins's book *Humaniculture*, and it is especially interesting to me that these scientific observers attest that my inferential description of what I originally called "Nature's food filter" is substantially correct.

In the year following the Yale experiment, Dr. Van Someren came to this country and became a test subject under Dr. Folin, at the McLean Hospital at Waverly, Mass. Some thirty subjects of various conditions were also examined, and the results of these tests gave material for Professor Folin's recent new theory of protein metabolism.

Inasmuch as Professor Chittenden's experiments had been conducted on the prescription basis to ascertain the mineral proteid requirement, Professor Irving Fisher, of Yale, in January, 1906, from the point of view of an economist, organized and himself supported a set of experiments with nine healthy students of sedentary habits. His object was to learn what would be the effect of natural limitation of proteid through careful mastication. The only rules of the experiment were thorough mastication of all food, and obedience to the calls of the appetite as to choice and quantity of food and time of eating. In the latter part of the experiment, the suggestion that low proteid foods

be preferred (when appetite was noncommittal) was allowed to operate. After six months, the result was a natural reduction of proteid to that agreeing with the new standard established by the Chittenden experiments. Further results confirmed the several beneficent statements that had been made for the practice of thorough mastication. The daily consumption of food was reduced one fourth, and there was a net increase of an average of 90 per cent. in muscular endurance, together with a decided gain in mental efficiency and in the ease with which the college tasks were performed.

This preliminary history of the case is necessary to a clear understanding of the matter with which we are primarily concerned. I have given you a record of my recuperation and growth in physical efficiency up to Dr. Anderson's report of my examination at Yale in February, 1903. In June of this present year occurred the second test, with which we are mainly concerned. In this interval of four years and four months I had taken no systematic physical exercise, but had fed my body in accordance with the dictates of appetite, and with reliance upon the natural food filter, which Dr. Higgins has so well described.

During the eighteen months previous to this last test, I had been on a voyage to the Dutch East Indies, the Philippines, China, Burma, India, and the Vale of Kashmir. Under condition of unusual responsibility and strain, and with every irregularity of temperature, food, activity, and inactivity possible to imagine, I subsisted on the food of the country wherever I was. In one emergency I was caught in a midwinter blizzard on a slope of the Himalaya Mountains at 8,500 feet elevation and waded waist deep in snow for seven hours or more to get out of the predicament. During the whole of that time I suffered no discomfort or disability, and seemed to have a share of energy and endurance equal to any emergency. In the entire eighteen months of extremes of environment I do not remember to have had one moment of discomfort.

In June of this year, while on a visit to New Haven, I was asked to test a machine invented by Professor Fisher for the measurement of endurance. I made such a good showing that Dr. Anderson and Professor Chittenden asked me to return and undergo an examination that might be compared with that of four years ago. This I did, and the report of these tests will be published by Professor Chittenden in an early issue of the *Popular Science Monthly*.

It seems to me that we are warranted, as a result of these tests, in believing that growing muscular efficiency is possible after fifty years. A mere maintenance of undiminishing efficiency and physical fitness for any considerable time after that period would appear remarkable enough; that is, it used to seem so to me. But a comparison of the later tests with the earlier and the energy which is still steadily being enjoyed in increasing quantity show that there was an improvement in muscular quality in the more recent tests and that the work was undergone with more ease, in spite of the fact that it was more severe. This would seem to leave no doubt that there has been a progressive improvement in physical efficiency during these

years. There is no factor to which this improvement can be credited other than the method of economic nutrition already described, and which has been practised consistently during this time and ever since the regeneration began. A notable feature of this régime is the entire absence of systematic physical training of any kind. The nutritive economy, to which the body becomes habituated, is sufficient to keep the body normally and comfortably in a condition which may be described as always "in training."

It is not intended to disparage physical training when I make assertions for improving muscular efficiency without systematic exercise. Physical exercise is an excellent thing when it is an expression of overflowing energy, but is not so good when taken in perfunctory manner in order to burn up excess fuel material in the body. Muscular growth depends upon use, and without use muscle wastes away. Too heavy muscles are not good for all purposes. In the lifter of heavy weights and in draught horses they are essential, but for speed, agility, and suppleness they are a detriment. Being "muscle bound" is something to be avoided in athletics.

Professor Fisher had made a distinction between strength and endurance. Strength relates to the ability to lift the greatest possible weight once. Endurance means the ability to lift a given weight a great many times with a minimum of fatigue.

What most persons want is endurance. By the aid of levers, pulleys, steam, electricity, or dynamite we can secure any strength we need and multiply it as many times as desirable; but in the work and play of life, endurance without fatigue is the chief desideratum, and the great value of my own discovery for myself is that this most essential quality of muscle can be had and maintained simply through a dietetic righteousness that is easy, economical, epicurean, and, above all, from the point of view of respectability, cleanly.

In all the measurements of condition that have been made in the many experiments of the past nine years, mental keenness and endurance have kept pace with muscular improvement. It is not so easy to measure mental condition as it is muscular condition, especially by any ponderable signs, but Dr. Anderson has come near to doing so by means of his thought balance, which tips in response to thought concentration on any designated part of the body.

In like manner the *Lancet*, of London, referred to muscular improvement, partly from my own observations and inferences, and partly from the speculations of physiology. I am inclined to be cautious in this regard when addressing a scientific audience. Once upon a time when Sir Michael Foster and I were lolling along in a gondola in Venice, discussing the physiology of nutrition on empty stomachs and with growing appetites, the great philosopher physiologist of revered memory said: "There is no doubt but what your results prove your assertions, but we physiologists cannot certify to them until we are able to give the physiological reasons for the results. Economists may do so and business men would do so, but physiologists must be conservative."

In like manner the *Lancet*, of London, referred to

my description of the natural food filter as interesting, but "neither logical nor physiological." Five or six years later the same authority printed the Higgins and Heger description, which confirmed my inferential description, and it has stood without denial for some three years.

Recently Professor Chittenden cautioned me against giving inferential reasons for the absence of muscular soreness and fatigue as the result of low proteid diet for the reason that the cause of such immunity was not yet physiologically explained.

I may say, however, that muscular slackness and mental dullness are usually associated with putridity of metabolism, and the same unhealthy and unclear sign usually follows high proteid consumption. It may further be stated, on abundant evidence, that flesh food high proteid produces fatigue and depression more quickly and distinctly than a vegetable high proteid ration.

We all are agreed, I believe, that air heavily charged with carbonic acid gas as the result of lack of ventilation, and where the air is being breathed again and again, causes depression, dullness, and headache, and may be fatal.

Some physiologists opine that putrid decomposition of excess proteid substance in the body produces what they call carbondioxide, which is similar to carbonic acid gas.

This carbondioxide is supposed to circulate in the life currents and thus constantly bathes every muscular cell. When it is present in the body there is depression and fatigue, but when it is kept out of the body through a natural economic nutrition, the muscles remain like new rubber as contrasted with slack, nonelastic, and dead rubber.

There is no doubt but what meat, or any form of superabundant proteid, like alcohol, gives certain immediate stimulation, and so called systematic physical training, or hard work of any kind, will throw off or burn up the mephitic products of such poison breeding metabolism, but the result of a let up in work is disastrous. On the other hand, nutrition that has been prescribed by a healthy earned appetite, limited by an appetite which has been allowed to discriminate through careful buccal treatment, and the whole blessed with true epicurean enjoyment accommodates itself to the bodily and mental activities of the moment, and the body thus nourished, whether the possessor of big muscles or small muscles, is always in training and ever ready to endure unusual strain in cases of emergency.

Since this audience is a mixed one and not a strictly professional one, as at first supposed, and as many medical men may not have read the *Lancet* articles or Dr. Higgins's book *Humaniculture*, if the time at our disposal permits, I shall be very glad to give a description of our food filters. It is quite possible to verify the description in each case without having any great knowledge of anatomy or physiology. It is only necessary to observe the feeling of the food while it is in the mouth and when it is being swallowed.

But there is another important requirement necessary to be observed, other than the mere mechanical act of mastication, and that is the physical or mental accompaniment of nutrition. Certain thoughts in this connection are most assistful of

digestion and assimilation, and certain other thoughts depress and even entirely paralyze digestion.

We all know that happiness assists and that unhappiness interferes with digestion. Bad news may cause acute indigestion, and has been known to make mother's milk sour, and from this cause infants have contracted colic and have died.

I can best illustrate the point by giving a brief description of the experiments of Professor Pawlow, of St. Petersburg, Russia, and Professor Cannon, of the Harvard Medical School.

With this natural evidence in mind and in view of the agreeableness and profitableness of a true epicurean nutrition, one should make the act of taking food a joyously reverential ceremony.

It is often assumed, without trial, that careful eating is tedious and takes much time. This ought not to be the case. In the beginning, if the digestive juices are not the true appetite juices, so named by Pawlow, more time will be required than later on when normality has been restored. In the *Scrapbook Magazine* for November I note an article giving a graphic description of an epicurean meal, in which the epicurean feaster is timed by the clock in taking his principal meal of the day, probably his only meal, if he is a true epicurean, and the time consumed is shown to be only twenty-seven minutes.

When I was undergoing the first measurement tests at Yale and doing the work of the Varsity crew, keeping my weight the while, I never occupied more than twenty-four to twenty-eight minutes in taking food. This was divided into two sittings, at noon and six in the evening. The food was very simple, owing to the difficulty of analysis, and consisted of a cereal, maple sugar, and milk. At market rates this cost an average of eleven cents per day, and food never tasted better.

I do not recommend this menu. I do not recommend any particular menu or any particular food. The more I study the subject the more I am inclined away from all prescription, whether from the outside or from one's own so called intelligence. Give the appetite a chance to choose by conforming to the psychical and mechanical requirements of digestion, and then let this normal appetite tell what to eat and when to eat.

The great question with us in the midst of artificial conditions of life and plethoric supply of tempting foods, and especially in the presence of aggressive hospitality, is *how* to eat. Eating for both pleasure and efficiency is a matter of method.

Food may be prescribed according to scientific formula that may approximate the correct bodily need, but only approximately at best. Only the normal appetite of the moment can prescribe with certain accuracy.

The normal appetite is essential to the best results, and habits of misconception, and nervous haste are not always easy to overcome, but Nature is always kind. Give her a chance and she will respond quickly.

One thing we should always bear in mind, and that is: The first law of Nature is infinite variety. Each person has a problem distinct from all his fellows, but the farther we go with our experiments the more we are compelled to believe that the ques-

tions of health, endurance, general efficiency, and happiness are mainly questions of a physiological nutrition, and that mental calm and appreciation are the most important factors in securing such nutrition, while careful buccal treatment is the first assistant in the matter.

OBSERVATIONS ON THE RESULTS OF TESTS FOR PHYSICAL ENDURANCE AT THE YALE GYMNASIUM.*

By W. G. ANDERSON, M. D.,
New Haven.

For a number of years Yale University has given more than passing attention to the well worn but always interesting problem of diet. What to eat, how much to eat, and how to eat are the three legs of the tripod upon which it is hoped may be based more accurate knowledge of what is best in making the human body efficient as a working machine.

The question is not What are people accustomed to do, but what *may* they do?

In the attempt to throw light on this query, Dr. Russell H. Chittenden, the director of the Yale Scientific School and professor of physiological chemistry, Dr. Lafayette B. Mendel, also professor of physiological chemistry, assisted by the very able men who are associated with them, have made careful investigations with various groups of men representing various walks of life. Dr. Irving Fisher, professor of political economy at Yale, has also carried on a series of tests with students in order to secure data which had an economical value and would be of service from the viewpoint of economics rather than physiology and biology.

The Yale professors were fortunate in being able to secure the valuable cooperation of Mr. Horace Fletcher, of Venice, who is well known as an advocate of thorough and complete mastication of food and whose experience with Sir Michael Foster, Dr. Ernest Van Someren, Dr. Henry Bowditch, Professor William James, and others of equally authoritative reputation has placed him in a class that demands respect.

The experiments have been conducted with the following distinct types or classes of individuals:

First: "A group of five men of varying ages connected with the university as professors and instructors, men who while leading active lives have not engaged in very active muscular work. They were selected as representatives of the mental worker rather than the physical worker, although several of them in the performance of their daily duties had to be on their feet in the laboratory a good portion of the day."

Second: "A detail of thirteen men, volunteers from the Hospital Corps of the United States Army and representatives of the moderate worker, men who for a period of six months took each week day a vigorous amount of systematic exercise in the gymnasium in addition to the routine work connected with their daily life as members of the United States Hospital Corps. These men were of different nationality, ages, and temperament."

Third: "A group of eight young men, students in the university, all thoroughly trained athletes and

*Read at a meeting of the New York Academy of Medicine, November 14, 1907.

gymnasts, and some of them with exceptional records in athletic events."

The complete report of the work by these subjects will be found in Dr. Chittenden's work, *Physiological Economy in Nutrition*, published by Frederick Stokes, New York.

Fourth: "A series of tests made with Mr. Horace Fletcher, who for several months was in Dr. Chittenden's laboratory and who for thirteen days was under special observation in January, 1903."

For complete report see Dr. Chittenden's article in the *Popular Science Monthly*, June, 1903.

Fifth: "A series of tests made on nine healthy students, in thorough mastication, following the Fletcher methods, lasting from January to June, 1906."

For detailed report see publications, *The Effect of Diet on Endurance*, by Professor Irving Fisher; *Yale University Academy of Arts and Sciences*, xiii, pp. 1 to 46, May, 1907.

Sixth: "An experiment consisting of a series of endurance tests made on forty-nine persons representing two contrasted types of dietetic habits. These fall into three groups: First, athletes accustomed to a high proteid and full flesh dietary; second, athletes accustomed to a low proteid and no flesh dietary; third, persons of sedentary life accustomed to a low proteid and no flesh dietary. The subjects consisted of Yale students, a Connecticut physician, and some physicians, nurses, and employees of the Battle Creek Sanatorium."

For details see the report of the test under the caption, *The Influence of Flesh Eating on Endurance*, by Professor Irving Fisher, *Yale Medical Journal*, March, 1907.

Seventh: "A second and special series of tests made with Mr. Horace Fletcher at Yale, in June, 1907."

The report is to be published by Dr. Chittenden in the early future.

Mr. Fletcher's methods are fully described in his various works published by Frederick Stokes, New York. See the *A. B. C. of Nutrition* and the *New Glutton*.

The reader is also asked to examine the latest work on the subject of diet by Dr. Chittenden, entitled *The Nutrition of Man*, 1907. Stokes, New York.

Other experiments have been made, but the tests for strength and endurance have not been included, hence my paper tonight will have to do with the seven studies heretofore mentioned.

In our efforts to create a standard by which we could measure the working capacity of the subjects we selected, among other factors, the strength and endurance of the human body, and the gymnasium as the place for these special tests.

By *strength* is meant "the utmost force a muscle can exert once"; by *endurance*, "the number of times it can repeat a given exertion within its strength."

The definitions may not be entirely satisfactory, but the reader will understand what we mean.

What was the nature of the tests selected?

For the soldiers and the Yale athletes who are young and lusty we selected the modified American collegiate strength test, which is: To raise the body as many times as possible by pulling it up and

pushing it up, then multiply the body weight by the number of times it has been raised; the product represents foot pounds. To this figure we add the strength of forearms, legs, and back, which tests are made with spring dynamometers, and finally the lung capacity, taken in cubic inches, and divided by twenty to make an equivalent in pounds.

For Mr. Fletcher we selected special tests, which will be described later, and for the subjects who took part in the mastication experiment and the influence of flesh eating upon endurance, still another set of tests, to which we will refer when we mention the results of our observations.

I made no tests with the members of the Yale faculty who acted as subjects for the first observations, but it is well to remember that these professors and instructors were active, nervous men, almost continually on their feet and constantly moving around; they were active thinkers and of the wiry, muscular build that characterizes many who do not train with athletes or gymnasts. I do not believe the physical condition of these subjects should be overlooked.

It might be well to come to some conclusion now as to what is meant by exercise in its most liberal sense.

It is not necessary to go to the gymnasium or field for exercise; it may be had in quick walking, wheel riding, going up and down stairs—in fact, in any form of voluntary and even involuntary muscular contraction used by men in their daily vocation. It is a question of degree, and when there is contraction of a muscle there is metabolism, which means a change in the current of the fluid tissues of the body.

I have found that men become stronger in body by merely thinking of the strength tests, and that thought of certain parts of the body sends blood to those parts.

Looked at through physiological glasses it means contraction of the muscles under very mild stimulation and all the various chemical changes which accompany muscle shortening; it would, indeed, be strange if there were no changes in the cells under the stimulus of thought. This being the case, we must bear in mind that not only did the Yale professors indulge in weak forms of exercise, but that even Mr. Fletcher indulges in certain kinds of gymnastics by his method of "physical thought."

Report on the soldiers, taken from the more complete statement to be found in Dr. Chittenden's work, states that:

The men were given the strength test; this was repeated twice each month. They worked one hour daily, Sunday excepted, from October 1, 1903, to April 1, 1904.

The exercises were strenuous and progressive, and included smart setting up movements, exercises on the apparatus, a run and a game. We made a strong effort to have the drills interesting. The men were not well "set up" at the beginning; they were below the standard set by applicants for the positions of firemen and policemen; they were timid; this was noticeable in the fence vault test. The majority "balked" at vaulting a bar four feet from the ground. At the end of six months all fear had disappeared and the entire class looked upon this particular test as an easy one, or, as they tersely stated it, "a cinch."

I attribute the timidity of the soldiers in the fence vault and in one or two other tests to their physical condition, as an improved state of body brought a marked change in every instance where fear was noted. While it is true that the tape, scales, and dynamometer tell an interesting story, there were changes in the attitude of the men that could not be measured by instruments of this kind. There was a noticeable improvement in their mental state.

I give a brief summary of my conclusions:

The soldiers were, at the beginning, below the average measurements and strength tests of men in their class. At the end of six months' training they were above their class in these respects and also above the strength tests of the average well nourished college student. (See figures.)

The men showed great gains in endurance, also in skill, accuracy of movement, and in courage and selfreliance. It is well to note that timidity and loss of selfdependence has much to do with a weak or poorly nourished body.

For better comparison, I give the total gains in strength taken from page 274 of Dr. Chittenden's work. These figures are certainly significant, as they do show a sufficiently well nourished body to improve even while on a greatly reduced intake of food:

H.	2970	4598
D.	3445	5055
M.	2543	4869
Z.	3070	5457
C.	2835	6269
S.	2838	4581
L.	2463	3277
S.	3245	5307
F.	2504	5178
C.	2210	4002
E.	2560	5530

11 men. Total...30783 Total...56123
Average...2789 Average...5102

Total gain, 25,440 foot-pounds; average gain, 2,313 foot-pounds.

The next test was to me most interesting, as we had to deal with men who were unusually well balanced in that they were highly trained mentally as well as physically, and were all "good stand men" in their studies. They were students who had won more than ordinary renown as athletes.

The question came forcefully: What can men in fine condition do in both the classroom and in the gymnasium if placed on a greatly reduced diet? Again I refer to my report to Dr. Chittenden: "The eight men with one exception were specialists in some form of college sport; Dr. Callahan was the medical assistant in the gymnasium, but took part in gymnastics, etc."

Mr. G. W. A. is a football, baseball, and basketball player, as well as a crew man (not Varsity), well built and an all round athlete.

Mr. W. L. A., a Yale athlete (hurdler), the captain of the Yale gymnastic team, university gymnastic champion, and American collegiate gymnastic champion.

Mr. H. S. B., a member of the Y. G. A., a gymnast and acrobat and in constant training.

Dr. W. H. C., medical assistant at the gymnasium, in daily practice in the gymnasium: bowling, handball and running.

Mr. M. D., a very muscular and versatile athlete, a football player and a Varsity basketball player.

Mr. S. C. J., a Yale athlete, a noted long distance man, and one of the best university runners

Mr. H. R. S., an active member of the Y. G. A., a point winner and intercollegiate competitor in gymnastics.

Mr. J. S., a wrestler and gymnast. A professional, a man of large body and great strength. A student.

All the athletes lost weight; Dr. C. went from 204 to 185 pounds in two months. Most men lose weight when in training. These students were in a different class from the soldiers; first, because they were well educated; second, because their physical development was toward a certain end, i. e., to make a Yale team; third, because they were compelled to do fifteen hours each week in recitations, to attend laboratory exercises and to make up their studies outside of these hours, hence there was a double drain on their vitality.

An interesting case was that of W. L. A., a young man, a medical student and the captain of the Yale gymnastic team; under the reduced diet he lost some in weight and in the strength test, but this was due to worry over his duties as captain of the team. He won the University championship in gymnastics and all round American championship of the colleges while on this diet. I examined the men carefully after their test and found them in good shape. The strength tests are appended:

Name	Jan. 26.	June
G. W. A.	4913	5722
W. L. A.	6016	6472
Mr. B.	5993	8105
Dr. C.	2154	3983
Mr. D.	4581	5917
Mr. J.	4548	5697
Mr. S.	5728	7135
Mr. J. S.	5351	6833

8 men. Total...39287 Total...52894
Average...4365 Average...5867

Total gain, 13,067 foot-pounds; average gain, 1512 foot-pounds.

The Fisher Experiments:

Dr. Fisher, professor of political economy at Yale, carried on two studies in the effect of mastication and diet. In the first he selected nine healthy Yale students who were to follow Mr. Fletcher's idea of complete mastication and permit the appetite to decide upon the selection of food. This test lasted about six months.

The men underwent the modified collegiate strength test for strength, and for endurance we selected seven forms of exercise, viz., rising on tip-toes, deep knee bending, lying on the back and raising the legs, pushing a five pound dumb bell from the shoulder above the head, holding the arms shoulder high to the sides as long as possible, flexing the elbow while holding dumb bells of decreasing weight, i. e., 50, 25, 10 and 5 pounds, and finally a run on the track at a speed to suit the subject but up to the limit of endurance. Each test was to be carried to the limit. The final tests showed a loss in weight and strength, but such a gain in endurance as to astonish the experimenters.

Dr. Fisher, in commenting on the experiment, says: "Our conclusion in brief is that Mr. Fletcher's claims so far as they relate to endurance are justified." See *The Art of Diet*, p. 7 for the amount of food eaten, etc.

The second series of observations made by Dr. Fisher were upon the comparative endurance of meat eaters and meat abstainers. Forty nine per-

sons presented themselves for the experiment—athletes who ate meat, athletes who did not eat meat, and persons of sedentary life who were meat abstainers.

The physical tests were as follows: (a) Holding arms out shoulder high; (b) deep knee bending; (c) lying on back and raising legs.

The appended table will give an idea of what was done by the three classes of subjects in their final tests:

Class.	Arm holding.		Deep knee test.		Leg raising.	
	No.	Aver.	No.	Aver.	No.	Aver.
Meat eaters,						
athletes	15	10	9	383	6	279
Abstainers,						
athletes	19	39	16	927	6	288
Abstainers,						
sedentary	13	64	5	535	1	74

On the limited data, Dr. Fisher does not base definite conclusions that meat abstainers have greater endurance than meat eaters, but these tests and other similar studies made by him show the meat abstainer to have greater endurance, and he feels that the results are at least significant.

Report on the Tests Made by Mr. Horace Fletcher at the Yale Gymnasium:

Mr. Fletcher has described his case here to-night, so I will at once revert to the physical side of the interesting experiments. While Mr. Fletcher was undergoing the thirteen day inspection at the scientific laboratories under Dr. Chittenden and Dr. Mendel, he also came to me for certain physical tests.

I selected only gymnastic movements which would put to severe trial his powers of endurance; for this purpose I chose the movements usually used by the crew squads; they are very trying and soon tire out beginners.¹

On the 4th, 5th, 6th, and 7th of February, 1903, I gave these exercises to Mr. Fletcher; he took them each fifty times. They tax the muscles of the trunk as well as those of the arms and legs. Mr. Fletcher went through the movements with great ease. He returned the second day showing not the slightest evidence of soreness or lameness, and again went through all the movements; he also took the long run a second time without any evidence of distress. The heart was rapid but not abnormal and soon returned to its regular cadence.

The case is unusual, and I am surprised that Mr. Fletcher can without previous practice perform the movements taken by the trained applicants for the Varsity crew without showing ill effects. Mr. Fletcher performed the task with greater ease than any man of his age I have ever worked with.

If the listener really wishes to know something of the character of the tests selected he can easily try them.

Report on the Second Fletcher Endurance Tests:

On June 11, 1907, Mr. Horace Fletcher again underwent a series of endurance trials at the Yale gymnasium under my personal supervision. The tests were:

Raising the knee as many times as possible by ankle extension against a definite weight, the device used being the Fisher dynamometer.

Ascertaining the strength of the calf muscles on the Kellogg mercurial dynamometer by two or three single efforts. Mr. Fletcher's record on the

Kellogg dynamometer was 400 pounds. He then raised three quarters of this amount on the Fisher dynamometer as many times as possible, record 350 times. We had previously secured records from eighteen Yale men on these machines, which were: average 87 lifts, extremes 33 and 175. It will be noticed that Mr. Fletcher doubled the best Yale record.

Before the trials the pulse was 72, afterward 120. Face flushed, respiration regular, heart action normal, perspiration moderate. No trembling of the hands, subject held a glass filled to the brim with water without spilling any. In coming down stairs there was no giving way of the calf muscles nor did the foot tremble.

That we might make a more exacting test, I selected for a later series of trials: Going up 32 steps of the spiral staircase. Lying down and raising the trunk. Standing and trunk bending forward and downward. Holding two 25 pound dumb bells, flexing elbows, then raising the bells above the head. The test on the Fisher and Kellogg dynamometers.

Later it was found necessary to change the tests slightly on account of the chafing of the body, and I selected: Running in place with knee raising forward and upward. Rapid extension of arms upward, downward, and outward. Same, but holding one pound dumb bells.

Results of Trials Made on June 17, 18, 19, 20, 21, 22, 1907:

Pulse and Records.

Normal pulse, 72.

Stair climb, 115.

Trunk raising, 141. (Records, 50, 60, 70, 100, 100. Five trials).

Trunk bending, 150. (Records, 60, 100, 150, 200, 300).

After lifting 25 pound dumb bells. (5, 10, 10 times).

After Fisher dynamometer test, 120. (Records, 50, 50, 60, 60).

After rapid arm work for 3 minutes, 156.

After like work with 2 pound bells 2 minutes, 156.

After running in place 1 minute, 144.

Time for the tests, 30 minutes. Heart action and respiration normal but active, no evidence of fatigue at any time and no soreness. Mr. Fletcher appeared each day for the trials and showed no distress before, during or after the work. Mr. Fletcher is nearly sixty years of age; he takes no regular systematic exercise aside from the kind mentioned in the early portion of my paper; he is not in position to visit gymnasia, and yet he has shown greater stamina and endurance than he did in 1903, four years ago.

It will be very interesting to know that on his fiftieth birthday Mr. Fletcher rode 190 miles on a wheel between the hours of 4:00 a. m. and 10:00 p. m. of the same day.

Conclusions Based Upon the Various Tests:

In every instance there was gain in strength, the nine men who took the test in mastication excepted; in every instance there was gain in power of endurance.

I might further add, that so far as my part of the studies goes I have to deal mainly with facts, i. e., the men come to me for preliminary trials, for

¹ These tests taxed the movements.

semifinal trials, and for final tests, and they did make decided gains, one set of exceptions only.

It is obvious that there must have been some reason for such results; this reason can not be purely psychological. I believe the gains were due to moderation in living.

YALE UNIVERSITY.

A BACTERIOLOGICAL STUDY OF COMMERCIAL ICE CREAM.

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AND

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(A study conducted in the Bacteriological Laboratory at the City of Philadelphia, during 1905 and 1906.)

The very common occurrence of streptococci in untreated and apparently fresh milk and cream has led to a search for these organisms in various other food products. Among the most widely distributed milk foods are the many frozen dainties which, under the name of ice creams, hokey pokey, milk balls, and such like, are almost universally used throughout the United States by all classes of people.

A very great opportunity for chemical adulteration is afforded the makers of ice cream by the nature of the product, and, judging from the advertised cream thickeners on the market, as well as the characteristics of the melted ice cream, but few are quite free from artificial thickening material of some sort. Such thickeners have usually been based upon corn starch or gelatin, products harmless in themselves, but more gratifying to the purse of the makers than to the feelings of the consumers who pay for pure cream.

Comparatively recently the Federal government has decided that ice cream "is a frozen product made from cream and sugar, with and without a natural flavor, and contains not less than 14 per cent. of milk fat.—Fruit ice cream is a frozen product made from cream and sugar and sound, clean, mature fruit, and contains not less than 12 per cent. of milk fat.—Nut ice cream is a frozen product made from cream and sugar and sound, nonrancid nuts, and contains not less than 12 per cent. of milk fat."

The pure food bill, adopted in 1907 by the commonwealth of Pennsylvania, requires that the butter fat in ice cream shall be 12 per cent. unless it be flavored with fruit, when it may fall to 10 per cent. Eggs and gelatin as thickeners are permitted, but corn starch excluded. Such laws should make for greater justice in the production and selling of this food product.

Though the adulterations which have been so widely practised may not have been detrimental to health, the bacterial contamination of ice cream, on the other hand, is oftentimes productive of serious illness in the consumer, either by way of direct infections or by means of decomposition products. One is constantly meeting enteric affections of greater or less severity traceable to the eating of ice cream. This is a matter of importance from any standpoint, but especially when one considers the great extent to which these foods are used by invalids and young children, since they are grateful to one and nutritious to the other.

In the direct bacterial infections from milk the streptococcus is very often the culpable organism. Of the many investigators who have looked into this subject one may mention Petruschky and Kriebel who lay stress upon the pathogenicity of the streptococcus in milk; Eserich who blames much of the enteritis of young children upon the presence of this organism; Kaiser who attributes the increased infant mortality in summertime very largely to streptococci; and Ruhlmann and Tromsdorff, Brüning, Müller and Heinemann, all of whom have proved the pathogenicity of various strains of streptococci isolated from milk.

One of the most recent contributions to this subject is that by Heinemann who, in his summary, states that *Streptococcus lacticus* is closely related to *Streptococcus pyogenes* not only morphologically and culturally, but also pathogenically, and he explains the negative results of inoculation experiments obtained by some observers with milk streptococci in two ways:

"1. The lesions are often, especially in the beginning, insignificant, and are easily overlooked.

"2. Since lesions are insignificant with large doses, it is quite possible that small doses are unable to create any noticeable disturbances."

Heinemann found that the passing of streptococcus from milk through four or five animals resulted in an increase of virulence in the organisms until, finally, they were as swiftly virulent as the organisms freshly isolated from streptococci lesions in human beings.

Undoubtedly the streptococcus which is commonly found in market milk is an organism of low virulence, or, possibly, of no virulence, to a great majority of our laboratory animals and to the majority of human beings. However, one does find here and there certain people who, almost invariably, show indications of bacterial infection after eating ice cream, and the question naturally presents itself: Is this infection due to the presence of a streptococcus which, for these people at least, is virulent? Such queries make the determination of the frequency of living streptococci in ice cream a matter worthy of study. Accordingly, the investigation outlined below was undertaken, and the ice creams and frozen products reported represented the products sold by dealers patronized by every class of people, even to the hokey pokey man, who dispenses his wares chiefly to school children or tiny tots scarcely old enough to ask for the coveted dainty.

During the months of June, July, and August, 1905, sixty-eight samples of ice cream were examined bacteriologically, and an approximate count of leucocytes was also made.

These samples were collected by the city milk inspectors in wide mouthed, sterile bottles, packed in ice, and brought to the laboratory as promptly as possible. In some instances they were melted when received, but they were still very cold; in most cases they were partly solid. Some of these never melted, but remained as thick, creamy, semisolids. These contained thickeners which apparently were gelatin-like, and some contained cornstarch.

In fifty-five out of the sixty-eight samples, or 80 per cent., streptococci were found.

In forty-five examinations, or 66 per cent., not only the melted product but the milk or cream used

TABLE I.
BACTERIOLOGICAL EXAMINATION OF ICE CREAM AND ITS CONSTITUENTS.

(Unless otherwise specified all the creams are vanilla flavored.)

	Material.	Leucocytes.	Count of organisms, per c.c.	Streptococci (morphologically).	Streptococci (pure culture)	Premises, ice cream dealers.	Premises, cream dealers.
1.	Ice cream.	13,221	4,686,000	present	present	closed	clean
2.	Ice cream.	13,221	5,016,000	present	present	fairly clean; milk balls a specialty	very clean
3.	Ice cream.	17,628	110,000	absent	absent	dirty	fair
4.	Ice cream.	26,442	2,100,000	absent	absent	absolutely filthy	closed
5.	Ice cream.	44,070	3,850,000	present	present	dirty and ignorant fair—ice cream	clean
6.	Ice cream.	44,070	46,200,000	present	present	made in cellar	
7.	Ice cream.	44,070	73,500,000	present	present	absolutely filthy	
8.	Ice cream.	52,884	innumerable	present	present	fairly clean	
9.	Milk Cream.	13,221	4,557,000	present	present	out of business	
	Ice cream.	0	34,790,000	present	present		
10.	Ice cream.	0	innumerable	present	present		
	Ice cream.	4,407	2,837,500	present	present	fairly clean	clean bottles, steamed after washing with soda
	Ice cream.	79,512	1,965,000	absent	absent		washing with soda and soap
11.	Cream.	39,063	4,205,000	present	present	intelligent clean	clean
	Ice cream.	0	2,686,000	present	present	shop	
12.	Cream.	0	4,755,000	present	present	fair	fairly clean
	Ice cream.	26,442	4,510,000	present	present	made in cellar	
13.	Cream.	44,070	32,490,000	present	present		
	Ice cream.	52,884	19,900,000	present	present	clean	
14.	Cream.	44,070		present	present	clean	
	Ice cream.	118,989		present	present	clean	
15.	Cream.	114,024		present	present	changed business	
	Ice cream.	92,547		present	present		
16.	Cream.	26,442		present	present	clean	clean, bottles steamed after washing with soda
	Ice cream.	35,250		present	present	made in yard	washing with soda and soap
17.	Ice cream.	22,035	2,565,000	absent	absent		
18.	Cream.	114,024	3,672,500	present	present	moved	
	Ice cream.	35,250	5,400,000	present	present	clean—kept by a woman—made in yard.	
	Cream.	26,442		absent	absent		
	Ice cream.	52,884	74,500	present	present		
20.	Milk.	35,250		present	present	fairly clean	
	Ice cream.	79,512		present	present		
21.	Milk Cream.	66,105	6,335,000	present	present	dirty	clean
	Cream.	105,768	1,200,000	present	present	dirty	
	Ice Cream.	52,884	2,990,000	present	present		
	Condensed Cr.	39,063	1,012,500	absent	absent		
22.	Cream.	13,221	5,520,000	present	present	closed	clean
	Ice cream.	17,628	3,965,000	present	present		
23.	Cream.	88,140	13,795,000	present	present	vacated	clean
	Ice cream.	44,070	4,037,500	present	present		
24.	Milk.	154,245	12,897,500	present	present	closed	clean, bottles steamed after washing with soda and soap
	Ice cream.	26,442	3,150,000	present	present		clean
25.	Cream.	35,250	1,052,500	present	present	clean, ice cream made in rear shed	clean
	Ice cream (chocolate).	4,407	24,260,000	absent	present		
26.	Cream.	26,442	3,510,000	present	present	clean	
	Ice cream.	39,549	2,470,000	present	present		
27.	Cream.	44,070	1,672,000	present	present	clean	
	Ice cream.	39,663	6,535,000	present	present		
28.	Ice cream.	35,250	1,052,500	present	present	dirty rooms, made in cellar	clean
29.	Ice cream.	61,698	8,080,000	present	present	dirty rooms, made in cellar	
30.	Cream.	13,221	50,000	present	present	fairly clean, made in cellar	clean
	Ice cream.	52,884	70,000	present	present	moved	fair
31.	Cream.	616,080	5,400,000	present	present		
	Ice cream.	8,814	1,400,000	absent	absent		
32.	Cream.	17,628	150,000	present	present	fairly clean, made in cellar	clean, woman in charge
	Ice cream.	0		present	present	fair	clean
33.	Cream.	0	22,725,000	present	present		
	Ice cream.	0	16,080,000	present	present	clean, fairly	
34.	Cream.	0	4,055,000	present	present	intelligent	
	Ice cream.	17,628	7,600,000	present	present	fair	store in rear shed, fairly clean
35.	Cream.	13,221	3,170,000	present	present		
	Ice cream.	88,140	138,600,000	absent	absent	fairly clean	
36.	Cream.	52,884	56,700,000	present	present		
	Ice cream.	0	64,800,000	absent	absent	fairly clean	
37.	Cream.	0	42,400,000	absent	absent	dirty cans, windows, etc.	
	Ice cream.	22,035	18,200,000	absent	absent		
38.	Cream.	66,105	9,400,000	present	present	fairly large ice cream plant	clean, bottles steamed after cleansing with soda and soap
	Ice cream.	79,326	9,640,000	present	present		fair
39.	Cream.	145,431	46,930,000	present	present	fair, ice cream made in rear of factory	
	Ice cream.	189,501	74,600,000	present	present		
40.	Cream.	0	11,365,000	present	present	fair, made in cellar	fair
41.	Ice cream.	114,205	6,105,000	present	present		
	Cream.	140,705	151,200,000	present	present	filthy, use gold dust	
42.	Ice cream.	202,722	57,300,000	present	present		
43.	Cream.	88,140	5,700,000	present	present	dirty, ice cream made in yard	clean, use soda water
	Ice cream.	66,105	31,580,000	present	present	dirty, made in cellar	clean, bottles steamed after cleansing in soda and water
44.	Ice cream.	176,486	74,000,000	present	present		

TABLE I—Continued.

	Material.	Leucocytes.	Count of organisms, per c.c.	Streptococci (morphologically.)	Streptococci (culture.)	Premises, ice cream dealers.	Premises, cream dealers.
45.....	Cream.	740,376	20,700,000	present	present	clean, made in shed	
	Ice cream.	154,245	3,460,000	present	present	filthy, made in back yard	
46.....	Cream.	533,847	innumerable	present	present	clean	
	Ice cream.	242,385	6,600,000	present	present	clean	
47.....	Cream.	0	79,800,000	absent	absent	clean	
	Ice cream.	0	33,120,000	absent	absent	clean	
48.....	Cream.	0	20,350,000	present	present	clean	
	Ice cream.	0	9,390,000	present	present	filthy, made in cellar	clean
49.....	Cream.	8,814	52,400,000	present	present	dirty, made in back yard	
	Ice cream.	0	63,200,000	present	absent	clean	
50.....	Cream.	0	126,000,000	absent	absent	clean	
	Ice cream (chocolate).	0	8,740,000	absent	absent	clean	
51.....	Cream.	14,070	2,250,000	present	present	fairly clean	
	Ice cream.	48,477	557,500	present	present	clean, ice cream made in yard	clean
52.....	Cream.	13,210	63,280,000	absent	absent	fair, ice cream made in yard	
	Ice cream.	22,035	5,730,000	absent	absent	fairly clean	
53.....	Cream.	13,221	14,105,000	absent	absent	clean, bottles washed after washing with soda and water	
	Ice cream.	17,628	35,000,000	absent	absent	fair, made in cellar	
54.....	Cream.	0	335,000	absent	absent	fair, made in yard	clean, bottles washed in soda and water, then steamed
	Ice cream.	66,105	2,290,000	absent	absent	fair, made in yard	
55.....	Cream.	54,884	0	present	present	fair, made in yard	fair
	Ice cream.	79,326	0	present	present	fair	clean
56.....	Cream.	13,221	0	absent	absent	absolutely filthy	
	Ice cream.	594,945	0	absent	absent	absolutely filthy	
57.....	Cream.	224,757	0	absent	absent	absolutely filthy	
	Ice cream.	229,154	0	absent	absent	absolutely filthy	
58.....	Cream.	52,884	0	absent	absent	absolutely filthy	
	Ice cream.	110,125	0	absent	absent	absolutely filthy	
59.....	Cream.	105,768	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
60.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
61.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
62.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
63.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
64.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
65.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
66.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
67.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
68.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
69.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
70.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
71.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
72.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
73.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
74.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
75.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
76.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
77.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
78.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
79.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
80.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
81.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
82.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
83.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
84.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
85.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
86.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
87.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
88.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
89.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
90.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
91.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
92.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
93.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
94.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
95.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
96.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
97.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
98.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	
99.....	Cream.	22,035	0	absent	absent	absolutely filthy	
	Ice cream.	17,628	0	absent	absent	absolutely filthy	
100.....	Cream.	264,420	0	absent	absent	absolutely filthy	
	Ice cream.	35,256	0	absent	absent	absolutely filthy	

in its manufacture was investigated. In thirty-five of the forty-five cases, or 77 per cent., streptococci were found in the milk or cream and in the ice cream as well. From twenty-three, or 33 per cent. of all examined, the streptococci were isolated in pure culture. They grew fairly easily. In only three samples were these organisms found in the cream alone; and, where both cream and ice cream were examined, only twice in the ice cream alone. The foregoing figures are summarized from Table I.

The question of the original source of streptococci in ice cream is of importance from a sanitary standpoint. The conditions under which the mixtures are made and frozen, the cleansing of the utensils, etc., are such that very often almost any kind of bacterial infection may gain access to it.

The usual source of streptococci in milk or cream, however, is the cow, and, judging from the results

set forth here, it is the cream or milk entering into the ice cream which is the carrier of the germs.

The cleanliness of the surroundings under which the ice cream is made does not seem to greatly affect the presence of streptococci. Sixty different ice cream makers were visited and their premises inspected. What constitutes a standard of cleanliness in the production of such a food stuff as ice cream depends very largely upon the inspector's ideas on the subject. The very nature of the process—the mixture of ice and salt, wooden tubs for freezing, fruit flavoring, etc.—makes it a difficult matter to preserve immaculate surroundings, even when interiors of utensils and constituents of the ice creams are strictly clean. The final division of these sixty different makers' establishments was made on the basis of four classes: (1) Clean; (2) fair; (3) dirty; (4) filthy. In rating them the building, drain-

age, opportunities for ventilation, conditions of walls, ceilings, windows, adjoining rooms or buildings, as well as the condition of the utensils, methods of cleaning, attempts at sterilization, etc., were taken into account. The results are as indicated:

TABLE II.
Division of Sixty Different Establishments.

	Number of establishments.	Percentage having streptococci in ice cream.	Average count of organisms per c.c.
Clean.....	20	90	112 460 861
Fair.....	26	77	15 857 800
Dirty.....	6	66	22 491 833
Filthy.....	8	75	29 225 714

While the cleanliness of the manufactory does not, according to this investigation, bear any constant relation to the presence of streptococci, it does affect the cleanliness of the finished product as indicated by the total bacterial content, a gradual rise being observed from the "clean" shops to the "filthy" ones. The latter were sometimes almost beyond description. For instance, sample 42 was made in a shed adjoining both a dwelling and a stable for eight or ten horses. The workmen went from horses and stable-cleaning to the ice cream shed without restraint, handling the utensils in the latter as necessity demanded, regardless of soiled clothes or hands. Ice cream cans and milk cans

¹Among the eleven available counts from clean shops one gave over 79,000,000 to the c.c. This was so far in excess of the other ten that it was deemed more just to exclude it when taking the average.

stood in a passageway common to both shop and ice cream manufactory and part of which was bordered on each side by stalls for horses. The stench of this place finally caused complaint from the neighborhood and it was dealt with on the ground of a nuisance. On the other hand, a large ice cream manufacturer had endeavored to preserve the strictest cleanliness possible. Employees engaged in ice cream making did no other work, and each man had only certain duties or portions of the process assigned to him. He changed his clothing and took a bath when beginning the day's work, and clean lockers and plentiful showers were provided to enable the fulfillment of this regulation. The utensils were cleaned with soda and finally placed on a steam table for sterilization. Such precautions resulted in the counts given in samples 27 and 48 and 49, namely, 6,535,000, 33,120,000, and 20,550,000.

Through the courtesy and interest of the head of this ice cream firm a bacteriological study of each step in the process was made possible. The cream in the supply tank was first sampled; a portion was then drawn off by the employee, mixed with the necessary sugar (cane) for sweetening, and a sample of this taken for examination. After adding the vanilla and transferring to the freezing cans it was again sampled, and then the frozen product was also examined. In the freezing the bulk a little more than doubled. Although frozen, the ice cream was soft enough to measure in a wide mouthed 10 c.c. pipette, and it was plated,

TABLE IV.
Comparisons of Incubated Samples Kept at Refrigerator, Room, and

	Immediate.			24 hours later.				48 hours later.					
1909	Refrigerator.	Room.	Incubator.	Refrigerator.	Percentage of increase.	Room.	Percentage of increase.	Incubator.	Percentage of increase.	Refrigerator.	Percentage of increase.	Room.	Percentage of increase.
January 29th.													
No. 1.													
Milk.....	45	70	18	118	162.22	599	755.71	15,470	85,844.4	1,558	3,362.0	5,528	7,797.0
Cream.....	139	97	59			1,915	1,874.22	22,790	39,037.9			34,198	35,155.0
No. 2.													
Milk.....	22	76	42	115	422.72	426	460.52	23,270	55,394.7	968	4,300.0	14,708	19,252.0
Cream.....	132	142	71	511	287.12	2,526	1,678.8	33,353	44,971.62	11,920	8,930.0	30,400	21,308.0
February 5th.													
No. 3.													
Milk.....	13	10	13	25	92.3	5,490	54,800.0	innumerable.		49	276.92	16,635	166,250.0
Cream.....	16	13	19	29	81.25	24,048	184,884.0	innumerable.		83	418.0	77,709	598,053.0
No. 4.													
Milk.....	10	10	11	21	110.0	8,780	87,700.0	innumerable.		30	200.0	23,520	235,100.0
Cream.....	11	19	9	36	227.0	32,268	169,731.0	innumerable.		33	200.0	128,760	677,584.0
February 15th.													
No. 5.													
Milk.....	21	17	12	16	23.0	8,410	49,547.0	7,817	65,041.0	120	471.0		
Cream.....	20	11	9	79	280.0	39,111	273,954.0	40,111	44,688.0	521	2,505.0	11,360	103,172.0
No. 6.													
Milk.....	8	19	13	27	237.0	14,198	74,626.0	125	2,400.0	131	1,537.0		
Cream.....	23	20	15	68	195.0	59,112	250,460.0	890	5,833.0	595	2,486.0	15,060	75,200.0
March 19th.													
No. 7.													
Milk.....	1,162	1,115	91	10,750	689.0	5,760,000	507,388.0	14,280,000	1,532,082.0	7,700	165.0		
Cream.....	1,992	1,396	597	15,590	1312.0	6,720,000	482,058.0	15,360,000	2,572,764.0	16,800	1,431.0		
No. 8.													
Milk.....	1,147	999	883	14,375	967.0	600,000	60,506.0	8,640,000	976,171.0	4,000	263.0		
Cream.....	1,147	2,420	2,335	8,925	514.0	1,020,000	42,948.0	9,500,000	409,321.0	7,500	440.0		
March 26th.													
No. 9.													
Milk.....	9,000	7,825	8,050	9,140	—1.61	2,610,000	33,254.0	71,700,000	890,583.0	11,000	18.0	21,160,000	272,871.0
Cream.....	10,000	8,100	9,190	14,990	941.0	5,424,000	66,862.0	innumerable.		13,250	826.0	32,720,000	403,850.0
No. 10.													
Milk.....	11,075	9,000	8,150	10,600	—4.28	4,712,000	52,119.0	61,680,000	752,544.0	825	92.0	39,720,000	436,383.0
Cream.....	12,917	11,750	10,000	10,550	912.0	6,129,000	55,410.0	innumerable.		13,200	1,172.0	innumerable	

after appropriate dilution, at once. The results of the frozen cream, to be comparable with those of the preceding samples, should, therefore, be about doubled. The plates were of agar and were grown at 20° C.

TABLE III

Organisms in Ice Cream at Each Step in the Process of Making.

	On agar at 20° C. organisms per c.c.	Streptococci
Cream from tank.....	2,840,000	Present.
		About 25 per cent. of all organisms—and in an active condition.
Cream and sugar.....	7,000,000	
Cream, sugar and vanilla in presence of 5% of cream.....	5,750,000 2,550,000 ± = 4,500,000	

In this particular experiment the sugar carried in the greatest number of organisms. The cream itself was fairly free of living germs. It did contain streptococci, however, in an active condition. This fact is of interest, since the cream, immediately upon its receipt, is pasteurized in a continuous flow machine by the ice cream maker. A very large proportion of the cream coming into the city is pasteurized before it leaves the hands of the cream dealer; often it is so treated at the receiving station or creamery in the country district from which the milk is collected, and hence this ice cream is likely to have two pasteurizations. Nevertheless, vegetative streptococci are found in the finished product.

The proportion of streptococci as compared with

other organisms in the finished ice cream is strikingly high. Often they seem, from microscopical examination, to be in almost pure culture. The number of streptococci in the average market cream is apt to exceed the number in milk of the same standard. If these organisms really do grow more luxuriantly in cream than in milk we have one explanation of their very frequent presence in ice cream. To determine this point, milk and cream of known fat content, as fresh as possible, and counting less than 5,000 organisms per c.c., were sterilized and inoculated with a strain of streptococcus isolated originally from milk and scraped for inoculation from a 48 hour agar slant.

The inoculated samples were kept at refrigerator, room, and incubator temperatures, and plated immediately, and at intervals of twenty-four hours, as indicated in Table IV. The plates were made on agar and grown for twenty-four to seventy-two hours at 37° C.

Comparative counts of streptococci when grown in sterilized milk or cream are difficult in that they vary among themselves, even though the greatest care be taken to have conditions the same. The method of diluting a measured quantity in sterile water or physiological salt solution and pipetting off the desired amount was found to be less satisfactory than the removal of the *oese* of the inoculated milk or cream, washing off the platinum wire in a good sized drop of sterile physiological salt which had previously been placed on the middle of the lower section of a Petri dish, and immediately

TABLE IV.

Incubator Temperatures.

[illegible]

pouring on the top of the mixture the melted agar, shaking with a rotary motion to distribute the germs evenly. Plates so made, involving but little manipulation, and reducing to a minimum the effects of osmosis, were the most satisfactory, though they frequently left much to be desired. The counts of organisms as given represent, then, the number of streptococci in one *oese* of milk and of cream, the former containing 3.5 to 3.8 per cent. of fat, except in experiments 9 and 10, where it was 4.5 per cent., and the latter containing 27 per cent. of fat, except in experiments 9 and 10, where it was 25 per cent.

An analysis of the results given in Table IV shows that, during the first twenty-four hours, of the samples kept in the refrigerator the percentage of increase of streptococci in the cream was in six cases greater than the corresponding increase in the milk. The portions kept at room temperature showed a greater proportion of streptococci in the cream in seven instances out of the ten, while the portions in the incubator at 37° C. gave the greater increase in the milk in four out of six comparative counts. After forty-eight hours under these conditions the cream in the refrigerator had the greater number of organisms in eight out of ten comparable counts; at room temperature all the cream samples were ahead of the milk, and those in the incubator showed a curd with a separation of whey in the milk samples, and a practically solid mass, though without distinct flocking, in the cream. At the expiration of seventy-two hours six out of seven cream and milk counts showed the cream the richer in organisms, and the cream samples at room temperature had maintained the gain they had acquired at the end of forty-eight hours. Scattering counts of milk and cream kept in the refrigerator until ninety-six to one hundred and twenty hours old showed a very marked increase in the cream as compared with the milk. Indeed, the longer one keeps the culture, particularly when the temperature is about 15° C., the more regular and striking does the percentage of increase of streptococci in the cream become.

Throughout this work the thickening of the cream as the streptococci increased, rather than the curdling that one finds in milk, was most pronounced. A fluid cream, which, at the beginning of the experiment, could be readily shaken without the production of an undue amount of froth, began after forty-eight hours in the refrigerator to thicken markedly, and shaken very soon produced "whipped cream." A number of samples were kept for six weeks, but curdling did not occur unless heat was applied. Small yellow oil droplets, however, did separate from very old samples.

Milk dealers sell their stale cream to ice cream makers; first, because such cream is cheaper, and, second, because cream which is almost at the souring point is smoother, thicker, whips better, and, so the manufacturers of ice cream assert, makes an ice cream of more pleasing consistence than does a fresh cream. Judging from the frequency of the streptococcus in ice cream and its relative abundance there, it is possible that upon this organism depends, to some extent, the ripening of cream for this purpose.

The difficulty experienced by dealers, especially in warm weather, of transporting and preserving cream without souring, has led to its pasteurization.

Much of it is pasteurized in the plants of dealers in this city, and some of it is pasteurized at the receiving stations in the country. After that certain ice cream makers, such as the one cited in the investigation, heat the cream after it is in their hands. In spite of all this we have isolated active streptococci in so many cases that one must gravely doubt the efficiency of commercial pasteurization for the destruction of this organism.

One must also bear in mind the work of Zelenski,² who has definitely proved that a considerably higher heat is necessary to kill bacteria of any kind when in cream than in milk, and that a higher heat is required for whole milk than for skimmed milk. Apparently the presence of fat exercises a protective action on the organisms present.

In this problem of clean ice cream, as in other dairy problems, one is thrown back upon the necessity of an originally clean milk or cream. The dirty shops have had a certain amount of influence bacteriologically upon the final condition of the ice cream made in them. A much larger factor, however, in the total bacterial content of the class of foodstuffs under discussion is the cream which originally enters into them. With the bacterial count of market creams in the many millions, one cannot expect the ice creams to be bacterially clean, no matter what the surroundings. To what extent these dirty ice creams are responsible for diseases, particularly the diarrheal diseases which are generally prevalent during the heated term, is still an open question. It would seem, however, from the frequent activity of the streptococcus, that its presence in ice cream and the possible deleterious effects upon the organism which it may produce, should be taken into account when dealing with certain pathogenic conditions in human beings.

1833 CHESTNUT STREET.

SERUM DIAGNOSIS OF SYPHILIS.

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There is probably no infection, save perhaps tuberculosis, that plays a greater rôle ætiologically in medicine, and which at times offers greater difficulties in diagnosis, than syphilis. Although we have a valuable therapeutical aid, I believe it is generally recognized that it falls far short scientifically and practically of being a satisfactory diagnostic measure. It is hardly necessary to elaborate on the necessities for some certain means of diagnosis where the question of syphilis arises, and the incalculable advantages resulting from same, as this is too evident in every department of medicine. At the same time, this certain means is realized, I believe, in the serum reaction for syphilis.

The investigations of Bordet and Gengou (1) established the fact that when antigen is brought in contact with its specific antibody a combination occurs, in which a third substance known as complement, if present, is anchored. They employed this principle to demonstrate *in vitro* the bacteriological cause of an infection in an animal by mixing the suspected

bacteria or an extract of them with the blood serum of the infected animal, when, if the specific antibody was present, a fixation of complement occurred. It will be readily seen that this reaction could be used not only for the demonstration of antigen, but also of antibodies.

In March, 1906, Wasserman (2) and Bruck applied this principle to a disease of unknown aetiology, namely, syphilis. They used as antigen extracts of primary lesions or syphilitic organs. They treated monkeys with such extracts of primary lesions, taken from inoculated monkeys or infected human beings, and with extract of liver of dead luetic newborn. They later mixed the immune serum of the prepared monkey with luetic liver extract in definite proportions in a reagent glass, and found that in many instances a fixation of complement took place. They asserted that the reaction would enable one to demonstrate the presence of antibodies in the body fluids of syphilitics, or to determine whether a given organ contained syphilitic substances.

An explanation of the principle on which the reaction is based may be necessary for a clear understanding of it. In giving this I will quote freely from the recently published article of Fleischmann (3) and Butler, in which an effort was made to make this as clear as possible.

The principle consists, as already mentioned, in the fixation of complement.

If you introduce the red blood corpuscles of animal A into another of a different species, B, the blood of the latter acquires the power of dissolving the blood corpuscles of A when mixed with them in a reagent glass. This reaction is called hæmolysis. This acquired hæmolytic property is dependent upon two substances. One of these is present in the blood of every animal and is known as complement. It is thermostable; that means it is rendered inactive by heating the blood to 132° F. for half an hour. The other substance which results from the reaction of the injected animal against the injected blood corpuscles is thermostable (withstands heating to 132° F.), and is known as immune body or hæmolytic amboceptor.

The name amboceptor is derived from the fact that it has affinity on one side for blood corpuscles of the species of animal B, from which they were taken for injection, and, on the other hand, for the substance described in the preceding as complement. This latter union taking place only after the first affinity is satisfied.

These three substances comprise what is known as a hæmolytic system, and their combination leads to hæmolysis, which means that an opaque suspension of blood corpuscles is rendered transparent or laked.

If a hæmolytic serum is inactivated (by heating to 132° F.) before adding to the suspension of blood corpuscles, hæmolysis will not occur. But if to this mixture of inactivated blood serum and blood corpuscles the serum of any other animal (every fresh blood serum contains complement) is added, reactivation of the inactivated blood serum takes place and hæmolysis follows.

Parallel with the production of a hæmolytic amboceptor by the injection of blood corpuscles, the injection of other bodies, as bacteria or albuminoid substances, gives rise to the formation of corres-

sponding amboceptors, which likewise have the property to fix themselves, on the one hand, to the corresponding bacteria, if the antiserum is mixed with the bacteria or an extract of them, and, on the other hand, to complement. Bordet (4) and Gengou took advantage of this principle to determine the nature of an infection by mixing the inactivated serum of the infected animal with the supposed bacteria, and adding complement. If the serum in question contained immune bodies (amboceptor) against the bacteria, a union between bacteria, amboceptor and complement took place. If to such a mixture after some time blood corpuscles and inactivated specific hæmolytic serum are added, solution of the blood corpuscles cannot take place because the complement necessary for the hæmolysis has already been absorbed by the combination of bacteria and bacterial amboceptor. A solution, however, would occur in case the serum did not contain immune bodies against the bacteria, as in this case free complement would persist and be ready for union with the hæmolytic amboceptor and blood corpuscles.

This might be graphically represented as suggested by Levaditi (12), as follows:

1. Complement + hæmolytic amboceptor + suspension of blood corpuscles = hæmolysis.
2. Hæmolytic amboceptor + suspension of blood corpuscles = absence of hæmolysis.
3. Antibody + antigen + complement = fixation of complement.
4. Antibody + antigen + complement (incubated three quarters of an hour) + hæmolytic amboceptor + suspension of blood corpuscles = absence of hæmolysis.

In view of the unknown aetiology of lues, extracts of syphilitic organs are used as antigen. For the performance of the reaction, the following substances are needed: (1) Antigen; extract of liver or spleen of a syphilitic newborn, and similar extracts of normal organs for control. (2) Antibodies; the serum or spinal fluid of the suspected syphilitic person, and serum of a nonsyphilitic as control. (3) Complement; guinea pig serum. (4) Hæmolytic serum; rabbit's blood. (5) Five per cent. suspension of blood corpuscles.

The preparation of the substances used is as follows:

1. Antigen. The syphilitic and normal liver are cut up and placed in separate normal sodium chloride solutions in the proportion of one gramme of liver to 5 c.c. of salt solution. The containers are placed in a shaking apparatus and shaken for twenty-four hours, when the overlying liquid is removed and centrifugated to clearness. This is pipetted off and kept on ice for use.
2. Antibodies. Five to 10 c.c. of blood is withdrawn from a vein of the suspected syphilitic person. The serum is collected therefrom, either after coagulation or by defibrinating and centrifugating. As control, normal serum is similarly obtained.
3. Complement. Guinea pig's blood is usually used, and obtained in same manner as just described.
4. Hæmolytic serum. Blood serum of a rabbit that has been injected with suspension of lamb's blood corpuscles is preferably used.
5. Blood corpuscles. Lamb's blood is defibrinated and 5 c.c. of same is washed with salt solution. After

washing, 100 c.c. of salt solution are added, making a 5 per cent. suspension.

All organ extracts and blood sera except the serum used for complement are inactivated. The substances employed are so diluted that each cubic-centimetre represents the amount of the material necessary in the reaction.

In performing the reaction you add to 1 c.c. of a 20 per cent. solution of the luetic liver extract in a test tube 1 c.c. of a 20 per cent. solution of the suspected serum and 1 c.c. of a 10 per cent. solution of guinea pig serum; incubate for three quarters of an hour, and then add 1 c.c. of the solution of hæmolytic serum and 1 c.c. of the 5 per cent. suspension of lamb's blood corpuscles, and incubate for two hours. If the suspected serum contains luetic antibodies, hæmolysis will not occur.

If the principle of the reaction is borne in mind, the controls necessary will be evident, namely, to demonstrate that none of the substances employed in the reaction, alone or mixed, except in case of luetic extract and luetic serum, bind complement, and thus hinder hæmolysis.

A plan of the test should be made before performing it. An examination with positive results would read as follows:

Nos. of test tubes.	Congenital luetic liver extract.	Serum of syphilitic.	Normal guinea pig's serum.	Hæmolytic amboceptor. Use twice the quantity necessary to hæmolyze 1 c.c. of a 5 per cent. suspension of lamb's blood corpuscles in two hours.	Five per cent. suspension of lamb's blood corpuscles.	Result after two hours in incubator, and twenty-four hours on ice.
1.....	0.2	0.2	0.1	0.001	1.0	No solution.
2.....	0.2	0.1	0.1	0.001	1.0	1.0 of solution.
3.....	0.2	0.1	0.1	0.001	1.0	Comp. solution.
4.....		0.2	0.1	0.001	1.0	Comp. solution.
5.....	0.2	Serum of a non-syphilitic person.	0.1	0.001	1.0	Comp. solution.
6.....	0.2	0.1	0.1	0.001	1.0	Comp. solution.
7.....		0.2	0.1	0.001	1.0	Comp. solution.
8.....	Normal liver extract of newborn.	Serum of syphilitic.				
9.....	0.2	0.2	0.1	0.001	1.0	Comp. solution.
10.....	0.2	0.1	0.1	0.001	1.0	Comp. solution.
11.....		Serum of a non-syphilitic person.	0.1	0.001	1.0	Comp. solution.
12.....	0.2	0.2	0.1	0.001	1.0	Comp. solution.
13.....	0.2	0.1	0.1	0.001	1.0	Comp. solution.
14.....	Congenital luetic liver extract.					No solution.
15.....	0.2		0.1	0.001	1.0	Comp. solution.
16.....		0.2	0.1	0.001	1.0	No solution.
17.....		Serum of syphilitic.				No solution.
18.....		0.2		0.001	1.0	No solution.
19.....				0.001	1.0	No solution.

*Place in incubator for 45 minutes at 27° C.

It is sometimes necessary to vary the quantities of luetic liver extract and luetic serum, as the luetic liver may of itself bind complement in the proportions used. It will be necessary to dilute the extract to prevent this action.

The luetic organ extract is the most troublesome substance to deal with, as it may undergo at any time during its keeping such changes as to render it unfit for use, either in fixing too much complement or in losing its antigen. As a control for the luetic liver extract, a known syphilitic serum, with which one has already had a + reaction, should be used.

In applying this test clinically, originally Wassermann (4) and Plaut, also Morgenroth (5) and

Stertz, Schütze (6), and Marie (7), and Lavediti examined progressive paretics, tabetics, and cerebrospinal syphilitic cases, employing solely the spinal fluid in the reaction. Their results were quite uniform as to paralytics, demonstrating antibodies in a large proportion of the cases, and thus establishing their ætiological relation to syphilis. Detre (8) examined the blood serum in six cases, finding two +. Neisser, Bruck, and Schuch (9), in their investigations as to antigen in extracts of red blood corpuscles, also examined the serum for antibodies in a large number of cases in the Breslau Dermatological Clinic, with only 19 per cent. of + tests. The reasons for this unusually small percentage will be subsequently referred to.

In the later articles of Citron (10), of Fleischmann and Butler, and Wassermann (11) and Meyer, the work was extended to the syphilis question in general. Chiefly the serum and in some cases both serum and spinal fluid were examined for antibodies. It revealed itself in the course of Citron's and of Fleischmann's and Butler's work that the result of the reaction for luetic antibodies depended a great deal on previous antispecific treatment. Morgenroth and Stertz also hinted at the effect of treatment in a case of progressive paraly-

sis, in whom they observed a variation in the reaction for lues. This influence of treatment on the reaction will explain the results obtained by Neisser, Bruck, and Schuch.

Citron, in referring to this point, stated that of twenty-six untreated cases, including tabes, progressive paralysis, and those with luetic anamnesis, all but one gave a + result. Of six treated by the injection method, five were + and one —. Of five treated by inunction, two were + and three —.

Of the twenty-nine + cases examined by Fleischmann and Butler, five patients who had never been treated gave a marked reaction. Seventeen had received one or more courses of treatment, either by inunction or injection or by both, since the acquire-

ment of their infection. One of these had had syphilis thirty years, another twenty-nine years. The last course of treatment with relation to time of examination varied from a few months to several years. Some were free from syphilitic manifestations. Seven of the cases had contracted lues in the past two years, and had been or were under treatment at the time of test for antibodies. All of these patients showed some evidence of syphilis. Of the nine negative cases that had given a specific history, six patients had had their infection from five months to two years; all had either just finished a cure or were under treatment at the time, and were apparently free from symptoms. Two were cases of tabes who had just finished an anti-luetic cure; the other had had several courses of treatment. Three cases who had no knowledge of previous infection gave a + result, thus rendering positive the ætiology of their diseases.

Among the cases of tabes who proved negative, two patients were receiving potassium iodide, two others inunctions, and the fifth had been under anti-syphilitic treatment at various times. Morgenroth and Sertsz, as already mentioned, had called attention to the varying results of the reaction in a case of progressive paralysis which was being treated by potassium iodide.

In two of the negative cases the spinal fluid alone was examined. It not infrequently happens in such cases that the serum gives a + reaction, while the lumbar fluid may be negative.

Of the twenty cases of tabes examined by Bruck, Schütze, Levaditi and Morgenroth, and Sertsz, eleven were + and nine —. Of the ten tabes cases examined by Fleischmann and Butler, five were + and five —.

In the majority of progressive paretics the spinal fluid is + as to luetic antibodies, and this led Wassermann to a hypothesis that is worthy of repetition. It is that long years of antibody production on the part of the nervous system lead to pathological degeneration of it; that, therefore, progressive paralysis may be looked on as a wear and tear disease of the nervous system caused by too great a production of antibodies. In infectious diseases in general the immune bodies, as a rule, disappear in convalescence or soon thereafter. Not so with syphilis, as the antibodies may be found thirty, forty, or fifty years later. Just how long a patient who has been effectively treated remains free from antibodies, and probably from active syphilis, must by later work be determined, and upon this rests, I believe, a point of incalculable importance to the syphilitic. That they do not remain free permanently is in some measure deducible from examinations already made, in that the reaction was often found + in patients who had undergone several courses of treatment at different times, and in whom in all probability the immune bodies after one or others of the cures disappeared. In support of this we may repeat the observation that some cases after effective treatment fail to give a + test. It would appear at this time that the serum reaction may prove a guide, an index, so to speak, to check up and control in a certain measure the destiny of our patient, and it seems not improbable that we might thereby be able to pilot him clear of as-

saults on his nervous system that result in cerebral or cerebrospinal syphilis, the parasymphilitic affections or visceral lues.

It is a well recognized observation that exactly those cases of syphilis that run a mild course and clear up early are often subsequently the subject of tabes or progressive paresis, in contrast to cases of apparently greater severity that are, as a result, subjected to repeated courses of treatment. I say apparently severe, because it is not improbable in many of what might be termed mild cases the syphilitic virus exhibits a selective action for the cerebrospinal system, and we may have resulting, as Wassermann surmises, a wear and tear disease of the nervous system from the too strong production of syphilitic antibodies.

The recurrence of immune bodies at least should be watched for in the syphilitic patient instead of awaiting the development of evident manifestations or the later developing of so called parasymphilitic diseases, all of which might possibly be obviated by the regular and methodical use of this method as an index for treatment.

It would be impossible in this brief paper to cover the broad range of application to which this reaction for luetic antibodies is destined.

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THE ULTRA VIOLET RAY AND HIGH FREQUENCY CURRENTS IN PHLEBITIS.

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The two cases which are to be described in detail were of the type which so often follows a mild general infection. Cases of phlebitis of the leg follow typhoid fever, surgical operations, or childbirth. The disease commences with an acute attack of redness, swelling, and very severe pain. The limb is often left permanently disabled by persistent swelling and pain. Treatment by bandaging and soothing applications may not always be successful as more than a temporary means of relief for the primary attack or the subsequent ones.

Some of these patients are fortunate enough to make a complete recovery, but in others the disease causes repeated attacks of cellulitis and is the usual cause of varicose veins and chronic ulcer of the leg.

Palliative measures which may be adopted by such patients include the wearing of an elastic stocking

and treatment at various mineral and thermal baths, and the value of both of these measures is very great.

The author believes that in the treatment about to be described may be found a means of permanently curing cases of this nature in patients who are comfortably circumstanced.

The treatment consists of two essential parts:

1. A glass electrode exhausted to about 0.001 of an atmosphere and yielding ultra violet rays and visible violet colored light, when traversed by a high frequency current, is applied directly to the surface of the affected limb.

2. The affected limb is treated on general principles during the intervals of two days which elapse between the electrical applications. These measures include *support* by bandages, strapping, or elastic or laced stockings, *massage*, *suitable ointments or lotions*. One or more of these may be necessary in any particular case.

While the author believes that the addition of the ultra violet ray and high frequency currents leads to a permanent cure, where ordinary surgical dressings would fail, it has not been his effort to demonstrate the effectiveness of the electrical applications to the exclusion of surgical treatment. He does not regard it as important to determine what portion of the credit is due to the ultra violet treatment or what to the other measures employed.

The apparatus employed is an Oudin resonator, actuated by a 12 inch induction coil with a mechanical interrupter or an electrolytic interrupter, such as the Wehnelt. The induction coil is provided with two Leyden jars and an adjustable spark gap. The latter forms one of the chief means of regulating the character and strength of the application. The principal other adjustment is by means of a rheostat which controls the strength of the primary current. Still another regulation is a more or less permanent adjustment of the inductance of the Oudin resonator for these cases. Other suitable apparatus is a step up transformer, yielding a voltage of 60,000 and actuated by the 110 volts alternating current. Such an apparatus requires no interrupter, and has been made by Gaiffe, of Paris, and more recently by Snooks, of Philadelphia. A static machine may also be used with an Oudin resonator. A d'Arsonval transformer may be substituted for the Oudin resonator, and may be actuated by either an induction coil, a step up transformer, or a static machine, but the Oudin resonator is preferred because of the convenience and efficacy of its monopolar application and the higher tension of its discharge.

A heavily insulated wire passes from the Oudin resonator to the special handle devised by the author, and into which a glass vacuum electrode is screwed. The cord is the same as is used in automobiles for conducting the high tension secondary current from the spark coil to the cylinders. This is the only conducting cord the author has found that will prevent disagreeable sparking if the cord is accidentally touched by patient or operator. This particular cord does not depend upon rubber for its insulation, and this is a very desirable feature, since soft rubber disintegrates in a few minutes under the influence of high frequency currents. It can be held in the oper-

ator's hand during the application, but there is usually quite an effluve from it—so that it is more agreeable to hold a hard rubber tube about six inches long, through which the conducting cord passes.

The handle is made of hard rubber, completely concealing a metal socket into which the terminal of the insulating conducting cord fits, and another into which the glass vacuum electrode screws. There is no exposed metal about the handle to give a shock to the patient.

The vacuum electrode is of very thin glass and terminates in a flattened dome shaped bulb. The flat surface of the bulb is rubbed over the affected surface. Dusting the skin with rice powder enables the electrode to glide smoothly over the surface without loss of contact. This is more pleasant than having the glass bulb stick to the skin, making a jerky progress with consequent sparks.

The vacuum electrode becomes filled with a brilliant violet or lavender colored light when the current is turned on and it is held in contact with the skin. The presence of the ultra violet ray may be demonstrated by the fluorescence excited in a piece of Willemite held near the tube. A current of electricity passes through the vacuum and the glass wall of the tube into the patient's body. The strength of this current is measured by a milliamperemeter through which it must pass on the way from the Oudin resonator to the vacuum electrode. It should be from 175 to 200 milliamperes. The very high voltage of this current is shown by the fact that a spark one or two inches long will leap from any exposed metal part of the conductor to a key or a coin held near it. The harmlessness of the current is shown by the entire absence of any shock at all from holding a key near enough to receive such a spark. The extremely high tension of the current is what carries the electric power through the glass into the patient's body. A shower of fine sparks may be seen passing from all the parts of the surface of the glass which are near to, but not actually in contact with, the skin. These do not produce any perceptible sensation except that of agreeable warmth when the electrode is in contact with the skin. Longer and stronger sparks pass from the surface of the electrode if it does not touch the skin at all. These produce a distinct sensation, but with the strength of the current employed in the treatment of phlebitis it is not at all disagreeable.

There is nothing at all about the application which gives any shock or causes muscular contraction. Slight circulatory stimulation is produced, which may or may not cause slight temporary reddening of the skin, according to the activity of the effect desired. This varies at different stages of the case. In a general way, milder applications are used in the acute, and stronger in the chronic, stages. This is the only effect visible to the operator at the time of the application.

The beneficial effect of these special applications combined with ordinary surgical measures is illustrated by the following cases occurring in the author's private practice:

CASE I.—Mr. H. E., aged forty-six years, was referred to the author by Dr. Charles McBurney. An attack of phlebitis, affecting the thigh and leg, had occurred a few days after an operation for inguinal hernia on the opposite side. The operation had been an aseptic one, and the

wound had healed by primary union. This attack had left the limb two inches greater in circumference than the sound one. There was a certain amount of disability resulting from the swelling and pain, and there were areas of chronic induration and reddish brown discoloration of the skin. This condition had lasted about a year when the treatment by ultra violet ray and high frequency currents was begun. The applications were made three times a week, each one lasting about twenty minutes. At first the affected areas of skin were given less treatment than other parts of the limb, but later a uniform application of 200 milliamperes with a minimum spark effect was given. This treatment was continued for two winters with an intermission during the summer. Auxiliary measures included an elastic stocking, a calamine lotion, and massage, the latter general as well as local. The result was a return to perfectly normal conditions, which have continued to the present day, two years after the cessation of treatment.

CASE II.—One of the author's patients, referred to him by Dr. William T. Bull, was a lady, about forty-five years of age, with a severe case of phlebitis following an attack of typhoid fever which had occurred seven years previously. This had been followed in recent years by cellulitis, and when the author first saw her she was in bed suffering from such an attack. An area of five or six inches in diameter presented such intense congestion and stasis that it seemed certain to break down into an ulcer. Rest in bed and cold wet applications did not produce the slightest benefit. The pain was intense. Measurements made the following day when she came to my office for treatment were:

	Right.	Left.
Ankle	8¾	8¾
Calf	16	15
Garter region.....	14¼	13½

Treatment consisted in the application of a glass vacuum electrode from the Oudin resonator, the strength of the current being about 175 milliamperes. The applications lasted fifteen minutes, and were given three times a week. During the first month she continued to wear her elastic stocking, and to make various soothing applications at night. The following were the measurements of the right leg: Ankle, 8¾; calf, 15¾; garter, 14¾ inches. The narrow portion of the leg above the calf is what is meant by the garter region.

From this time on, the elastic stocking and soothing applications were discarded, and strapping applied over an ordinary white cotton stocking was adopted. This was applied after each high frequency and ultra violet treatment, and was worn until the next treatment. The next month saw a most wonderful change for the better, with a return to normal measurements. At this time the patient was obliged to go abroad wearing a laced canvas stocking, as it was impracticable to have the strapping continued.

There seems little doubt of obtaining a complete cure by the continued use of high frequency currents and suitable support.

The Mode of Action of High Frequency Currents from Ultra Violet Ray Vacuum Electrodes in Phlebitis.

The ultra violet ray itself may be demonstrated in the light given off by these tubes. A piece of willemite becomes fluorescent when held near such a tube in operation. This light has a stimulating effect upon the processes of metabolism in the tissues. It also is a powerful agent in the production of ozone, which gas can be detected upon the surface of the body hours after the application is finished. Ozone produced in this way and also by minute sparks from the vacuum electrode is absorbed by the tissues under the influence of the current. Additional quantities are generated in the tissues by electrolysis. This very active form of oxygen acts as a powerful vitalizer of the tissue cells. The electric current itself stimulates the circulation and favors the elimination of chronic exudates and indurations. It is also a stimulant to the vitality of the tissue cells.

OBSTRUCTION IN THE NOSE OR IN THE THROAT AS CAUSE OF NERVOUS AND MENTAL DISEASES IN SCHOOL LIFE.*

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I wish to call the attention to certain mental and nervous manifestations which may be caused by pathological conditions in the nose and throat during the period of school life or between the ages of four and twenty years. I cannot hope to present anything new, since these manifestations had been noted by numerous observers before I began the study of diseases of the nose and throat. All these conditions may be comprehended under the one title—obstruction in the nose or in the throat which interferes to a greater or less extent with the free passage of air through the nostrils.

Before taking up the symptoms in order, let us refer for a moment to the physiology of the nasal mucous membrane as regards its respiratory function, for upon the perversion of this function depends some, if not all, of the nervous and mental phenomena. The nasal mucous membrane is peculiarly constituted in that it has the three very important properties of cleansing, warming, and moistening the inspired air. Now, if the nose is partially or completely blocked up by a deviation of the nasal septum, a large septal ledge, or the presence of nasal polypi, or if the pharynx is obstructed by adenoid tissue and hypertrophied tonsils, it is obvious that the mucous membrane cannot perform its functions, because the individual will be compelled to breathe partly or wholly through the mouth. The most important element of inspired air is oxygen, which we must have in abundance to preserve health and life. If the inspired air is deficient in this one element, the physical and nervous systems, and eventually the mental faculties, will suffer. The point that I would make is this: Mouth breathers do not breathe in a sufficient quantity of air, and consequently do not get the proper amount of oxygen or the proper amount of moisture for the welfare of the body. If any one doubts this let him breathe deeply through the nose and repeat the experiment through the mouth. He will at once realize that it is far easier to fill the lungs through nasal than through oral breathing. Or let him examine two children, the one a nasal and the other a mouth breather. The most superficial examination will show him that the mouth breather has a narrow, contracted chest due to the imperfect filling of the lungs with air, while the other child will present a full, rounded chest.

The majority of the nervous and mental symptoms caused by obstruction in the nose and throat are really toxæmic in character from a deficiency of oxygen in the inspired air. In reviewing the symptoms, I will take adenoid growths and hypertrophied tonsils as the type of obstruction, because it is the condition most often found during school life. The first symptom to which I wish to call attention is aprosexia, a condition, first named by Guyé, of inability to fix the attention on one subject, of unusual forgetfulness manifesting itself in the rapid disappearance of mental impressions which were originally acquired only at the expense of great effort, and

*Read before the Baltimore City Medical Society, Section in Neurology and Psychiatry, at a meeting held October 25, 1907.

of headache, which sometimes assumes the character of a constant or intermittent pressure, and again produces a real hemicrania. This mental symptom arises from an engorgement of the nasal veins with stagnant venous blood containing a large percentage of carbon dioxide. The pathogenesis of aprosexia is not difficult to understand if we recall the fact that there is an intimate relationship between the lymphatic spaces and blood vessels of the nasal mucous membrane and the subarachnoid space. Schwalbe and Retzius succeeded in injecting the lymphatic vessels of the nasal mucous membrane through the arachnoid space. An equally intimate relation exists between certain venous regions of the nose and the interior of the skull. The results of aprosexia are often seen in children and young people with adenoids. The stupid appearance of the face, the hesitancy in answering questions, and the inability to think quickly make up a picture not easily forgotten.

Restlessness and *pavor nocturnus*, or "night terrors," are nervous symptoms which usually go together. Children with adenoids, as a rule, do not sleep well. They toss from one side of the bed to the other, and sleep is often interrupted by dreams of animals, falling over precipices, etc. These symptoms, if not corrected, may give rise to a nervousness which may remain through life, if, indeed, it does not eventuate in some obstinate nervous disease as chorea or epilepsy.

Major first called attention to the connection between nasal obstruction and enuresis nocturna. This symptom is probably due to the excess of carbon-dioxide in the blood from defective respiration, as a result of which there is a mild degree of carbonic acid poisoning, which in turn leads to relaxation of the vesical sphincter. A certain number of cases will be cured by removal of the obstruction.

Headache, defects of speech, and stuttering have been described by various authors as dependent upon the presence of adenoid growths. The first step in the treatment of the two latter symptoms is to remove any adenoid tissue which may be in the nasopharynx.

Choreic movements of the face are believed by some observers to be due to obstruction by adenoids. It is quite probable that chorea is sometimes caused by infection through the faucial tonsils. Its tendency to affect the heart, as rheumatism so often does, would seem to indicate that both diseases may enter the system in the same manner.

Moritz Schmidt has recorded two cases of pseudomeningitis due to adenoid growths. Both were in young children. In the one case a diagnosis of subacute meningitis had been made and a bad prognosis given. The removal of the adenoids lowered the temperature and restored the mental condition. Lange reported a case of a boy whose mental condition was such that he seemed doomed to spend his life in a home for idiots. The removal of adenoids restored him to a normal condition. Schmidt operated upon a boy, eight years old, who gave the impression of idiocy; in eight days his mental condition had undergone such a transformation that he could scarcely be recognized as the same boy. In a girl, eight years old, whose mental condition was such that not a word could be drawn from her, the removal of the adenoid growth quickly restored her mind to normal.

It is probable that nasal obstruction is responsible in some cases for outbursts of temper in children. Meyer and Schmidt have reported cases of almost incorrigible children, who were entirely changed in disposition by the removal of the offending obstruction.

A nervous cough, reflex in character, is sometimes found in children with adenoids.

It is stated by some that epilepsy is caused in some cases by the presence of a nasal obstruction; this has not been proved. There is no good reason why children who are nervous through adenoids should not develop the disease.

We see that not a few nervous and mental symptoms can be caused by some form of nasal obstruction. The systematic examination of the throats of school children will result in the cure of many of these conditions and make intelligent men and women of many among the poorer classes.

919 NORTH CHARLES STREET.

HYPERCHLORHYDRIA.

Comment on Dr. Paul Cohnheim's article in the New York Medical Journal for October 12, 1907.

By A. L. BENEDICT, M. D.,
Buffalo.

The very interesting article of Dr. Cohnheim defines hyperchlorhydria as occurring "when the total acidity of the Ewald-Boas test breakfast exceeds 70." It seems incomprehensible that the statement represents the real view of the author, since the total acidity has no very definite relation to hydrochloric acidity. Is it not possible that some statement regarding hyperchlorhydria proper has been accidentally omitted? If not, there is implied a necessary relation between hydrochloric and total gastric acidity, and the term hyperchlorhydria must be construed to apply to hydrochloric acid secreted, whether neutralized or not.

It is scarcely necessary to say that, in America, the term hyperchlorhydria is used in a literal sense of excess of (free) hydrochloric acid, and, while the total acidity tends to vary somewhat, as does the hydrochloric, there is no definite ratio between the two. Naturally, there is considerable difference of opinion as to just where to draw the line between normal and excessive acidity, and, as I have pointed out in other articles, some men make the diagnosis very easily, on account of reading the hydrochloric acidity at the point of final discharge of color with dimethylamidoazobenzol, instead of at the change from cherry red to orange. Personally, I take the following standards: Test meal of 50 grammes of bread, 5 of butter, 250 of water (or, approximately, two small slices of bread and butter and a glassful of water); time of extraction, one to one and one quarter hours (although we may recognize a late hyperchlorhydria, especially in isochymic cases); free hydrochloric acidity not less than 30 degrees, even if the chyme exceeds the amount of the test meal, nor less than 40 degrees if it ranges from 100 to 250 c.c. after my test meal, nor less than 50 degrees if the chyme amounts only to 50 c.c. or less.

In sixty-one gastric examinations, the notes of which are easily accessible, I find twenty to exceed Dr. Cohnheim's standard of 70 degrees total acidity.

Of the forty with total acidity of less than 70, the following more or less fully accord with the diagnosis of hyperchlorhydria, according to my own or others' standards:

C. M. 100 c.c., 40 per cent. filtrate, 57 degrees total acidity, 32 free hydrochloric acid, 42 end point with dimethyl.

C. J. B. 150 c.c., 90 per cent. filtrate, 40 degrees total acidity, 20 free hydrochloric acid, 29 end point with dimethyl.

C. P. 250 c.c., 50 per cent. filtrate, 69 degrees total acidity, 30 free hydrochloric acid, 42 end point with dimethyl.

P. J. C. 250 c.c., 90 per cent. filtrate, 69 degrees total acidity, 45 free hydrochloric acid, 53 end point with dimethyl.

Mrs. L. G. M. 200 c.c., 40 per cent. filtrate, 52 degrees total acidity, 30 free hydrochloric acid, 37 end point with dimethyl.

I may say parenthetically that personally I attach great importance to the proportion of filtrate in the chyme, a very liquid mass indicating free secretion, with certain obvious qualifications.

Conversely, some of the cases with high total acidity failed to show what I should consider hyperchlorhydria:

Mrs. A. E. K. (ærophagia). 110 c.c., 50 per cent. filtrate, 70 degrees total acidity, 25 free hydrochloric acid, 40 end point with dimethyl, lactic acid plus.

W. J. H. (cancer; isochymia, contents removed after sojourn of eight to twenty-four hours after several milk cereal meals. 450 c.c., 90 per cent. filtrate, 108 degrees total acidity, 0 free hydrochloric acid, 5 end point with dimethyl, lactic acid marked, blood present.

A. E. R. (probably pancreatic cancer). 75 c.c., 50 per cent. filtrate, 79 degrees total acidity, 27 free hydrochloric acid, 37 end point with dimethyl, lactic acid.

E. S. 40 c.c., 40 per cent. filtrate, 78 degrees total acidity, 30 free hydrochloric acid, 44 end point with dimethyl, lactic acid trace.

The highest acidity found in this lot of cases, and nearly the highest I have ever noted, was in a case of incipient hepatic sclerosis: 116 degrees total acidity, 64 free hydrochloric acid, 79 end point with dimethyl, 125 c.c. chyme, 30 per cent. filtrate. This patient showed a consistent hyperchlorhydria, though neither the free hydrochloric acid nor the total acidity reached so high a point in other examinations.

Another patient, a woman with movable kidney, showed on two examinations, moderate total acidity (71 and 56) and free hydrochloric acid (20 both times) one hour after the test meal, but as she had some retention of chyme, probably due to a pyloric cicatrix, a test was made two hours after the meal, when there was found 150 c.c. of chyme, about 50 per cent. filtrate, total acidity 98, free hydrochloric acid 47, 58 end point with dimethyl.

Except as stated, the extractions were made one to one and one quarter hours after the meal.

The final change of color with dimethyl seems to me to indicate the neutralization of free organic as well as hydrochloric acid. The estimation of combined hydrochloric acid by the ordinary titration method, with alizarin, is probably worthless. Usually this indicator changes color a little later than the final color change with dimethyl.

While recognizing that it is largely a matter of arbitrary definition, where we draw the line between normal and excessive hydrochloric acidity, there is this practical consideration: An intrinsic hyperchlorhydria is incompatible with much organic fermentation, including the production of considerable amounts of lactic acid, unless there is isochymia, or some temporary factor which introduces or allows the multiplication of bacteria of fermentation. Of course, a stomach in which marked organic fermentation is habitual may occasionally show a considerable amount of hydrochloric acid, or there may be

a persistent lack of hydrochloric acid without much fermentation; but the rule holds that a stomach which maintains a good or excessive hydrochloric acid secretion will not be subject to much fermentative acidity unless there is long retention of contents, which usually occurs in organic but noncancerous or early cancerous obstruction at the pylorus.

But, given a diminution of hydrochloric acid, so that free hydrochloric acid is lacking or present only to the amount of 5 degrees or so, unless the stomach empties itself very rapidly or great care is taken in the diet, by cleansing the mouth, etc., to exclude saprophytes, we naturally expect a high degree of fermentation acidity, so that the total acidity will amount to somewhere about 100.

In this connection I would like to state that my own experience would set 150 degrees (*i. e.*, neutralization by one and one half times as much decinormal alkali as the bulk of investigated material) as the maximum acidity that can be developed in stomach contents, urine, etc., by any process. I would not go so far as to prophesy that this degree of acidity will never be exceeded, but am sure that it will very rarely be reached and never exceeded by any great amount.

156 WEST CHIPPEWA STREET.

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXVIII.—How do you treat the coming of pregnancy? (Closed November 15, 1907.)

LXIX.—How do you treat post partum hemorrhage? (Answers due not later than December 16, 1907.)

LXX.—How do you distinguish alcoholic stupor from other conditions resembling it? (Answers due not later than January 15, 1908.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisers will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXVII has been awarded to Dr. Ralph Walker McDowell, of Philadelphia, whose article appears below.

PRIZE QUESTION NO. LXVII.

THE TREATMENT OF DELIRIUM TREMENS.

By RALPH W. McDOWELL, M. D.,
Philadelphia.

Received February 15, 1908. Accepted for printing March 1, 1908.

The successful treatment of delirium tremens depends upon: (1) Prompt measures to promote active elimination; (2) soothing, active rest; (3) stimulating the almost exhausted vital energies; and (4) prevention of complications.

The first and the easiest method of getting rid of accumulated poisons, and relieving the congestion of the portal system, is by giving calomel powder, gr. xxx, at once, or a large dose of calomel fol-

lowed by a saline purge. In mild cases, where there is tachycardia, tremor, dilated pupils, and a nervous, apprehensive feeling, give:

- R Sodium bromide,gr. xxx;
Chloral,gr. xv;
Infusion of digitalis, $\frac{5}{8}$ ss.
M. S.: Repeat every second hour until patient falls asleep.

In those cases where there is great agitation, with visual and auditory hallucinations and fierce struggling, give a hot pack for twenty minutes; two drachms of aromatic spirit of ammonia is given before the pack to prevent any depressing effect. Give also:

- R Strychnine sulphate,gr. 1-20;
Sodium bromide,gr. xxx;
Chloral,gr. xv;
Infusion of digitalis, $\frac{5}{8}$ ss.
M. S.: Repeat every third hour until the patient becomes quiet.

Hot packs aid in eliminating poisons, cause complete relaxation, and have a sedative influence. While the patient is in the hot pack watch the pulse carefully; if it should become weak, take the patient out of the pack.

Chloral is not given in cases where the heart is weak. Infusion digitalis acts as a diuretic and supports the heart. Strychnine acts as an antidote to the alcoholic poisoning, and is a good stimulant to the almost exhausted nervous system.

In severe cases these prescriptions do not quiet the patient; then I give hypodermatically:

- R Scopolamine,gr. 1-65;
Morphine sulphate,gr. $\frac{3}{4}$.
M.

This I repeat in two hours if the patient does not become quiet. Morphine is not given if the kidneys are diseased. Not more than two consecutive doses of morphine are given, because alcoholics are prone to develop the habit.

If the patient does not respond to this give:

- R Veronal,gr. xx;
Hyoscine,gr. 1-75.
M. S.: Give in hot milk.

Where the stomach is irritable and there is vomiting give the following, per rectum:

- R Chloral,gr. xxx;
Sodium bromide,gr. xl;
Starch water, $\frac{5}{8}$ iv.

M. S.: Repeat every three hours until patient is quiet, or three doses are given.

Cases in which there is a low muttering delirium, with carphologia, are usually benefited by alcohol. Give egg nogs containing brandy $\frac{5}{8}$ iv every third hour. The egg nog is nourishing, and alcohol furnishes the accustomed stimulation.

If the skin is cold and clammy and the circulation weak, give hypodermically, and repeat in two hours if necessary:

- R Atropine sulphate,gr. 1-100;
Strychnine sulphate,gr. 1-30.
M.

It is a mistake to restrict the diet too much in delirium tremens. The body needs nourishment as well as stimulation. Support the weakened system by easily digested nourishing food. During the stage of delirium give plenty of milk, beef juice, milk toast, soft boiled eggs, peptonized beef, egg nog, and plenty of water to drink. As soon as the delirium passes off, give as much food as can be

properly assimilated. During convalescence the following bitter tonic is beneficial, given before meals:

- R Tincture of nux vomica,mxxx;
Tincture of gentian comp.,
Tincture of cinchona comp.,aa 3i;
Essence of pepsin,3iij.
M.

Great care must be taken to prevent complications. If any signs of pulmonary congestion arise give strychnine and atropine boldly, and apply dry cups to the chest.

When complications arise, such as pneumonia or erysipelas, treatment must be energetic, and alcoholic stimulation given with a free hand.

I have found that paraldehyde in drachm doses every two hours until the patient is quiet is the least depressing and best sedative for the delirium of alcoholic pneumonia.

One very important point, that is frequently overlooked, is the distended bladder due to spasmodic stricture of the urethra. This is not as rare as one might suppose. Always percuss over the bladder and, if full, catheterize immediately.

Restraint should only be employed when the patient cannot be controlled by sedatives.

THIRTY-FOURTH AND PINE STREETS.

Dr. Thomas W. Salmon, of Boston, writes:

As delirium tremens is an episode in the course of chronic alcoholism, effective treatment may not infrequently precede the attack. Patients admitted to hospitals for other causes develop delirium tremens under the observation of attending physicians with sufficient frequency to repay search for the prodromal symptoms. The part played by pneumonia and severe injuries, especially fractures, in precipitating an attack, is emphasized so much that it is not always remembered that surgical operations, urethral instrumentation, the onset of rheumatic fever and malarial fever, and the occurrence of some particularly distressing or exciting emotional experience are factors nearly as common. When such patients show the physical signs of chronic alcoholism they should be carefully observed and when they commence to lose sleep, show a distaste for food, become restless and irritable, and develop slight tremulousness of the fingers and voice, it is good practice to begin treatment without waiting for marked evidences of motor excitement or the development of hallucinations. A prolonged warm bath followed by one drachm of paraldehyde may avert an attack.

General Management.—The general management is a matter of the greatest importance in the treatment of delirium tremens and has a considerable influence upon the severity of the attack. The physician should assume firm control of the patient and his attendants. This is most easily done in a hospital and, except in the homes of the rich where the physician can, in a measure, reproduce the conditions of the hospital, every effort should be made to remove patients with severe attacks to an institution. Wherever treated, the constant attendance of some one must be insisted upon. Many patients with delirium tremens have plunged through windows in their efforts to escape from their hallucinatory pursuers during incredibly short absences of their nurses.

Isolation of the patient is not necessary in hospitals except for the comfort of others.

Restraint should only be employed with the definite objects of keeping the patient in bed and preventing him from injuring himself. A little quiet observation will often show that a very delirious patient is not likely to do either of these things. Sometimes padded boards fastened to the sides of the bed to make a crib are sufficient protection, and in many cases a patient can be sufficiently restrained by holding his legs down and permitting him free use of his arms. There are many cases, however, in which these measures are ineffective, and one has to choose between restraint by some mechanical device and holding by attendants. Where enough trained attendants are available, the latter method is preferable; but when too few attendants can be detailed to this duty (as is usually the case) or they are lacking in the training to do it well, it is better to make use of a restraining sheet. The wrestling and hauling seen when inexperienced nurses attempt to suppress every violent motion of the patient can hardly be considered a proper therapeutical measure. When the restraining sheet is used care must be taken to avoid constricting the chest, and the patient should be allowed a certain degree of freedom at frequent intervals to find out when its use can be discontinued.

Some patients with delirium tremens can be readily controlled by firm commands on the part of the physician. It should always be remembered that nearly all of the violent conduct of these patients is inspired by terror and, when a patient is accessible to such influences, he should be reassured, especially before beginning to carry out some such procedure as giving a hypodermic injection or an enema.

Rest in bed is necessary until convalescence.

Diet.—Diet is important, and such a schedule for feeding should be prepared and followed as would be used in any acute and dangerous illness. Milk and vichy, beef juice, and strong meat broths should be given in small quantities at intervals not longer than three hours. In cases where the stomach is greatly disturbed very small quantities of peptonized milk, given ice cold, can usually be retained. In cases with little fever, scraped beefsteak, soft boiled eggs, milk toast, or well cooked gruels should be given if they can be retained, and solid food as early as possible. At all times, prepared foods containing even a minute proportion of alcohol should be avoided, even during convalescence.

Medicinal Treatment.—The medicinal treatment is symptomatic. The two most obvious indications are to support the heart and to procure some rest. For the former, strychnine and caffeine are the most valuable and should be administered as they would be in any other acute illness in which they were indicated. To continue the use of alcohol for this purpose is to maintain that its value as a heart stimulant so greatly overshadows all other remedies that it must be used in the treatment of a condition which its use has caused. The only other reason which can be given for the use of alcohol in delirium tremens is that the condition is the result of sudden abstinence, a view which can no longer be supported. Ammonium carbonate is of value in overcoming the severe depression of delirium tremens, but it can

not be used where the stomach is disturbed. The aromatic spirits of ammonia has the same objection in a lesser degree, but when it can be used it has good effects in doses of 20 minim in simple elixir every two or three hours.

The Motor Restlessness and Insomnia.—These accessories of delirium tremens are to be regarded only as distressing symptoms of the disease. The "critical sleep" which is so eagerly sought for is not that produced by large doses of powerful sedatives. To combat these symptoms, the warm bath and hot abdominal pack are very valuable, but sometimes they seem to be without effect. In strong, young subjects, who are rarely met with, the cold pack may be substituted. Of the drugs, opium is contraindicated: choral is often efficient but sometimes increases the vividness of the hallucinations and serves to produce disassociation; paraldehyde is useful in mild cases and in the beginning of attack, but is most uncertain in its action. Hyoscine hydrobromide, given hypodermatically, is probably the most efficient sedative. One hundredth of a grain should be given and repeated, if necessary, in four hours. When given with the hot pack its action is much enhanced. Too much should not be expected from sedatives. Two or three hours' sleep and a quieter delirium for two hours afterward is a very good result in a severe case.

The elimination of alcohol should receive special attention. Diaphoresis is usually free or is induced by the hot pack. Diuresis is best obtained by the free use of water internally and by the use of the solution of ammonium acetate in doses of 2 drachms well diluted, every three hours. Elimination by the intestinal tract is best secured by the administration of calomel in divided doses. Emesis, if necessary, is better obtained by washing the stomach with copious draughts of warm water than by the use of emetics. These measures, of course, should be influenced by the age and degree of debility of the patient. Irrigation of the colon with several quarts of saline solution should be carried out once a day well into convalescence.

Fever, if excessive, should be controlled by the cool bath or pack.

Vomiting is sometimes the most difficult symptom to treat. Ice, bismuth, drop doses of the tincture of nuxvomica every five minutes, and a small mustard plaster over the epigastrium are the measures most often successful.

Convalescence.—During convalescence change of scene, open air life, gentle exercise, daily plunge baths and massage, and plain and nourishing food hasten recovery and tend to limit the amount of permanent damage received. The continuance of auditory hallucinations, the development of a suspicious attitude, and failure in judgment and memory should lead to careful observation.

The treatment of such complicating disorders as pneumonia, nephritis, and arteriosclerosis as well as the chronic alcoholism underlying all, must not be overlooked, and one should be careful not to give them secondary importance in comparison with the more striking but less serious acute mental disease he has been observing.

Practically the only special features of the treatment of delirium tremens are in the general physical management, the care for the heart is not

different than that which the physician is called upon to give in other acute and dangerous disease in which the heart is threatened. The general management, however, requires tact, resourcefulness, calmness, and vigilance.

Dr. Francis J. Purcell, of Toluca, Mex., remarks:

The treatment of delirium tremens can be divided into three parts: 1, Elimination of the alcohol; 2, combating the nervous symptoms; 3, sustaining the patient.

Of course the condition of each patient will determine our course of action in using the treatment so as to combat the symptoms presented by that individual case. It is not to be understood that I consider the elimination of alcohol, which I have put first as more important than the other two, each case must be treated on the symptoms presented.

I believe in the immediate withdrawal of the alcohol, and in order to hasten its elimination from the system we have no better agent than liquor ammonii acetatis, U. S. P., freshly prepared; this should be given in 15 c.c. doses every 2 hours for the first day or two. Its action is mildly stimulating, diaphoretic, and diuretic. At the same time 1-10 gr. calomel should be given every hour for 10 doses, and followed next morning, fasting, by an effervescent saline.

Large saline enemas given in the knee chest position night and morning will also hasten elimination and at the same time tend to help the heart and quiet the patient.

For the nervous symptoms I have found hyoscine hydrobromate, 1-100 gr. to 1-50 gr., hypodermatically about every 3 or 4 hours, sufficient during the day; here I am not considering the specially violent cases. In the use of hyoscine hydrobromate sometimes we meet with cases in which it is not well borne, causing an increase rather than a decrease of the delirium; however, these exceptions are rare, and in such I should use:

B Potassium bromide,
Sodium bromide,
Ammonium bromide,ãã 0.5 gramme;
Water,q. s. ad 4.0 c.c.

M. S. This quantity to be given every three hours in water by mouth.

For the insomnia a good hot bath at bedtime followed by:

B Veronal,1.0 gramme;
Hyoscine hydrobromide,0.00132 gramme;
Codeine phosphate,0.033 gramme.

M. S. To be taken on the tongue, and washed down with hot water.

Where it is available, the static positive head breeze, given in a room which is lighted only by a cluster of blue lights, is a valuable form of sedation.

The sustaining of the patient is naturally of great importance. The stomach in these cases is almost invariably rebellious to ordinary nourishment, and one's ingenuity and skill are often taxed to the utmost to devise means whereby the patient may be built up, a good rule for the first few days is to give nourishment in very small quantities and often, of course, no fixed rule can be laid down as to kind, quantity, or time, these must be varied to suit each case.

As a general rule I find a good meat juice is a good thing to begin with, with or without 5 drops of tincture of capsicum, to be given every 2 hours. Then if this is well borne passing to white of egg stirred in aerated water, milk, scraped beef, etc. Often a piece of underdone broiled tenderloin steak proves acceptable if merely the juice is swallowed after thorough mastication of the meat and the remainder spat out.

As to drugs that tend to tone and build up the system I believe our chief reliance can be placed on nux vomica. A good method during the first day is to give one drop of the tincture in a little water every 15 minutes until 16 drops have been taken, then suspended for 4 hours and if stomach is more tolerant give 10 drops of tincture of nux vomica, t. i. d., with 5 grain pill of asafoetida.

Special treatment.—In some cases the patient is violently delirious and not merely needs constant watching, but also a straight jacket or other restraining apparatus for a short time until hypodermatic medication can be given, such as hyoscine hydrobromide 1/50 gr., to which in exceptional cases 1/4 gr. morphine sulphate can be added. Where there is no arteriosclerosis I have found the revulsive effect of apomorphine 1-10 gr. hypodermatically a very good way to quiet an unruly patient.

Dr. Arthur L. Fuller, of Winters, Bunnels Co., Tex., says:

No hard and fast line of treatment can be laid down in this condition. Most of the danger lies not in the delirium itself, but in the weakened condition of the cardiovascular system, and the fact that the stomach is in such a state that remedies may lie in it for hours without being absorbed. The main principles of treatment therefore are: 1, To treat the circulatory system; 2, to eliminate the poison and prepare the digestive organs for the reception of nourishment and remedies; 3, to quiet the delirium and if possible induce sleep; 4, to nourish the patient, and 5, to guard as far as possible against the condition known as "wet brain."

1. All patients must be looked upon as having some degeneration of the heart muscle, and appropriate stimulants given. The best of these are strychnine, sparteine, caffeine, and camphor. Strychnine given hypodermatically every three or four hours is probably most valuable in the general run of cases; though in those cases in which there is scanty flow of urine, I have found sparteine very useful, promoting a free flow of urine and thus acting as an eliminant as well as a cardiovascular stimulant. In cases with marked collapse camphor, used hypodermatically for a few doses, is a rapid and valuable stimulant. If the pulse is very rapid, digitalis may be given in combination with any of the before mentioned drugs.

2. The elimination of the poison from the system may be accomplished by emetics, purgatives, and diuretics. Diaphoretics are not indicated, as in the large majority of cases the skin is acting, and they have a tendency to still further relax the tone of the already relaxed vessels. Emetics are useful in young, strong people, who have been drinking quite recently, but should never be used in elderly or debilitated subjects. They are of benefit in rapidly unloading the stomach, and so preparing it for

the early reception of nourishment and drugs, which may be required in treatment. They also have a tendency to quiet the delirium through their depressing effect. Of these, apomorphine is, in my opinion, the most useful, seeming to have a quieting effect apart from the emesis. The bowels may be unloaded and their secretions started up by any of the purgatives in general use. My favorite combination for this purpose is one of calomel, podophyllin, and compound extract of colocynth, in amounts and proportions adapted to the individual case. Diuretics increase the elimination and improve the condition of the kidneys by flushing them out by the increased flow of watery urine. Of them my favorite is sparteine sulphate, for by its use we gain a stimulant effect on the heart in addition to the increased diuresis. It should be given in doses of not less than half a grain every 4 hours and may often be given in much larger doses.

3. To quiet the delirium and induce sleep is an important point, not because the delirium is in itself dangerous, but because the delirium and restlessness exercise a deleterious influence on the weakened heart muscle, and the continued muscular movements tend to produce fever and throw an increased burden on the kidneys by adding to their excretory functions. In mild cases sleep may be induced by one or two doses, at an hour's interval, of paraldehyde or trional, but these will be useless in any but the mildest cases. Opium is not to be given if sleep can be induced by any other means, as it increases the congestion of the brain and has a bad effect on the circulation. Often apomorphine proves very effective in inducing sleep besides unloading the stomach. Perhaps the most generally useful drug for the purpose of quieting the patient is chloral, an initial dose of 30 grains being given and followed by 2 doses of 15 grains at hourly intervals. It has no harmful tendency if proper stimulation of the heart has been used. Hypodermatic injections of ergot, by toning up the vascular system and improving the circulation, have a tendency to lessen the delirium and prevent the occurrence of wet brain.

4. Nourishment is an important element in the treatment of delirium tremens. When awake the patient should be given food every two hours regularly. Milk and eggs, alone or in combination, are the best forms of food, but soup and broth may be added to these. During recovery a little alcohol in the shape of egg nog is sometimes of benefit, but should not be given in all cases. It is to be used sparingly, however.

5. The condition known as "wet brain," a form of serous meningitis, must be guarded against as far as possible, by the administration of such drugs as improve the equilibrium of the circulation. Ergot is especially valuable in this connection, given hypodermatically 30 minims every 3 or 4 hours. If, however, this condition should arise, it must be treated energetically by increased or more frequent doses of strychnine and ergot, combined with thorough purging to deplete the system of fluids. Potassium bicitrate is perhaps the most useful drug for producing the required watery evacuations, and should be administered for its effect.

So much for the special indications. For general treatment the first question that arises is, whether the patient should be entirely deprived of

alcohol. In my opinion, it should be entirely withdrawn in nearly all cases. It may, however, be used sparingly as egg nog in those cases which have a tendency to wet brain. It goes without saying that the patient should be kept in bed at rest and under suitable restraint. This is best accomplished by the presence of one or two attendants; but if unable to obtain them, the patient may be restrained by sheets tied to ankles and then to the foot of the bed and passed under the armpits behind the back, and brought up over the shoulders to the head of the bed. This method is better than the canvas jacket, which is stiff and hot, and on account of these undesirable qualities should not be used.

If there is undue fever it should be controlled by cool baths, given as often as is necessary to keep the temperature within due limits.

During convalescence stomach stimulants, such as nux vomica, gentian, and capsicum, are indicated, together with liberal diet. The patient should, if possible, be placed in the country among pleasant surroundings, as far as possible from any temptation, for complete abstinence from alcohol is the only hope for perfect and permanent restoration to health. For this reason also it is better to give the tonics in solid form, such as pills or capsules.

To sum up: The treatment of delirium tremens consists of rest in bed with suitable restraint and withdrawal of alcohol, cardiovascular stimulants and tonics, eliminants, nourishment, and nerve sedatives, the choice of drugs being subject to the peculiarities of each individual case.

Dr. John B. Neary, of Troy, N. Y., states:

I shall presume that the patient is in an institution or place where directions must be followed.

Put the patient to bed. If he seems to have even some reason, try to get his confidence by manifesting a calm and firm manner.

Make a careful examination, noting particularly the heart, pulse, and lungs, and see if any injury, however slight, may be present. Give any complication appropriate treatment. Do not use any restraining apparatus, unless the degree of restlessness warrants it. If used, the restraining sheet is sometimes the best. Assign competent nurses to watch constantly.

As regards medication, it is well to remember that the disease will probably run its course, and the treatment should be applied to the symptoms as they arise, as there is no specific in this condition.

The matter of the withdrawal of alcohol has been much discussed. It should be withdrawn at once, unless the pulse is quite feeble. If complicated by pneumonia, be cautious about withdrawing alcohol.

Various drugs have been used and recommended to induce and aid sleep. Bromides are often used, but often fail. Opium has long been used and requires particular caution here as elsewhere when used. Give morphine hypodermatically, and if after close watching it does not quiet after three or four $\frac{1}{4}$ grain doses, discontinue its use. Apomorphine hypodermatically, gr. 1 to .5, or 1-6, sometimes clears the stomach and produces muscular relaxation, quieting mania and inducing sleep. Be careful about the use of this drug if pulse is lagging. Chloral may be used, unless the heart action is poor. Hyosine, gr. 1 to .05, hypoder-

matically, is often followed by a quieting that seems remarkable; the same dose may be repeated in an hour or two.

After delirium tremens has existed three or four days and when it is on the decline, chloroformamid, 2, 3, or 4 grammes, may be used, as it seems to bring about a more regular sleep. Trional, gr. 15 to 20, repeated every three or four hours, may be tried, but, like sulphonal, veronal, etc., seems to be doomed to transient popularity only.

To guide the heart we may use digitalis, strophantus, camphor, caffeine, and sometimes the pulse responds quickly to strychnine sulphate or nitrate, hypodermatically. Sometimes gastric lavage is required as in alcoholic coma, and an enema may relieve toxic conditions.

Diet should be light and nutritious, and during convalescence, if called for, a tonic may be given in proper combinations of quinine, strychnine, iron, diluted phosphoric acid, etc.

Therapeutical Notes.

Treatment of Streptococci Eruption on the Face.—Eruptions, following impetigo contagiosa, are frequently met with in children. They may occur sporadically, or in epidemic form (especially in schools), lesions of impetigo may also be present. Sabourand (*Journal des sciences médicales de Lille*, October 26, 1907) says that this is a degenerate form, or a sequel to impetigo, and is streptococcic in nature. It is easily cured with:

B Tannin, ãã 0.30 gramme;
Calomel,
Petrolatum, 30.0 grammes.
M. S.: To be applied to the affected skin.

When the disease recurs, it may be due to associated impetigo lesions, which should be discovered and treated. In such cases a strong solution is required:

B Zinc sulphate, 7.0 grammes;
Copper sulphate, 3.0 grammes;
Distilled camphor water, 300.0 grammes.

M. S.: A tablespoonful to be added to the water used in washing the face.

When the skin is red, with the surface mummified, or slightly scaly, this condition is most frequently due to the abuse of soap on the face. The following is useful:

B Petrolatum,
Wool fat, ãã 10.0 grammes;
Rose water,
Zinc oxide, 4.0 grammes

M. S.: Apply once or twice daily.

Vaccination and Revaccination for Whooping Cough.—Laborerie presented a brief communication to the Société de thérapeutique (*Bulletin général de thérapeutique*, October 23, 1907) in which he reports the effects observed by him, during an epidemic of whooping cough, from vaccination. He vaccinated thirty-two children, of whom nineteen had previously been vaccinated (twelve successfully, seven unsuccessfully). Of thirteen children vaccinated, with success, for the first time, in seven very marked improvement was seen; the paroxysms diminished considerably from the third day. Four out of the seven were cured one week later. Among the six others the condition remained

stationary, without aggravation. Of the nineteen children who were revaccinated, in twelve it was successful, and from the second day they showed a marked improvement in their condition. Two weeks later, eleven were completely cured, and the twelfth was improved. As regards the seven who were unsuccessfully revaccinated, there was amelioration in two, while the others remained stationary. From this observation the author concludes that the action of vaccination on whooping cough among children vaccinated for the first time is uncertain, but on the contrary among cases revaccinated; it exerts a favorable influence upon the evolution of the disease, as shown by a reduction in the number and force of the paroxysms, from the second to the third day, and a definite cure on the eighth or twelfth day after the Jennerian inoculation. He had used this method in treating whooping cough in five children, with prompt improvement and a definite cure in two weeks in two of them.

Injectons of Normal Salt Solution for Sciatica.

—Sicard (*Journal de médecine de Paris*, October 20, 1907) recommends, in the treatment of sciatic neuralgia, local injections of artificial serum, and reports excellent results. He points out three places of election along the course of the sciatic nerve, (1) the epidural canal, (2) the ischiothrochanteric groove, and (3) the middle portion of the posterior face of the thigh. The injections should be made at these elective points successively, giving $2\frac{1}{2}$ drachms (10 c.c.) at each injection. They should be brought in contact with the nerve trunk and should not have any deleterious action on the nerve filaments; on this account the isotonic solution should be employed of sodium sulphate, sodium chloride or sodium phosphate, to which some local anæsthetic agent may be added, if desired.

Picric Acid for Excessive Sweating of the Feet.

—A French army surgeon, Major Chandès, recommends the following applications for hyperidrosis of the feet. A 5 per cent. solution of picric acid in alcohol (at 90 per cent.) is painted over the surface of the feet, once a day at first, and subsequently once a week. Following the drying of this application, the feet are to be dusted with

B Thymol iodide,
Alum. naphthol sulphonate, ãã 2.50 grammes;
Picric acid,
Bismuth subgallate, 15.0 grammes;
Talcum powder, 50.0 grammes.

M

—*Journal de médecine de Bordeaux*, October 27, 1907.

Lotion to Prevent Alopecia.—The falling out of the hair may be due to several causes, and require different methods of treatment, but the following formula is one which can be generally recommended:

B Crystallized acetic acid, 5.0 grammes;
Tincture of cantharides, 10.0 grammes;
Tincture of laborandi, ãã 25.0 grammes;
Tincture of rosemary,
Rum, 150.0 grammes.

M. ft. Lotion. S.: To be applied to the scalp with the hair brush slightly wet with the solution.

Bulletin général de thérapeutique, October 23, 1907.

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NEW YORK, SATURDAY, NOVEMBER 30, 1907.

THE MEDICAL SERVICE OF THE NAVY.

Much matter of interest is to be found in the report of the surgeon general for the fiscal year 1907, recently issued. There are still many vacancies in the medical corps, and so there will be, we fear, until Congress makes the service more attractive. Surgeon General Rixey commends the continuance of the grade of acting assistant surgeon, for it allows a young man to ascertain by actual trial whether or not naval life will be sufficiently to his liking to lead him to take the examination for admission into the regular corps. But increasing difficulty is experienced in recruiting the medical corps, for it appears that in 1905 there were thirty-eight vacancies, in 1906 there were forty-four, and now there are fifty-eight.

Several causes, says the surgeon general, have in the past acted to deter young men of the medical profession from seeking to enter the naval medical service. Many of the causes of dissatisfaction, he adds, have been removed, but there remain certain defects affecting the status and opportunities of medical officers which he thinks will operate to continue the indifference with which the service is regarded by the profession at large. The responsibilities of the medical officer are thus set forth: "To prevent the feeble and ill conditioned and, what is more important, the physically unfit from being imposed on the Government, and at the same time to amply recruit the ranks, the surgeon must exercise a careful professional discrimination at the rendezvous. To maintain the strength and efficiency of the ship's company, the isolated surgeon must not

only be competent to treat, surgically and medically, all manner of disabilities, but to point out the best means of preserving health under all circumstances on shore and afloat. He must ever be ready to provide for the wounded in the hour of battle and to succor the afflicted and control the situation among those panic stricken by epidemic disease, and to him the government must look to guard it against improper claims arising for pensions or the loss of service resulting from a respite from active duty." Surely this is a picture of duties and responsibilities for which the man who undertakes them should be well remunerated and honorably treated. That there are deficiencies in the naval surgeon's remuneration and treatment is the prime fact that operates to cripple the service by lack of numbers.

It is a belief generally entertained and tenaciously held, says the surgeon general, that he who enters upon the medical service of the navy has to make personal and family sacrifices and encounter privations for which he is not adequately rewarded. The sacrifices and privations, of course, are not materially different from those which beset the line officer, but the latter has far more to look forward to in the way of emoluments when he attains to high rank, as he is almost sure to do if he lives to middle age, to say nothing of the seduction of actual command. It behooves those in authority, says the surgeon general, to eliminate so far as possible all legitimate causes of dissatisfaction in the feeling of the medical officer and make the navy more attractive to men whom the service clearly needs.

It appears that last winter a special composite staff board was appointed to consider the needs of the staff corps of the navy. Consequently they are not set forth in detail in the report, but the remaining conditions which are reasonable causes of complaint are thus enumerated: "A disproportion of the grades, a sluggish promotion, and the deprivation of titles such as the army medical corps has enjoyed for years." The surgeon general looks with hope for departmental action in the matter, and trusts that the board's report may constitute the basis for legislative enactment, in connection with personnel legislation, during the approaching session of Congress.

No legitimate effort has been neglected to attract properly qualified young men to present themselves for examination for admission into the medical corps of the navy. All inquiries for information regarding appointments have been carefully and thoroughly answered. Not only this, but representative medical officers have been sent to the leading medical colleges to make addresses giving information as to the nature and advantages of the medical service of the navy. This has been in continuation of the custom of previous years. Circulars of information were sent to all medical officers stationed in the

vicinity of medical colleges and civil hospitals, with instructions to those officers to diffuse the information supplied, and, when practicable, to talk personally with likely candidates.

Only partial success has followed these efforts, and it remains for Congress to make the medical service of the navy really attractive. The nation realizes the importance and dignity of the service, and there ought speedily to be legislation expressive of the people's feelings. We cannot afford to allow the medical service of our navy, a rapidly growing arm of the national defense, to lag behind the corresponding service in other navies. We may be sure that European powers are not lavish in providing for medical officers, and certainly we should not be niggardly.

THE MYELOGENOUS PARALYSES OF CHILDHOOD.

The recent New York epidemic of poliomyelitis seems to have been turned to good account, even if our observations of the disease itself have thus far been fragmentary; it has aroused such an interest in paralysis of spinal origin in children as to lead to two such notable discussions as those that we report this week as having been held under the auspices of the New York Academy of Medicine. Practically, three different forms of disease were under consideration—epidemic cerebrospinal meningitis, epidemic poliomyelitis, and the degenerative affection which is oftenest the cause of infantile paralysis.

So far as the available data go, they seem to make a very encouraging showing for the antitoxic serum from which much is hoped for in the treatment of cerebrospinal meningitis, but Dr. Flexner, who was scientifically conservative in his statements, most properly urged that its use should be undertaken only under careful bacteriological restraint. Perhaps the time will come before long when there will have been formulated such rules for its employment as will enable the general practitioner to resort to it with the most encouraging prospect of success. It ought not to take very long for such investigators as Dr. Flexner to complete their studies of the subject.

Naturally the orthopædic aspect of the paralyzing spinal affections became prominent in the discussions, and we believe that Dr. Gibney's sententious presentation of it will lead to the happiest results in practice. It is very certain that the haphazard employment of electricity in infantile paralysis must give way to more enlightened methods, and that the overtaxing of disabled muscles and joints under the expectation of spontaneous improvement must be given up. These two points were most convincingly brought out by Dr. Gibney, and it is to be expected

that they will be thoroughly appreciated by the profession.

The discussions well showed the fact of the overlapping of specialties. The pædiatrist, the orthopædist, and the neurologist must all take part in the study and treatment of such diseases and their sequelæ as were under consideration. And this is no novel situation in medical practice. There is hardly any class of affections in the diagnosis and treatment of which a distinct gain may not be made by associating physicians accustomed to look at them from different points of view. Such a practical deduction will certainly be drawn by those practitioners who carefully read the reports to which we have here called attention, and the result cannot fail to be of immense help in overcoming disabilities, if not in saving lives.

ACUTE YELLOW ATROPHY OF THE LIVER.

Acute yellow atrophy of the liver is a rare disease, but one of great interest, on account of the marked autolysis which takes place in the liver without determinable cause. The textbooks are very conservative in their discussion of the ætiology of the disease. Wells, in the new chemical pathology, says that the atrophy of the liver is due to the action of the proper enzymes of the liver cells on these cells after they have undergone necrosis. He attributes the necrosis of the hepatic cells to the action of a poison; but he is unable to define the exact nature of the poison. The fact that this poison affects the liver alone and not the other organs of the body accounts for the great atrophy of the former. As a result of this extreme autolysis of proteid material we should expect to find in the diseased organ and in the excreta the amino acids which result from such autolysis. And, indeed, leucine and tyrosine have been isolated from the urine of patients suffering from this condition, and are considered diagnostic of the disease. Reservation is, of course, made to the fact that these bodies are sometimes found in the urine in other diseases in which there is great waste of albuminous materials.

There have been so few recorded cases of acute yellow atrophy which have been studied by modern chemical methods that we feel justified in calling particular attention to the results of a chemical study of a case of this kind by H. Gideon Wells (*Journal of Experimental Medicine*, November 16th). The patient was a young man, aged twenty years, who died of typical acute yellow atrophy, of the idiopathic variety, after an illness of about six weeks. The author succeeded in isolating the following amino acids from the liver tissue: Histidin, lysin, tyrosine, leucine, glycocoll, alanin, prolin, glutaminic acid, and aspartic acid. While it is supposed that

these substances are the products of the autolysis of liver cells, the amount of soluble nonprotein nitrogen present in the extracts of the liver suggests that there must be some additional source for them. Small quantities of free proteoses and peptones, and of xanthin and hypoxanthin, were also found in the extracts. In the insoluble proteins of the liver the diamino acids were decreased slightly as compared with normal livers. The proportion of protein phosphorus was increased; the sulphur was normal in amount; the iron was increased; gelatinous material was increased both absolutely and relatively; and the proportion of water to solids was much increased. The amount of fat and lecithin was decreased, while the amount of cholesterin was not far from normal.

One of the important results of the study is to show that there is no accumulation of fat in the organ, the amount present being about that found in a normal liver. The yellow color of the organ is due to the large amount of bilirubin present. Consequently the conclusion is drawn that, whatever the nature of the poison may be, it is not to be classed among the steatogenic poisons. Further, it is highly probable that the cause of acute yellow atrophy must differ in some essential particular from the bacterial toxins, phytotoxins, zootoxins, and most of the organic and inorganic poisons with which we are familiar, since all of them cause more or less fatty change in the liver.

THE SANITARY ASPECTS OF THE PHILADELPHIA SUBWAY.

The construction of subways in our large cities for the accommodation of the constantly growing traffic offers problems in sanitation as well as in pure engineering. Subways are in operation in Boston and in New York, and one is in process of construction in Philadelphia, about a mile and a quarter of which is in operation. We have previously referred in these columns to the ventilation of the New York subway and have commented on its unsanitary features. It is quite likely that the fact that a large part of the structure is cut through granite rock is accountable for some of the latter. A paper by Dr. Hervey L. Bates, in the *University of Pennsylvania Medical Bulletin* for November, gives a very complete study of the physical, chemical, and biological properties of the air in the completed part of the Philadelphia subway. The observations extended over five months, from January to June, embracing winter, spring, and summer weather conditions. There are a number of valuable charts and tables illustrating the data from which the conclusions are drawn.

The author finds that the subway temperature is

higher than the outside temperature in cold weather, and lower than the outside temperature in warm weather. The difference is more marked in cold weather than in warm weather, on clear days than on cloudy days, and in the event of a sudden change in the outside temperature than when the outside temperature is stationary or nearly so. It is possible to change the entire air of the tunnel in an hour and fifteen minutes, by means of the currents entering and leaving through the entrance and the seven ventilators, as well as the station entrances. In cold weather the relative humidity is generally lower in the subway than outside; but in hot weather the reverse condition holds true. The average relative humidity in the subway remains fairly stationary at sixty-four. The dust of the air is greater in amount in the subway during the cold months than that of the air outside, but during the warm months the reverse condition was found. The carbonic acid gas of the subway air averaged 6.5 parts in 10,000; that of the air outside the subway 4.8 parts in 10,000. The common air organisms and moulds were found in abundance, but no pathogenic bacteria were found.

The paper contains a full description of the air currents in the subway produced by the movements of the cars, and of the currents found at openings of the ventilators and at the entrance to the subway and at the stations. In comparing the results of this study with those of similar studies of other subways it must be borne in mind that the Philadelphia subway is built through a clay soil and that very little if any blasting was necessary in the portion so far completed.

THE SIGN OF THE RED CROSS.

Elsewhere in this issue we publish certain resolutions recently passed by the executive committee of the American National Red Cross, the purport of which is to deprecate the use of the society's emblem for unauthorized purposes. The resolutions are very temperate in tone, and we hope that they will be respected. In the revised Geneva treaty of 1906, as the committee point out, it is provided that "the signatory powers whose legislation should not now be adequate engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this convention confers the right thereto of the emblem or name of the red cross, or Geneva cross."

It is to be hoped that civil hospitals will at once see the propriety of discontinuing the use of the red cross as an adornment of their ambulance wagons. As to its commercial employment, the resolutions,

mild as they are, seem to intimate that there is a power capable of suppressing it. Certainly the general government ought to be able to do so in some way.

THE ROCKEFELLER INSTITUTE.

The recent announcement that the founder of the institute has added a large sum of money to its endowment fund justifies the expectation that even more will be accomplished by it in medical research than was looked for at first. The institute is still quite young, but it has done much in the way of useful investigation. Now that it has been so materially strengthened, it is reasonably sure to take and maintain a prominent position among the world's institutions for medical research, for its management is worthy of all commendation.

News Items.

Rochester, N. Y., Academy of Science.—At a recent meeting of this academy, Dr. Sarah R. Adamson Dolley and President Rush Rhees, of the University of Rochester, were made life members.

The Wayne County, Mich., Medical Society gave a dinner recently in honor of Dr. H. O. Walker, to celebrate his completion of forty years in practice. Dr. J. H. Carstens acted as toastmaster.

The Twenty-ninth German Bacteriological Congress will be held in Breslau in March, 1908. All communications should be addressed to the secretary Geheimer Sanitätsrat Dr. Brook, 24 Thomasius Strasse, Berlin, N. W.

The Nobel Prize in Medicine.—We learn from press despatches that this prize has been awarded to Dr. Laveran, of Paris, who is well known for his work on the propagation of tropical fevers by microbes conveyed by mosquitoes.

The Richmond, Va., Academy of Medicine held a meeting on Tuesday evening, November 26th. Dr. W. A. Shepherd read a paper on Diagnosis of Gastric Ulcer, and Dr. F. K. T. Warwick read a paper on Electrotherapeutics in the Commoner Diseases.

Schools for Backward Children in Germany.—It is stated that there are 203 of these special schools in Germany, 31 of which are situated in Berlin. There are 116 cities which have these schools, and the total number of pupils is 13,100.

National Association for the Study of Epilepsy.—A permanent advisory committee has been appointed by this association, with the following members: Dr. L. Pierce Clark and Dr. Adolf Meyer, of New York, and Dr. E. E. Southard, of Boston.

South Boston Antituberculosis Society.—Practical talks on tuberculosis, to which the public is invited, will be given by this society once a month throughout the winter. Dr. Edward A. Tracy is president of the society and Dr. William J. Sheehan is the secretary.

The Boston School Physicians' Association was recently organized by the medical inspectors of schools in Boston, with the following officers: President, Dr. H. E. Marion; vice-presidents, Dr. J. F. O'Brien and Dr. D. G. Eldridge; secretary, Dr. H. J. Perry.

Acute Infectious Diseases in Boston.—For the week ending November 13, 1907, the following cases of acute infectious diseases were reported to the Boston Board of Health: Diphtheria, 46; scarlatina, 28; typhoid fever, 10; measles, 25; tuberculosis, 31; smallpox, 0.

Fellowships at the University of Kansas.—It is announced that eleven teaching fellowships for graduates have been established at this university. The holder of each fellowship is entitled to receive \$265 and is obliged

to teach not more than seven hours each week, the remainder of the time being devoted to work leading to an advanced degree.

Changes of Address.—Dr. E. W. Allison, to 505 West One Hundred and Thirty-fourth street, New York; Dr. Hermann Boeker, to 206 East Sixty-eighth street, New York; Dr. Edward Hellis Vines, from Albany to 508 West One Hundred and Thirty-fifth street, New York.

Two New Hospitals for Greater New York.—The Department of Public Charities, New York City, has awarded contracts for the construction of two new hospitals, one in New Springville, Staten Island, and the other in Brooklyn. The latter will be the first public hospital for general purposes erected in Brooklyn for thirty years.

New England Otological and Laryngological Society.—The regular meeting of this society was held on November 15th. Dr. Francis P. Emerson read a paper entitled *Diseased Conditions of Rosenmüller's Fosse in Their Effect upon the Middle Ear*, and Dr. George H. Powers, Jr., reported a case of Caries of the Middle Ear, Mastoid, and Internal Ear.

Cancer Research in Japan.—It is announced that an institute for research work on cancer has recently been established in Japan, and the first issue of a journal, in which it is proposed to review the field of cancer research in German, French, and English speaking countries, has appeared.

Rochester, N. Y., Academy of Medicine.—The Section in General Medicine of this academy, which includes neurology, psychiatry, materia medica and therapeutics, held a meeting on Wednesday evening, November 27th. Dr. Seelye W. Little read a paper on the Treatment of Nephritis.

Dr. Bensel Retires as Street Cleaning Commissioner.—It has been announced that Dr. Walter Bensel, at his own request, has been relieved of his appointment as Street Cleaning Commissioner of the City of New York, and has resumed his former position as Sanitary Superintendent of the Board of Health.

The Buffalo Academy of Medicine.—The regular meeting of the Section in Obstetrics and Gynecology of this academy was held on Tuesday evening, November 26th. Dr. J. Henry Dowd read a paper on Impotence in the Female, and the Legal Status of the Unborn Infant was the subject of an address delivered by the Hon. John Lord O'Brien.

The Rockefeller Institute for Medical Research.—The board of directors of this institute announce a gift of \$2,600,000 from John D. Rockefeller, its founder, which will insure the permanency of the institute. The gift is to be used as an endowment fund, and it is estimated that the proceeds from it will be amply sufficient to carry on research work.

Medical Inspection of Schools in Toronto.—A system of medical inspection of school children has been adopted by the board of education of Toronto. Teachers are required to report either to the family physician or the medical health officer all pupils showing signs of disease or any physical defect. This method of inspection will be followed for a year, when a report will be made to the board of education.

To Investigate the Poliomyelitis Epidemic.—The New York Neurological Society recently appointed a committee to investigate the epidemic of poliomyelitis. On the postal cards sent out to the physicians of New York and vicinity giving a list of the members of this committee the name of Dr. J. F. Terriberry was omitted, through an inadvertence.

Hospital Service in Harlem.—The removal of the Harlem Hospital from East One Hundred and Twenty-first street left a large neighborhood with a population of about 450,000 without hospital service, especially for ambulance calls and accidents. A number of physicians have offered their services to start the old hospital and dispensary again, and an application for incorporation has been forwarded to the State Board of Charities.

The Medical Society of the County of Ulster, N. Y., will hold its annual meeting on Tuesday, December 3d, at 7:30 p. m. The presidential address will be delivered by

Dr. A. A. Stern, of Kingston, and papers will be read as follows: Early Diagnosis of Pulmonary Tuberculosis, by Dr. Herbert Mason King, of Liberty; Tuberculous Conditions Benefited by Surgical Treatment, by Dr. Mark O'Meara, of Kingston. Officers will be elected for the ensuing year.

The Health of Baltimore.—During the week ending November 2, 1907, the following cases of infectious diseases were reported to the Health Department of Baltimore: Diphtheria, 17 cases; scarlet fever, 21 cases; typhoid fever, 40 cases; measles, 2 cases; whooping cough, 2 cases; chickenpox, 12 cases; tuberculosis, 10 cases.

The Boston Medical Library held its annual meeting on November 12th, and elected the following officers for the ensuing year: President, Dr. George B. Shattuck; vice-president, Dr. F. I. Knight; treasurer, Dr. W. H. Prescott; secretary, Dr. O. F. Wadsworth; librarian, Dr. J. W. Farlow; committee on library and finance, Dr. C. P. Putnam; committee on medical and social meetings, Dr. W. H. Smith; committee on membership and elections, Dr. A. K. Stone.

A Psychiatric Clinic in Brooklyn.—Dr. O. M. Dewing, superintendent of the Long Island State Hospital, announces that a psychiatric clinic will be held at the hospital, corner of Clarkson street and Albany avenue, every Friday at 9 a. m. Interesting cases will be presented at the clinic by members of the medical staff, and an opportunity given for the personal examination of these cases and for a general discussion of them. All physicians are cordially invited to attend.

Officers of the Medical Society of the County of New York.—At the annual meeting of this society, held at the New York Academy of Medicine on Monday, November 25th, the following officers were elected for the ensuing year: President, Dr. J. Riddle Goffe; first vice-president, Dr. H. Seymour Houghton; second vice-president, Dr. John E. Weeks; secretary, Dr. John Van Doren Young; assistant secretary, Dr. J. Milton Mabbott; treasurer, Dr. Charles H. Richardson.

Proposed Medical Testimony Commission.—At a meeting of the Syracuse, N. Y., Academy of Medicine, held on November 19th, a resolution was adopted recommending the appointment of a committee, to consist of members of the State Bar Association and the Medical Society of the State of New York, to draft a law for the correction of the abuses in expert medical testimony. The academy suggests the appointment by the court of an independent medical commission.

The American Journal of Orthopaedic Surgery.—The publishers of this journal announce their intention to increase the amount of reading matter in each issue by thirty-five pages, to consist of original articles and abstracts of orthopaedic literature. *The American Journal of Orthopaedic Surgery* is the only periodical in the English language devoted exclusively to orthopaedic surgery and allied subjects. There are five such journals published abroad, three in Germany, one in France, and one in Italy.

The Health of Pittsburgh.—During the week ending November 9, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chickenpox, 5 cases, 0 deaths; typhoid fever, 84 cases, 7 deaths; scarlet fever, 29 cases, 1 death; diphtheria, 16 cases, 12 deaths; measles, 4 cases, 0 deaths; whooping cough, 11 cases, 0 deaths; pulmonary tuberculosis, 15 cases, 6 deaths. The total deaths for the week numbered 126, in an estimated population of 403,303, corresponding to an annual death rate of 16.24 per 1,000 population.

The Penobscot County, Me., Medical Association.—At the annual meeting of this association, held in Bangor on Tuesday, November 19th, Dr. A. I. Bradbury, of Old Town, the retiring president, read a paper on Contract Practice. The election of officers for the ensuing year resulted as follows: President, Dr. Harry Butler, of Bangor; first vice-president, Dr. S. F. Phelps, of North Sullivan; second vice-president, Dr. W. P. McNally, of Bangor; secretary, Dr. E. L. Bryant, of Bangor; treasurer, Dr. H. H. Crane, of Bangor.

The Department for the Insane of the Pennsylvania Hospital.—The annual report of the Department for the Insane of the Pennsylvania Hospital has just been issued.

The report covers the period from April 26, 1906, to April 25, 1907. During the year 106 men and 119 women were admitted. Including those patients remaining from the previous year the hospital treated 671 patients. Sixty-six were discharged recovered, 36 much improved, 34 improved, 30 stationary, and 36 died. Since the founding of the institution in 1841, 12,289 patients have been treated at the hospital.

Philadelphia County Medical Society.—At the regular meeting of the Philadelphia County Medical Society, held on Wednesday evening, November 27th, Dr. John B. Roberts explained the objects and work of the aid association. Dr. J. Torrance Rugh reported two cases of deforming ankylosis of the hip joint following typhoid fever, corrected by operation. Dr. George M. Dorrance and Dr. Nathan Ginsburg read a paper on Transfusion, History of, Development, Present Status and Technique of Operation. Dr. William J. Dugan read a paper on Amyotrophic Lateral Sclerosis.

Philadelphia Neurological Society.—The regular monthly meeting of the Philadelphia Neurological Society, held on Tuesday, November 26th, was devoted to a symposium on Poliomyelitis. Dr. Alfred Gordon reported a case of polioencephalitis inferior; Dr. C. S. Potts reported a case of acute anterior poliomyelitis with involvement of the muscles of the chest; Dr. S. D. Ingham reported a case of an old anterior poliomyelitis followed by atrophy of the muscles of the hand and face; Dr. Wharton Sinkler read a paper on the poliomyelitis epidemic in Philadelphia; Dr. Spencer M. Free, of Dubois, Pa., spoke of the poliomyelitis epidemic of the State.

The Howard Hospital of Philadelphia.—The fifty-third annual report of the Howard Hospital and Infirmary for Incurables has just been issued. The report covers the year ending March 25, 1907. During the year 768 patients were treated in the house and 8,670 in the dispensaries. During the year \$5,000 was received to endow a free bed in memory of Edward and Anna W. Longstreth; a part of a legacy to maintain a free bed under the will of William McPatrick, \$2,350 from the net proceeds of the Charity Ball, and \$434, the proceeds of a fair given in September, at Wayne, Pa., were also received.

Scientific Meetings in Philadelphia for the Week Ending December 7, 1907.—Monday, December 2d, Philadelphia Academy of Surgery; Biological and Microscopical Section, Academy of Natural Sciences; West Philadelphia Medical Association; Northwestern Medical Society. Tuesday, December 3d, Academy of Natural Sciences; Philadelphia Medical Examiners' Association. Wednesday, December 4th, College of Physicians; Association of Clinical Assistants; Wills Hospital. Thursday, December 5th, Obstetrical Society; Medical Society of the Southern Dispensary; Section Meeting, Franklin Institute; Northwest Branch, Philadelphia County Medical Society. Friday, December 6th, American Philosophical Society; Kensington Branch, Philadelphia County Medical Society.

Charitable Bequests.—By the will of Hanson L. Withers the University Hospital of Philadelphia receives \$5,000 for the endowment of a free bed for patients suffering from pulmonary tuberculosis.

By the will of George C. Taylor the following New York institutions will each receive \$25,000: St. Luke's Hospital, New York Hospital, Sheltering Arms Hospital, St. Mary's Free Hospital for Children, Seaside Hospital of St. John's Guild, Presbyterian Hospital, and the Seaside Home of Trinity Association. The Home for Incurables will receive \$12,000.

By the will of Louise K. F. Becker the Coxsack Hospital, Brooklyn, will receive \$500.

The Seventh Councilor District of the Ohio State Medical Association, which embraces the counties of Belmont, Monroe, Carroll, Guernsey, Columbiana, Coshocton, and Jefferson, held a meeting in Bellaire, Ohio, on Thursday, November 14th. Many prominent physicians were in attendance, and the following papers were read: Heart Murmurs, by Dr. E. R. Parker, of Willard, Ohio; Anemia, by Dr. J. S. Corbould, of Cadiz, Ohio; The Present and Future Use of I. W. Collins, of Tarenton, Alaska; and Active Principles, by Dr. E. D. Moore, of New Philadelphia. Some Remarks on County Society Work, by Dr. J. R. Parry, of Woodsfield, Post-Operative Complications.

by Dr. F. F. Simpson, Pittsburgh, Pa. A notable feature of the meeting was an address delivered to the public by Dr. J. N. McCormack, of Bowling Green, Ky., on Things About Doctors which Doctors and Other People Ought to Know.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending November 23, 1907:

	November 23—		November 16—	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	86	12	20	23
Smallpox.....	..	..	1	..
Varicella.....	136	..	102	..
Measles.....	293	5	201	5
Scarlet fever.....	278	17	254	13
Whooping cough.....	27	1	14	1
Diphtheria.....	282	31	331	27
Tuberculosis pulmonalis.....	345	154	304	145
Cerebrospinal meningitis.....	4	5	4	5
Totals.....	1,451	225	1,512	218

The Health of the Isthmus of Panama.—The report of the Department of Sanitation of the Isthmian Canal Commission for September shows that the total population of the canal zone for that month was 108,206. There were 297 deaths, corresponding to an annual death rate of 32.93 per thousand population. There were 9 deaths from typhoid fever, 36 from malarial fever, 14 from hæmoglobinuric fever, 4 from dysentery, 5 from amoebic dysentery, 1 from leprosy, 10 from beriberi, 5 from septicæmia, 21 from tuberculosis of the lungs, 2 from tuberculosis of the meninges, 1 from abdominal tuberculosis, 1 from general tuberculosis, 9 from bronchopneumonia, and 34 from pneumonia. The sick rate for September was 27.78 per thousand. During the month there were 41,000 employees on the pay rolls, among whom there were 98 deaths, corresponding to an annual death rate of 28 per thousand. Among the 4,200 American employees there were 2 deaths, corresponding to an annual death rate of 5.71 per thousand.

The Health of Philadelphia.—During the week ending November 9, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Philadelphia: Malarial fever, 1 case, 0 deaths; typhoid fever, 55 cases, 6 deaths; scarlet fever, 52 cases, 0 deaths; chickenpox, 43 cases, 0 deaths; diphtheria, 115 cases, 6 deaths; cerebrospinal meningitis, 1 case, 0 deaths; measles, 11 cases, 2 deaths; whooping cough, 8 cases, 3 deaths; pulmonary tuberculosis, 61 cases, 35 deaths; pneumonia, 52 cases, 40 deaths; erysipelas, 5 cases, 0 deaths; cancer, 26 cases, 17 deaths; mumps, 7 cases, 0 deaths. The following deaths from other transmissible diseases were reported: Tuberculosis other than tuberculosis of the lungs, 9; puerperal fever, 1; diarrhoea and enteritis, under two years of age, 12. The total mortality numbered 435 cases in an estimated population of 1,500,595, corresponding to an annual death rate of 15.01 per 1,000 population. The total infant mortality was 80; under one year of age, 61; between one and two years of age, 19.1. There were 40 still births, 20 males and 20 females. The total precipitation amounted to 1.37 inch.

Personals.—Dr. Harry L. Whittle has been appointed instructor in physiological chemistry in the University of Maryland.

Dr. Thomas H. Dennee, of Waterloo, N. Y., has been appointed assistant surgeon on the United States Coast and Geodetic steamer *Bache*.

Dr. F. M. Schulz, for eight years Commissioner of Health of Milwaukee, Wis., was recently elected superintendent of the County Hospital, to succeed Dr. J. W. Coon.

Dr. Wesley E. Taylor has been appointed professor of neurology and materia medica and therapeutics in the Atlanta School of Medicine.

Dr. M. L. Holm, late bacteriologist of the Chicago Health Department, has been appointed bacteriologist of the Michigan State Department of Health.

Dr. Gertrude E. Hall, of Albany, N. Y., has been appointed almshouse inspector by the New York State Board of Charities.

Miss Mary Crawford, a student at Cornell University Medical College, has won an appointment in the Williamsburg Hospital, in a contest with thirty-four male com-

petitors. After four months' work in the hospital she will become an ambulance surgeon.

The International Congress on Tuberculosis, which will be held in Washington, D. C., September 21 to October 12, 1908, will be the first one of an international character to take place in the United States. Official delegates will be present from many countries, and public discussions of the tuberculosis problem will be carried on by eminent authorities. The congress will be divided into seven sections, and there will be a course of thirty special lectures, to which the general public are invited. Clinics and demonstrations will be held during the whole three weeks, and there will be an exposition showing what is being done the world over in the campaign against tuberculosis. Medals, diplomas, or money prizes will be awarded for suitable exhibits. A cash prize of \$1,000 will be given for the best evidence of effective work in the prevention or relief of tuberculosis done by any voluntary association since the last International Congress, in 1905. Another prize of \$1,000 is offered for the best exhibit of a sanatorium for the treatment of tuberculosis among the working classes, and a third prize of \$1,000 will be awarded for the best exhibit of a furnished home for the poor in the interest of the crusade against tuberculosis. Several prizes of smaller value will be offered for educational leaflets. Medals are to be given for exhibits illustrating effective organization of the antituberculosis campaign in any State of the United States, and for one sent by any State or country outside of the United States illustrating effective organization for the restriction of the disease.

Philadelphia Bureau of Health Statistics.—During the month of September in the Division of Medical Inspection 3,952 inspections were made, exclusive of schools; 615 fumigations were ordered; 38 cases were submitted for special diagnosis; 3,598 visits were made to schools; 464 children were excluded from school; 402 cultures were taken; 142 injections of antitoxin were given, and 1,350 vaccinations were done. In the Division of Vital Statistics 1,804 deaths, 2,818 births and 1,100 marriages were reported. In the Division of Milk Inspection 6,451 inspections were made of 135,801 quarts of milk, of which 569 quarts were condemned. Nine specimens were tested chemically, and 468 microscopically. In the Division of Meat and Cattle Inspection 3,946 sanitary inspections were made, of which 232 were found unsanitary; 3,946 inspections of dressed meats were made, of which 448 were condemned; 227 postmortem examinations were made, with 61 condemnations. In the Division of Disinfection 92 fumigations were made for scarlet fever, 215 for diphtheria, 70 for typhoid fever, 178 for tuberculosis, 96 for miscellaneous diseases, and 5 schools were disinfected. In the Bacteriological Laboratory 679 cultures were examined for the presence of the bacillus diphtheriæ, 326 specimens of blood were examined for the serum diagnosis of typhoid fever; 821 specimens of milk were examined; 111 specimens of sputum were examined; 5 disinfection tests were made, and 2,235,800 units of antitoxin were distributed. In the Chemical Laboratory 127 analyses were made.

Society Meetings for the Coming Week:

MONDAY, December 2d.—German Medical Society of the City of New York; Utica, N. Y., Medical Library Association; Niagara Falls, N. Y., Academy of Medicine; Practitioners' Club, Newark, N. J.; Hartford, Conn., Medical Society.

TUESDAY, December 3d.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg, N. Y.; Medical Association; Syracuse, N. Y., Academy of Medicine; Hudson County, N. J., Medical Association (Jersey City); Medical Association of Troy and Vicinity; Hornellsville, N. Y., Medical and Surgical Association; Long Island, N. Y., Medical Society (annual); Bridgeport, Conn., Medical Association.

WEDNESDAY, December 4th.—Society of Alumni of Bellevue Hospital, New York; Harlem Medical Association, New York; Elmira, N. Y., Academy of Medicine.

THURSDAY, December 5th.—New York Academy of Medicine; Dansville, N. Y., Medical Association.

FRIDAY, December 6th.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn, N. Y.; Manhattan Clinical Society, New York; Practitioners' Society of New York.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

November 21, 1907.

1. Delirium and Delirious States. By HENRY M. SWIFT.
2. Underfeeding and Its Associated Ills. By DUDLEY ROBERTS.
3. Immunity and Therapeutical Action. By THOMAS J. MAYS.
4. Diagnosis and Treatment of Diphtheria in Young Children. By F. P. WEBSTER.
5. A Simple Method of Reconstructing Nerve Plexuses. By R. M. SMITH and E. W. TAYLOR.

1. Delirium and Delirious States.—Swift, in speaking on this subject, remarks about the treatment that it should be directed to the cause, and when the condition is due to the ingestion of a toxic substance, as alcohol, bromides, etc., this cause may be removed. It is to be remembered that we frequently have to do with a condition which is primarily physical and not mental, and the treatment is somewhat the same as that of any acute disease, the chief indications being to keep up the strength of the patient by appropriate nourishment and to prevent exhaustion from the motor unrest, which is frequently extreme. Of quieting measures the continuous warm bath is generally preferable to soporific drugs. By this method—which is warmly advocated by Kraepelin—the patient is kept in a warm bath at 92° F. to 95° F., until the restlessness subsides, and is then put to bed, when he frequently falls asleep. When restlessness reappears he is again placed in the bath, and this procedure is continued until his quiet becomes permanent. This method is particularly useful in delirium tremens; but in asthenic conditions, caution must be used, and the patient's pulse and general condition carefully watched. In some cases soporific drugs may be combined with the bath treatment. Heart stimulants, as alcohol, strychnine, and digitalis, may be indicated. In alcohol delirium, however, alcohol should be avoided, and if polyneuritis exists, even small doses given as a stimulant may be distinctly harmful. When a delirium tremens is threatened during enforced abstinence in the course of an acute illness in an alcoholic person, the case is somewhat different. On this point a diversity of opinion exists, but the author believes that small doses of alcohol are here beneficial. In senile delirium, also, the effect of alcohol may be distinctly good, being not only stimulative but sedative as well. Nourishment should be given at regular intervals as in any acute illness. If, owing to the mental condition, the patient cannot be made to take the necessary amount tube feeding may become necessary.

4. Diagnosis and Treatment of Diphtheria in Young Children.—Webster remarks that in making a diagnosis of diphtheria, we have two methods, the bacteriological and the clinical. The bacteriological method is subdivided into immediate examination of smears and late examination of cultures. Diagnosis by smears is unreliable, as when smears show no bacilli, bacilli may be shown by culture. By a smear one can only note the presence or absence of bacilli, like the Klebs-Löffler. However, this direct method is suggestive or corroborative when positive, but when negative should be disregarded entirely. The examination of cultures is

the most certain method we have of diagnosing diphtheria. But this has some fallacies. Aside from the possibility of error, bacteriological diagnosis must use up valuable time; in the case of diphtheria, probably twelve hours or more. Clinically, by certain symptoms and signs familiar to us, we can usually recognize a probable case of diphtheria. There is quite a possibility of mistake; still, bacteriological examinations have generally shown earlier clinical diagnoses to have been correct. But it is the author's opinion that in this disease, especially in young children, treatment should come first upon suspicion. Then positive diagnosis should follow for purposes of quarantine. As diphtheria antitoxine has been shown to be harmless, and may be beneficial to patients without diphtheria, e. g., in tonsillitis and in scarlet fever, we shall do no harm in giving antitoxine to a child without diphtheria.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

November 23, 1907.

1. Hysteria. Its Nature and Its Position in Nosology. By F. X. DERCUM.
2. What the American Medical Association Stands For. By GEORGE H. SIMMONS.
3. The Ferments of Milk and Their Relation to Pasteurization. By ROWLAND G. FREEMAN.
4. Potential and Acquired Static Flat Foot. Its Etiology, Symptomatology, and Nonoperative Treatment. By EDWARD H. OCHSNER.
5. A Method of Bimanual Rotation in the Vertebra. By WILLIAM D. PORTER.
6. Whooping Cough. Five Hundred and Fifty Cases Treated by the Abdominal Belt. By THERON WENDELL KILMER.
7. Comparative Study of Renal and Biliary Disease in Which Calculi Figure Prominently. By A. M. POND.
8. The Diagnosis and Treatment of Convulsions in Children. By H. LOWENBURG.
9. Gangrene of the Lung in Early Life. By D. J. MILTON MILLER.
10. Treatment of Purulent Ophthalmia. By GEORGE H. PRICE.
11. The Conservative Treatment of Chronic Suppuration of the Middle Ear. By SAMUEL THEOBALD.

2. What the American Medical Association Stands For.—Simmons sums up his report in saying: "It stands today, as it has stood for sixty years, but now in an entirely practical way, for a higher standard of medical education, for a gradual elevation of this standard until the physicians of the United States shall equal in scientific attainment, as they equal in intellect, the physicians of any other nation on earth. It stands for uniform legislation in all the States; for a law based on principles adopted after careful scientific study of the problems involved, that shall be equitable and just and that shall make possible rational reciprocity among the States. It stands for and in the future will insist on honesty and business integrity and against fraud and deception on the part of those who supply physicians with medicinal agents. It stands for the development of a national, State, and local sanitary system that shall be based on scientific knowledge, for the protection of public health; for enlightening and directing public opinion in regard to the problems of personal hygiene, and for securing the cooperation of an enlightened people in suppressing quack medicines and quackery."

3. The Ferments of Milk and Their Relation to Pasteurization.—Freeman reviews the history

of the treatment cows' milk as a food for infants should receive. He observes that after a study of the most recent observations of the result of heat on the chemical composition of milk and on ferments and other biological properties, it seems evident that, if sufficient for the purpose of destroying bacteria in milk, a temperature of not much more than 140° F. (60° C.) should be used. Such a temperature will scarcely alter the chemical composition; it will not injure the ferments existing in cows' milk, and it only remains to discover its efficiency to destroy the bacteria we fear in milk. The most recent observations made on the thermal death point of the tubercle bacillus, the most resistant species that we fear in milk, indicates that a temperature of 140° F. (60° C.) for twenty or thirty minutes is sufficient to destroy tubercle bacilli occurring in milk, unless they are enveloped in thick mucopurulent material, such as sputum, or are protected by a film formed on the surface of the milk. Such conditions are not likely to occur in sealed bottles of properly handled milk from healthy cows. Such milk is unaltered in taste and retains the ferments and biological characteristics of the milk unimpaired. It is not subjected to chemical change and is certainly much safer than any raw milk at the present stage of the development of dairy hygiene in this country or abroad. The author concludes that: 1. Milk for infant feeding should be pasteurized so as not to interfere with its biological properties or chemical composition, but at a sufficient temperature to destroy the bulk of the bacteria present, including the tubercle bacilli. 2. A temperature of 140° F. (60° C.) continued for forty minutes would seem to fulfill this condition.

4. **Flat Foot.**—Ochsner states that flat foot is a very much more common affection and causes much more discomfort and disability than we are inclined to believe. It is more apt to be caused by general muscular weakness than weakness of special muscles or parts. The earliest symptoms occur at the time of, and are caused by, the changes occurring at the age of puberty, and this is the time when the proper treatment is most effective. The correct diagnosis is not made as often as it should be. The treatment which he proposes consists in teaching the patient the proper mode of walking; that is, a flat foot patient should walk and stand with the feet parallel or nearly parallel. Careful attention to the kind of shoes worn is also of great importance. But he relies most upon his method of strapping, which consists in putting straps over the bottom of the heel about one inch from its posterior banding, placing one half up the outer surface of the leg without tension and the other up the inner surface of the leg as taut as possible. A short, narrow strap is then placed on the inner surface of the foot parallel with the sole, and one on the outer surface. This is done with about sixteen strips one half by eight inches, each strap slightly overlapping its predecessor. When all are in place they are covered with about six large straps, each one half inch wide by thirty-two inches, and beginning at the upper end of the leg. The straps will remain in place from four to six weeks; the strapping may be repeated.

6. **Whooping Cough.** Kilmer reports the result of treating 330 cases of pertussis with an ab-

dominal belt, the results being, as the author says, surprisingly good. The belt is made of linen, with a strip of silk elastic webbing two inches wide inserted on either side. This is sufficient to give the belt elasticity, yet does not add materially to its weight. The belt laces in the back, and, by means of the lacings, any degree of constriction may be maintained; it is worn over the undershirt or band. The width should approximately be as follows: For infants, 4 to 5 inches wide; for children, 5 to 8 inches wide. The length of the belt should be such that when complete it should measure three inches less than the circumference of the abdomen at the navel. The degree of constriction should be determined in each individual case; usually a slight degree of constriction is sufficient to produce a moderation of the cough and a complete cessation of vomiting. If, after having applied the belt, the symptoms do not abate, tighten it slightly. A sense of comfort is generally expressed by children who are old enough to make themselves understood. These belts can be made by any instrument maker at a few hours' notice; the usual mode of procuring them in any individual case is to send the measure of the circumference of the child's abdomen (at the navel) to the instrument maker, also stating the age of the child, and in twenty-four hours' time a belt is ready for application. The belt is best applied by the attending physician, and the parents and nurse should be instructed in its use. The cost of the belt is nominal, from \$1.50 to \$3 being charged for its making. The beneficial results obtained show that 87 per cent. of patients wearing the belt are helped by its use.

7. **Comparative Study of Renal and Biliary Disease in which Calculi Figure Prominently.**—Pond observed that kidney stone is found usually in the pelvis of the kidney, and the frequency of the right kidney is 119 to 98 in the left. Ureteral stone is found in 40.7 per cent., or in nearly one half, of the cases at the upper flexure of psoas flexure. More than half of the gallstones found in the common duct are located in the ampulla of Vater. Both of these regions are connected with the pneumogastric distribution through the renal plexus, and this explains the nausea and vomiting during the acute seizures. The pelvis of the kidney is the usual site of kidney stone; the psoas flexure of the ureter is the location of 40.7 per cent. of all ureteral stone; the fundus of the gallbladder is the site of gallstone in more than half of all cases. The pain of a kidney or ureteral stone does not always radiate to the groin or bladder, but is sometimes more evident about or above the umbilicus.

MEDICAL RECORD

November 23, 1907

1. On Perianal and Perirectal Abscess, By CHARLES B. KELSEY.
 2. The Surgical Treatment of Ulcer of the Stomach, By OTTO KILIAN.
 3. The Nose in Its Relation to Epilepsy, By W. SCHIER ERYANT.
 4. The Indications for Ergot aside from Its Obstetrical Uses, By ALFRED T. LIVINGSTON.
 5. The Action of the Radium Light Bath in Nervous Diseases, By T. D. CROTHERS.
 6. Motor Paralysis as an Early Sign of Tabes Dorsalis. With a Report of Two Cases, By CARL D. CAMP.
 7. The Misuse of the Voice and Its Cure: Articulation, By N. J. POWER VAN BAGEN.
1. **Perianal and Perirectal Abscess.**—Kelsey

observes that treatment of such abscesses covers a wide range of surgery, and some of it major surgery. With the deep pelvic abscesses, those of the broad ligaments, and the superior pelvic space, in women, laparotomy and removal of the affected organs with drainage through Douglas's pouch is the only cure. Where these collections of pus have opened into the rectum we all know the serious nature of this complication, otherwise the results are good. The general rule in the treatment of all abscesses of this part is free and early incision. When once the diagnosis of commencing abscess has been made incision should follow immediately and as a matter of course. There should be no delay in the hope of resolution and no waiting for fluctuation; the idea is to prevent the burrowing and the production of the fistula which constitute the greatest dangers. To accomplish this most certainly the incision should be large, so that all sinuses and pockets may be opened up with knife or finger, and free escape of all contents provided for. Another cardinal rule is that, since abscesses are not actual fistulae, but only the possible cause of them, they should be treated as abscesses and not as fistulae, and they should not be opened into the rectum. It is true that in spite of cutaneous incision many will subsequently perforate the bowel and form complete fistulae, and thus make division of the wall of the gut and the sphincters a necessity for cure; still, this does not constitute a reason for the surgeon doing the same thing with his knife. Often when an ischio-rectal abscess has been freely incised on the skin and the finger is introduced to break down sloughing pockets, it will be found that the cavity has approached very near the rectal wall and only a little barrier intervenes between the two cavities. And it may seem as though it were as well to push through this barrier and divide the entire rectum, and thus make the fistula and cure it at one sitting. This method of treatment has been advocated by good surgeons, but is not generally accepted, and the author thinks it is absolutely bad, because, with free cutaneous opening and proper dressing, many abscesses of the deeper variety, which have approached very near the bowels, will close as they do in other parts; and when this can be brought about all injury to the sphincters and all interference with function is avoided. His own rule is to operate on abscesses as abscesses, and if fistulae subsequently form to operate upon them in the usual way. He concludes: In abscesses of the superior pelvic space much good surgery may be shown in securing free evacuation without cutting into the bowel. If the pus is in the anterior portion of the perineum a curved incision in front of the anus will generally be efficient. More often the incision both for these and for the retrorectal variety will need to be posterior and should begin with a free division of the sphincters in the posterior median line. Through this by blunt dissection a way can be made between the levator and the rectum, and the pus cavity on either or both sides thoroughly drained. Periprostate abscesses should be opened by the incision for median lithotomy. In subcutaneous or submuscular abscesses the incision should be in line with the radiating folds of skin and should lay open the entire cavity, whether it be chiefly on the skin, on the mucosa, or equally on both. In this way only will fis-

tula be avoided. Follicular and thrombotic abscesses do not often form fistula, but they should be incised freely for their entire extent.

2. The Surgical Treatment of Ulcer of the Stomach.—Kiliani's paper appeared in abstract on page 904.

3. The Nose in Its Relation to Epilepsy.—Bryant says that epilepsy is a normal symptom consequent on overstimulation of the higher centres of the cord and brain. This overstimulation is largely reflex in its characteristics. The normal nerve reaction may become pathological, even when it is irritated by a comparatively insignificant peripheral stimulation. Epileptic seizures are more often due to reflexes from the Schneiderian membrane through the fifth nerve than to other causes. Appropriate treatment of the intranasal defects may be expected to lessen greatly the number of attacks, and in favorable cases to remove wholly the peripheral irritating cause of the epilepsy, which will allow cessation of the seizures. In the epileptic neurosis, predisposition or weakened resistance of the central nervous system is due to other causes than the slight exciting peripheral irritations which have previously lessened the selfprotective power of the higher nerve centres.

4. The Indications for Ergot aside from Its Obstetric Uses.—Livingston bases his conclusions upon a clinical experience of thirty-four years. His deductions are: 1. Its direct and specific effect is the contraction of unstriated muscular fibre, or other involuntary contractile tissue. 2. It does not markedly contract that which is normal in tone, but it is emphatic in its contraction of that which is lacking in tone, and it is prompt and striking in such effect in proportion to the recency of occurrence of the atonic state in such fibre. 3. Its widest field of usefulness is its application to the muscular coat, or other contractile tissue, of weak and relaxed blood-vessels. There it tends to equalize vascular tension; to distribute the blood equably throughout the body; to restore or to promote functional activity of glands and organs generally and vasomotor centres particularly; to promote sleep; to relieve pain, nervousness, and spasm; to prevent or modify the effects of autotoxines and bacteria; to promote assimilation, absorption of exudates, and elimination of waste; to relieve nausea; to prevent the ill and dangerous effects of anesthesia; to promote the healing of wounds; to prevent or modify inflammation; to arrest capillary hemorrhage; to relieve narcotic poisoning, and to make the work of the heart more easy, and so to prevent its exhaustion or paralysis. 4. It is useful to restore tone in the unstriated fibre of the walls of the hollow viscera, stomach, bowels, bladder, uterus, etc. 5. The prevalent popular notion, existing even in the medical profession, that it is a dangerous drug, and likely to produce ergotism, is unfounded as regards the modern pharmacopial preparations. 6. Its local action upon the stomach is often offensive, especially if full doses are given; its absorption from the stomach is uncertain, both as to promptness and degree, and, therefore, its administration should be limited as much as possible to hypodermic injection, which secures an immediate effect, without a great mitigation of dose, and avoids nausea and other ill effects of its administration per os.

BRITISH MEDICAL JOURNAL.

November 9, 1907.

1. The Pleuræ: Pleural Effusion and Its Treatment (Bradshaw Lecture), By SIR J. BARR.
2. Cerebrospinal Meningitis Complicated by Parturition, By J. D. WILLIAMSON.
3. The Origin of the Facial Nerve, By N. B. HARMON.
4. Subcutaneous Injections of Air as a Means of Relieving Certain Painful Manifestations, By A. S. GUBB. (Seventy-fifth Annual Meeting of the British Medical Association.)

Section of Pathology.

5. A Discussion on Pernicious Anæmia and Allied Conditions, Introduced by W. HUNTER.
6. Anæmia in Ankylostomiasis, By A. E. BOYCOTT.

Section of Tropical Diseases.

7. A Discussion on the Hemoflagellates, Introduced by E. A. MINCHIN.
8. Practical Notes on the Treatment of Blackwater Fever, By W. T. PROUT.
9. Some Further Observations on the Cell Changes in Dourine and Sleeping Sickness, By F. W. MOTT and H. G. STEWART.
10. A Peculiar Blood Condition, Probably Parasitic, in Sudanese Fowls, By A. BALFOUR.
11. Development of Piroplasma Canis in the Tick, By S. R. CHRISTOPHERS.
12. A Further Note on Bilharzia (Schistosomum) Disease in Cyprus, By G. A. WILLIAMSON.
13. South African Diseases, By C. BIRT.
14. Mediterranean Fever in South Africa, By C. BIRT.
15. Complications Found in Chronic Cases of Sprue, By C. BEGG.
16. The Climate of Ceylon, By W. H. DE SILVA.
17. Anatomical Studies of the Rectum and Sigmoid Flexure in Relation to the Causes and Treatment of Mucus in the Stools, Associated with Intestinal Flux, By J. CANTLIE.
18. One Hundred Cases of Liver Abscess, By J. CANTLIE.

2. **Cerebrospinal Meningitis and Pregnancy.**—Williamson reports the case of a fourteen year old girl who was attacked with cerebrospinal meningitis just as her pregnancy came to term. The case soon proved fatal, and was remarkable for the age and condition of the patient, the sudden onset of the meningitis when the patient was in labor (she declaring she was not pregnant), its rapid course leaving no time for any very active treatment to be of any service; the look of the patient, the character of the petechial and herpetic eruptions, without head symptoms, and the persistent vomiting which, in this case being associated with pregnancy, did not command the amount of attention that under other circumstances it would have received.

4. **Injections of Air for Pain.**—Gubb reports nine cases in which subcutaneous injections of air were given for the purpose of relieving painful manifestations. The method was introduced by Cordier at a time when elongation of nerves by stretching was in vogue for the treatment of neuralgia, especially sciatica. The injections are supposed to produce elongation of the finer nerve tendrils where they leave the subcutaneous tissue to enter the derma proper. The method is simple, a sterilized hollow needle being plunged through the skin over the seat of the pain, and after making sure that a bloodvessel has not been entered, air is pumped in by means of an ordinary rubber bulb. In the air tube is placed a glass tube filled with sterilized cotton. A rounded swelling forms round the seat of puncture, and when the air reaches a vascular or nervous sheath it rapidly spreads along it and secondary swellings form at a distance. These secondary ramifications are specially likely to form on

the limbs. The skin at first becomes blanched, but later this gives place to a pronounced redness lasting several hours. It takes several days for the air to be completely absorbed. No pain is experienced, and cutaneous sensibility is at once diminished, the skin becoming numb. After the needle has been withdrawn and the hole closed with collodion, it is indispensable to massage the part. The subcutaneous air must be alternately dispersed and brought together again, especially over the painful spots. The procedure is applicable to the relief of pain due to all forms of neuralgia and neuritis. But the amount of air must be varied according to the anatomical structure of the part. In the treatment of sciatica the injections should be made in the lumbar region, on the outer side of the thigh and on the superoexternal part of the leg. The writer has not yet ventured to try this mode of treatment in neuralgias of the face. In all nine of the cases reported, relief was rapid and lasting.

8. **Blackwater Fever.**—Prout holds that the group of symptoms known as blackwater fever is due to a special condition of the blood produced by repeated attacks of malaria—a condition in which, possibly through the long continued strain on the blood making organs, there is a lowered vitality of the red blood cells, the connection between the hæmoglobin and the stroma is weakened, and then some exciting cause produces a sudden hæmolytic, with the resulting phenomena of blackwater fever. The exciting cause is in some instances undoubtedly quinine, in others chill (as in the paroxysmal hæmoglobinuria of temperate climates), and in others toxins absorbed from the intestinal canal. After the hæmolytic has taken place, we have to deal with the action of dissolved hæmoglobin in the blood; it is irritating and produces various secondary symptoms, among them jaundice and nephritis. It is therefore evident that when a case of blackwater fever comes under observation, the mischief is already done. In treatment two things must be dealt with—the loss of blood, which may be enormous, and the presence of hæmoglobin dissolved in the plasma. The indications for treatment are as follows: 1. Get rid of the morbid products. Empty the intestinal canal thoroughly with calomel. This relieves the liver and has an antiseptic action on the intestinal canal. Aid elimination by the skin and kidneys by means of the administration of diuretics and diaphoretics. But where vomiting is constant the stomach must be left severely alone, a large, high, hot enema being given each morning. 2. Counteract the malarial element in the attack. If malarial parasites are found in the peripheral circulation, at least one dose of quinine should be given, preferably by hypodermic injection. If there is any recurrence of the hæmoglobinuria it should not be repeated. 3. Support the patient's strength, but avoid overstimulation with alcohol. 4. Alleviate any distressing symptoms. Of these vomiting is the most constant, and it is best relieved by washing out the stomach, if the ordinary remedies (oxalate of cerium, etc.) fail. For the sleeplessness morphine should be given. The after treatment is of course directed against the anæmia. Arsenic and a change of climate are most beneficial. A single attack of blackwater fever can be completely recovered from and leave no ill effects.

LANCET

November 9, 1907

1. The Pleuræ: Pleural Effusion and Its Treatment (Bradshaw Lecture), By SIR J. BARR.
2. Some of the Advances of Modern Medicine, By SIR R. D. POWELL.
3. Fleas as a National Danger, By SIR L. BRUNTON.
4. The Advances in Medicine during the Past Thirty Years, By J. K. FOWLER.
5. A Contribution to the Analysis of the Mental Process in Criminal Acts, By T. C. SHAW.
6. Chronic Intestinal Obstruction Due to Adhesion of a Uterine Fibroid to the Mesentery, By A. H. G. DORAN.
7. Cancer Infection and Cancer Recurrence; a Danger to Avoid in Cancer Operations, By C. RYALL.
8. Some Cases of Vernal Catarrh, By T. H. BUTLER.
9. Clinical Observations on the Origin of Fever, By A. LORAND.
10. Four cases of Tuberculous Disease of the Temporal Bone, By C. E. WEST.

1. **Pleural Effusion.**—Barr states that the ætiology of each particular case of pleurisy should be settled as far as possible, it being most important both as regards treatment and prognosis. Every case is due to some microorganisms or their toxins, even those following injury or cold, and those secondary to chronic illness, such as nephritis. The vast majority of cases are tuberculous, but a number are rheumatic or due to pneumococci, streptococci, staphylococci, or colon, typhoid, or influenza bacilli. Many of these organisms are found in the serous effusion, but not so the tubercle bacillus. If there is any evidence of tuberculosis in the lungs or elsewhere, the question may be considered settled. Failing this, the fluid should be centrifuged and the sediment examined for tubercle bacilli and cells. If the case be tuberculous the cells will be mostly lymphocytes; if not, the polymorphonuclear cells will predominate. A blood count is of assistance, as in tuberculous pleurisy there is no leucocytosis, whereas in that associated with other processes there usually is. A hæmorrhagic effusion is usually associated with tuberculous or malignant disease. A specific gravity of 1018 is usually taken to be the dividing line between exudates and transudates. Dry pleurisy is frequently tuberculous, but not necessarily so. In pneumococcal pleurisy there is usually a large amount of fibrin, whether there be much fluid or not. Cases of dry pleurisy require very little treatment except some counter irritation, a diaphoretic, a purgative, and perhaps a sedative to relieve pain, or some strapping of the chest to limit the amount of movement. In cases of pleural effusion the writer was formerly much more chary of early tapping than at present; in tuberculous cases it caused vascular turgescence of the lung and dissemination of the tubercle bacilli. But since he began replacing the withdrawn fluid by air, he now removes the whole of the effusion, even in tuberculous cases, at an early stage with perfect impunity. He now recommends the complete withdrawal of the effusion in all cases, but before any great negative pressure is established, and before the patient feels any discomfort, he stops the siphon and introduces about an equal quantity of air to the amount of fluid withdrawn. The siphon is then reestablished and the withdrawal of the effusion completed. When all the liquid is withdrawn 4 c.c. of adrenalin solution (1 in 1,000) diluted with 8 or 10 c.c. of sterile normal saline solution, is in-

jected; this contracts the blood vessels and lessens the secretion, but its effect is not very prolonged, especially if any great negative pressure exists. If necessary, more sterile air is then introduced, so as to make the total amount equal to one half or three fourths of the bulk of the fluid withdrawn. The larger quantity of air is introduced in tuberculous cases. By this method the patient suffers no discomfort except from the slight thrust of the trocar. The siphon is preferred to the aspirator because the force of the suction can be readily regulated, and, since the tube only reaches to a receptacle on the floor, practically the negative pressure never exceeds one pound to the square inch; this force is greatly exceeded by the aspirator, and the greater the negative pressure the greater the risk of secondary hyperæmia or œdema. It is an advantage to introduce a manometer in the air tube; the danger of producing a positive pressure in the pleura can thus be avoided. Of course, all aseptic precautions must be taken. Empyema is a disease which has passed entirely into the surgeons' hands; they think only of free drainage and are careless whether the lung ever expands again or not. The author recommends that a local and not a general anæsthetic be used. A free incision should be made in a very dependent spot, about the eighth or ninth intercostal space, in a line with the lower angle of the scapula. An assistant should compress the side so as to drive out the pus and allow as little air as possible to enter. No drainage tube should be introduced, but a piece of oiled silk should be placed over the wound to act as a valve and keep the air out. The patient should lie on the affected side and should be well strapped to prevent movement. The variety of microorganisms in the pus should be ascertained and an appropriate vaccine used. Unfortunately Estlander's operation is often necessary, due to early mismanagement.

7. **Cancer Recurrence.**—Ryall, as the result of his observations, has concluded that carcinoma is a highly infectious disease. Not that there is any evidence to support the fact of its communicability between one person and another, but that once an individual becomes the subject of cancer there is not only the liability of its spreading by a well defined infective process, but also in those cases where the surgeon attempts to remove the disease there is a risk of re infecting his patient from the growth which he is endeavoring to remove. Cancerous infection of wounds is therefore of comparatively frequent occurrence, but unless the infection manifests itself fairly early the proof is easily overlooked. Cancer infection during operation is responsible for many of the cases of recurrent nodules in the site of operation wounds, and suture hole infection is exceedingly common. Cancer infection is probably the reason why chronic carcinomatous growths so frequently run a very acute course after attempted operations. In the parent growth the cells are more or less encapsuled in fibrous tissue, but some cells escape during operation and find a resting place in the wound which is comparatively unprepared to meet and to resist the invasion. The question of cancerous infection of wounds during operation is a real and exceedingly grave danger and one of the utmost importance. Moreover, it is a danger that cannot be too care-

fully guarded against, and any failure to avoid it has an important bearing on the question of cancer recurrence.

9. Origin of Fever.—Lorand holds that the conclusion is not unjustified that fever is a beneficial institution of our organism which is produced by an increased activity of the thyroid gland as a reaction against toxic products and poisons in general. The symptoms of fever are the expression of this increased activity and they are directed toward the elimination of noxious elements. It would be unreasonable to oppose this spontaneous healing tendency of nature by fighting these salutary symptoms, unless there be hyperpyrexia. Fever, as probably disease in general, serves the ends of nature in the interest of our conservation.

LA PRESSE MEDICALE.

October 26, 1907.

1. Action of the Gastric Juice Upon Starch,
By H. ROGER and L. G. SIMON.
2. Coagulation of the Blood and Retraction of the Clot,
By R. ROMME.

1. Action of the Gastric Juice Upon Starch.

Roger and Simon conclude from their studies that throughout the digestive tract, from the mouth through the intestine, starch undergoes modifications constantly from the action of the various fluids with which it meets. The saliva does not act upon it alone in the buccal cavity, but again in the intestine, where its action is reinforced by that of the pancreatic juice. The gastric juice takes its turn in the production of chemical and physical transformations of the starch. It continues the action commenced by cooking and gives rise to soluble starch and dextrine. If it is incapable of the production of sugar it plays an important part in the preparation of the starch for its ultimate transformation.

October 30, 1907.

1. Typhoid Fever and Infection Descending the Biliary Passages,
By A. LEMIERRE and P. ABRAMI.
2. The Zinc Ion in Gonococcal Infections,
By ALBERIC BOUCHET.

1. Typhoid Fever and Infection Descending the Biliary Passages.—Lemierre and Abrami show by their experiments that (1) typhoid bacilli injected into the veins of a rabbit are very frequently eliminated through the liver and pass with the bile into the biliary passages; (2) that these microbes, which multiply in the gallbladder, determine the lesions of cholecystitis and pericholecystitis spontaneously without a previous traumatism to the biliary passages; (3) that the bacilli, having multiplied abundantly in the gallbladder, pass with the bile into the small intestine, where they may perhaps reveal their presence.

LA SEMAINE MEDICALE.

October 30, 1907.

1. The Bacterial Condition of the Fæces of the Infant in a Normal State and in Gastrointestinal Affections. The Variations According to the Food,
By P. NOBECOURT and L. RIVET.
2. Quick Onset of Meteorism in Contusions of the Abdomen,
By F. LAURENS.

1. Bacterial Condition of the Fæces of the Infant.—Nobecourt and Rivet state that the microbic flora of the digestive canal of an infant in a normal condition is very poor at the level of the stomach and duodenum, and gradually grows richer as the rectum is approached. In the up-

per segments of the intestine aerobic, or facultative anaerobic, germs predominate; in the lower segments, particularly the large intestine, the aerobic species become rare and the anaerobic predominate. The bacterial flora of the fæces is practically that of the large intestine, which differs markedly from that of the other segments. But as the composition of the fæces is partially determined by the digestive processes which take place in the stomach and small intestine, the flora is modified when these processes are interfered with. Hence the bacteriological study of the fæces can reveal not simply the bacterial state of the colon, but that of the upper segments of the intestine as well. The authors then consider the variations which are found in the flora in diarrhoeal conditions, and also the variations which are found to result from the ingestion of various kinds of food. The therapeutical indications to be drawn from these studies are confirmatory of those suggested by clinical observation, that, when we have to deal with a very liquid and abundant diarrhoea associated with an aerobic flora, albuminoid elements should be introduced into the food, while, when the diarrhoea is fetid and less abundant, generally associated with an anaerobic modification of the flora, a starchy diet should be given and an albuminoid is contraindicated.

2. Quick Onset of Meteorism in Contusions of the Abdomen.

Lejars is of the opinion that a very rapid and considerable meteoric distension coming on after a contusion of the abdomen does not of itself, in the absence of characteristic signs and when the pulse is good, point to a rupture of any of the viscera, or to an internal hemorrhage, and does not believe that it is usually of itself any indication of urgency.

REVUE HEBDOMADAIRE DE LARYNGOLOGIE, D'OTOLOGIE, ET DE RHINOLOGIE.

October 26, 1907.

1. Treatment of Cancer of the Larynx,
By JEAN SENDZIAK.
2. Operation for Bilateral Inflammation of the Frontal Sinus,
By LAURENS.

1. Treatment of Cancer of the Larynx.

Sendziak analyzes 982 cases of surgical intervention on account of cancer of the larynx, and concludes that the surgical treatment is at present the more rational; 26 per cent. of the 982 patients were cured. Deaths have greatly decreased since 1888, a decrease which he ascribes to the performance of the operation at an earlier period and the improvement of the operator's technique. When the various procedures are compared, none before 1888 being considered, the method of laryngofissure is found to be credited with 50 per cent. of cures, the endolaryngeal method with 46 per cent., partial or unilateral resection with 23 per cent., and total resection with 22 per cent., results which would seem to indicate that laryngofissure was the preferable method. But when recurrences are taken into account another story is told; recurrences were 22 per cent. after laryngofissure, 30 per cent. after partial or unilateral resection, 33 per cent. after removal by the endolaryngeal method, and only 16 per cent. after total resection. He considers total resection to be certainly indicated when the cancer is very extensive or greatly advanced and when the disease has recurred after laryngofissure.

BERLINER KLINISCHE WOCHENSCHRIFT

October 28, 1907.

1. Concerning a Late After Effect of Inhaled Carbonic Oxide, By L. LEWIN.
2. The Serum Diagnosis of Syphilis, By J. CITRON.
3. Diagnosis and Medicinal Treatment of Ileus, By M. EINHORN.
4. A Case of Congenital Occlusion in the Lower Part of the Ileum, By KERSTEN.
5. Studies Concerning the Guaiac Test for Blood, By K. SCHRÖDER.
6. Concerning Joint Diseases from the Standpoint of Diseases of the Genital Organs, By B. BOSSE.
7. The Significance of the Coloring Material in Malarial Diseases, By DIESING.

1. **An Immediate and a Late After Effect of Inhaled Carbonic Oxide.**—Lewin reports the case of a woman who, working in an unventilated room ironing with an iron which contained coals to keep it hot, inhaled gas coming from the coals. While on her way home from work she was seized with severe pains in the head, convulsions, vomiting, and faintness. A woman who was with her confirmed her statement, except that she did not see her vomit, although she heard her complain of nausea. Two days later she entered the hospital, where she was found to have a weak heart action with a small, frequently intermittent pulse, and a tendency to coldness on the part of her hands and feet. She remained in the hospital from December 5, 1904, to February 21, 1905, complaining chiefly of headache and weakness, but at no time was the physician able to detect any organic pathological chances. Lewin ascribes both the sickness while on her way home and the symptoms which confined her to the hospital for thirteen weeks to poisoning by the gas which she had inhaled.

2. **The Serum Diagnosis of Syphilis.**—Citron gives two laws which he states are to be looked on as fundamental for the practical valuation of the serum diagnosis of syphilis. The first law is: The longer the syphilitic virus has been acting upon the body, and the more frequently recurrence has occurred, the more regular and greater is the quantity of antibodies in the serum. The second law is: The earlier the mercurial treatment is undertaken, the longer it is persisted in, the more frequently it is repeated, the more judicious the form of application, and the shorter the lapse of time since the last treatment, the less is the quantity of the antibodies and the more frequently they are absent.

3. **Diagnosis and Medicinal Treatment of Ileus.**—See *New York Medical Journal*, May 16, 1907.

4. **Congenital Occlusion in the Lower Part of the Ileum.**—Kersten reports a case of this nature which he met with. An artificial anus was formed in the left inguinal region, but without saving the life of the child. On autopsy it was found that the occluded portion of the ileum formed a cord.

5. **The Guaiac Test for Blood.**—Schröder asserts that this test either should be thrown aside or care should be taken to guard against the sources of error in its use. He says that strong solutions of blood, large quantities of blood, require for the best reaction strong solutions of guaiac, large quantities of guaiac; that weak solutions of blood, slight quantities of blood, require weak solutions of guaiac, slight quantities of guaiac; and, further, that with weak solutions of blood the reaction is entirely prevented by strong solutions of guaiac.

THE SCOTTISH MEDICAL AND SURGICAL JOURNAL

November, 1907.

1. The Sanatorium Treatment of Active Insanity by Rest in Bed in the Open Air, By C. C. EASTERBROOK.
2. Four Interesting Cases of Extruterine Gestation, By J. NIGEL STARK.
3. Digestion and Feeding in Infants, By A. DINGWALL FORDYCE.
4. On the Care of the Health of School Children and Its Relation to the Prosperity of the State, By CARSTAIRS C. DOUGLAS.

1. **The Sanatorium Treatment of Active Insanity by Rest in Bed in the Open Air.**—Easterbrook remarks that, when comparing the general therapeutical effects in active insanity of outdoor exercise, indoor rest, and outdoor rest, outdoor exercise benefits primarily the physical condition, but may retard the mental improvement; indoor rest benefits primarily the mental condition, but may retard the physical improvement; and outdoor rest benefits from the first both the mental and the physical condition. Outdoor rest thus from the outset promotes both mental and physical improvement, and so retards neither; further, it avoids the risk of undue exhaustion which attaches to the method of exercise; and, lastly, it obviates the evils of bodily inactivity and sluggish metabolism which attach to prolonged indoor rest. Further, he thinks that his observations show: (1) That the advantages which have hitherto been attributed to the exercise treatment of active insanity are due, not to the exercise, but to the fact of the patient being out of doors: for regular exposure of the patient to the open air during most of the day without exercise secures the characteristic physical improvement. (2) That the disadvantages which have hitherto been attributed to the prolonged treatment of the neuroses and psychoses by the indoor rest or Weir Mitchell method are due not so much to the factor of rest as to the confinement indoors; for the sanatorium treatment by rest in bed in the open air not only prevents the evils of sluggish metabolism and the like, but remedies them if present, securing an all round physical improvement; and in his experience the open air rest treatment may, with benefit and safety, be continued for months, if necessary, without recourse to massage, active movements, movements with resistance, electrotherapy, and the like, it being, however, advisable in such cases to permit the daily walk to and from the verandas morning and evening, and every now and again to allow the patient to sit up in a chair in the open air for a day or perhaps more, this being done chiefly with the object of ascertaining whether the change will be beneficial, apart from the reason that it introduces in such cases the desirable element of variety in the routine of the treatment. The sanatorium or outdoor rest treatment of active insanity is simply the hospital treatment by rest in bed carried out daily in the open air in verandas attached to the wards, instead of inside the wards and their bedrooms as formerly. Having become convinced from his own experience of the many advantages of the rest method over the exercise method in the treatment of those actively insane, having been much impressed by the improvement exhibited by tuberculous patients, sane and insane, undergoing the open air treatment, and noting also the bodily and mental improvement of the ordinary sick and infirm but non-tuberculous persons after an occasional day in the fresh air and sunshine in favorable summer

weather, he decided to combine the "rest cure" with the "open air cure" as a systematic treatment for the acute and active insane, and made provision for this purpose in 1903 in the design of the hospital recently added to Ayr Asylum, with the opening of which, in 1906, the regular practice of the sanatorium treatment of active insanity was commenced.

THE GLASGOW MEDICAL JOURNAL.

November, 1907.

1. The Medicochirurgical Society of Glasgow, 1814-1907.
By WALKER DOWDIE.
2. On Some of the Difficulties Connected with the Diagnosis of Gastric Derangements,
By A. ERNEST MAYLARD.
3. On the Treatment of Chronic Middle Ear Suppuration in the Light of the Pathological Findings in Fifty Cases,
By J. KERR LOVE.

3. **Chronic Middle Ear Suppuration.**—Love observes that otoscopic examination is chiefly valuable where mastoid tenderness and fever are absent. In those cases of chronic middle ear suppuration where discharge is the only feature present, and where the question of operation is raised, otoscopic examination has been part of the routine treatment for a long time. Here the situation of the perforation, the situation of granulation masses, the bulging of the posterior superior area of the inner end of the canal, the washing out of cheesy masses from the attic or aditus ad antrum, may confirm the opinion that operation is necessary, but if a discharge has resisted well directed treatment the cause is almost always the presence of disease in parts inaccessible through the external auditory canal, and the treatment is the laying open of the whole abscess cavity by operation. Ossiculectomy for middle ear suppuration is not often a wise procedure. Where operation is necessary at all, the mastoid operation is the operation of choice. Where the mastoid operation is not necessary, careful clearing of the ear will usually procure cessation of discharge. There is a small number of cases where the disease seems limited to the ossicles, and in which ossiculectomy may be called the operation of choice. There is a larger number of cases in which the mastoid operation is not permitted by the patient, but in which ossiculectomy will lessen the risk by improving the drainage. In these latter ossiculectomy may be adopted as better than nothing, but in many cases the mastoid process will have to be opened in the end. The number of successes reported after ossiculectomy by some writers seems to the author to indicate that ossicles are often removed which should be left, and that when discharge ceases after ossiculectomy it would probably cease by a careful dressing of the middle ear over a lengthened period.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of October 10, 1907.

(Under the Auspices of the Section in Pædiatrics.)

Dr. GODFREY R. PESER, in the Chair.

A Fatal Case of Hæmophilia Neonatorum.—Dr. HERMAN F. L. ZIEGEL reported the case of a new born male infant, unusually large and healthy looking, weighing twelve pounds at birth, which had two congenital defects, tongue tie, and phimosis. To enable the little patient to urinate, the prepuce was

retracted over the glans. This manipulation exposed the meatus and caused a minute laceration on the anterior surface of the glans, where a small bleeding area was noticed. To check this oozing a strip of gauze was packed under the preputial tissue. In order that the infant might take nourishment naturally, it was decided to correct the lingual deformity at the same time. A slit was made through the short, tight frenum. At the time of and immediately after this procedure there was no bleeding. The tongue became more movable, and the infant urinated.

Six hours after the correction of the abnormalities the nurse reported that the oozing from the glans penis had continued, and there was also hæmorrhage from the mouth. The application of a silver nitrate stitch stopped the bleeding from the glans. In order to control the bleeding from the frenum lingue, iron perchloride, tannic acid, alum, and gelatin solution were tried with little effect. The application of ice and digital pressure for about an hour apparently checked the bleeding. About six hours later recurrence of the buccal hæmorrhage was reported. Ineffectual attempts for about two hours were made to stop the bleeding with styptics, astringents, packing, and compression. A consultant who was summoned tried the various measures which had been previously used. He also used adrenalin and tried to bring the bleeding surfaces in apposition by suture. No benefit resulted and the little patient was then admitted into Mount Sinai Hospital. Styptics, astringents, ice, pressure, additional sutures, the actual cautery, and enemata containing calcium chloride and gelatin were employed in vain. Finally the infant became exsanguinated and died, seven hours after admission to the hospital. No autopsy was granted. After death the weight of the body was nine pounds and a half; thus the loss of blood by weight was perhaps as much as two pounds. As to a hæmophilic history, the genealogy was not satisfactorily traced. Formerly it was denied that the malcondition could occur without a distinct hæmophilic heredity, but now a *de novo* origin of the disease was regarded as possible (Legg, Kinnicutt).

Some Observations on the Recent Epidemic of Acute Poliomyelitis in New York.—Dr. J. F. TERRIBERRY said the cause of acute poliomyelitis was not known. In the study of epidemics two features impressed themselves upon him; one was that epidemics had their origin in low lying districts, and the other that they occurred at a time when the rainfall was much reduced, in summer during the dry season. He gave the history of an epidemic which took place recently in Ridgway, Pa. The disease traveled along the course of a dirty stream, there being fifty cases in all. Patients who had acute poliomyelitis did not recover completely, but those who had spotted fever made a perfect recovery. A very large number of the cases had not been diagnosed properly; some of the cases had been diagnosed as diphtheria, and this occurred frequently when sore throat was present. A diagnosis of rheumatism had been made in some cases.

Dr. SIMON FLEXNER could obtain no data regarding the disease. He was anxious to obtain pathological material from autopsies. He alluded to the epidemic now prevailing in New York, and said that the opportunity should be taken advantage of to secure data. So far as the spinal fluid was concerned,

there was no evidence that it was indicative of an inflammatory condition. From cultures nothing could be found, as everything was of a negative nature.

Dr. H. W. BERG complained that proper records of the disease were not kept in New York. There were no means of knowing how many children were afflicted. It was most important that records should be kept of a disease which maimed such a large number of children. From June to September he had seen twenty-five cases. Before this summer it was a rare thing to see cases of acute poliomyelitis in New York.

Dr. L. EMMETT HOLT referred to two cases which occurred in the same family. Medical men were absolutely helpless in this epidemic; they could do nothing to limit the disease. He stated that the epidemic was widespread, being present in adjoining towns. The diagnosis was difficult to make on the first day, but was simple on the fourth day.

Dr. H. D. CHAPIN was impressed by the great extent of the paralysis seen in the epidemic, a most unusual thing being the paralysis of the neck muscles which had been so frequently observed.

Dr. JOSEPH COLLINS referred to the large number of cases of this disease which he had seen, and was surprised at the number of mild cases which had passed under his observation. In many of the cases the disease extended up as far as the pons. He pointed out the fact that very many of the patients had made a complete recovery, and was of opinion that the disease was caused by a toxic product.

Dr. KERBY had particularly noted that in many of the cases he had seen there were present mental apathy and a comatose condition.

Dr. L. E. LA FETRA had observed during the onset of the disease that irritation symptoms were present. He alluded to the great difficulty of early diagnosis and thought it was possible we were dealing with a toxine, as in many of the cases colitis preceded the disease. In cases where there were cerebrospinal symptoms much could be done for the patient in the way of treatment. He had found chloral to be very useful for relaxing the system.

Blood Pressure in Children.—Dr. W. L. STOWELL said in this paper that the frequency and character of the pulse had been observed in health and disease for many years, but studies of vascular tension were more recent. With the modern sphygmomanometer it was easy to determine the pressure on any vessel under varying conditions. It was found that the carotid of man supported a column of mercury 150 to 200 millimetres high. Blood pressure depended upon many conditions, such as the energy of the ventricular contraction, peripheral resistance, elasticity of the arterial walls, and the volume of blood. The pulse rate and pressure did not necessarily increase together. The volume of blood and its quality stimulated the heart to strong or weak contractions. Some drugs increased the force of the heart's action, while others acted chiefly on the vessels, and so increased pressure with little or no increase in the number of beats. Strychnine was the leading example of the first, adrenalin of the latter class. Increased abdominal pressure raised arterial pressure up to a certain point, but after that point was reached it caused a fall. A distended stomach, by mechanical interference, would affect

the heart's action as well as the arterial pressure. The total end pressure in small arteries was increased by dilatation, because there was less friction to be overcome by the blood.

As a rule a rise in frequency meant rise in pressure. The normal pressure of the femoral and brachial arteries in man was between 100 and 160 mm. Clinically, the radial arteries had about the same pressure as the aorta. In quiet breathing there was no variation in blood pressure, but in deep breathing there was an extreme rise of pressure at the beginning of expiration. The tension of the vessels rose and fell with atmospheric pressure. This was noticed particularly in those of poor circulation, asthmatic and cardiac patients, who suffered more when the atmosphere was damp. Persons with weak hearts also suffered at great altitudes, because of the lack of surrounding pressure to give normal resistance to the capillaries. The pressure was low during sleep. Kronfeld had found the pressure reduced in sleep under trional, but if the drug failed to produce sleep, the pressure was not reduced. The effect of digestion on pressure was not yet decided. Alcohol did not increase the pressure ordinarily, though it increased the pulse rate. Tobacco, on the other hand, had the effect of increasing the pressure by its influence on the central and peripheral vasoconstrictors. Excitement increased pressure. Atmospheric temperature, if high, dilated the arteries; if low, it contracted them.

He referred at some length to the blood pressure of children in health and disease, and gave the results of observations made on 216 patients in hospital and private practice, the instrument used being the Riva Rocci with a broad arm band. From these observations it was evident that the vascular tension was lower in childhood than in adult life.

The conclusions were: Blood pressure in the young was low in proportion to extreme youth. Its rise and fall were quickly influenced by emotions as in adults. Diseases of the nervous system gave high pressure. Acute diseases with high temperature might give either high or low pressure. Sclerosis of arteries was almost unknown in childhood, so that the use of a sphygmomanometer for its detection was needless. Blood pressure readings were of interest physiologically, but had little clinical value in childhood.

Meeting of November 7, 1907.

The President, Dr. JOHN A. WYETH, in the Chair.

A Report on the Serum Treatment of Epidemic Cerebrospinal Meningitis.

—In this paper, which was presented by Dr. SIMON FLEXNER and Dr. J. W. JOBLING, Dr. Flexner said that forty-seven patients (72.3 per cent.) with epidemic cerebrospinal meningitis were treated with the antiserum, of whom thirty-four (72.3 per cent.) recovered, and thirteen (27.6 per cent.) died. Of the thirteen who died, four either had fulminant cases, in which death took place twenty-four or thirty-six hours after the first appearance of the meningeal symptoms, or their condition was such that death occurred within a few hours of the injection of the serum. If these were subtracted, there would be a total of forty-three cases, of which thirty-four ended in recovery (79.0 per cent.) and nine fatally (20.9 per cent.). Exclu-

sive of the fulminant cases, the number of those injected in the first three days of illness was eighteen, of which sixteen recovered (88.9 per cent.) and two died (11.1 per cent.). It was necessary to know with what degree of severity the epidemic prevailed at the time and the place at which the serum was used, in order that the figures should have any value. At Castalia within a few weeks eighteen cases of epidemic meningitis occurred; twelve patients died and six recovered. Of the six patients who recovered, three received the serum injections, and no patient receiving the serum died. The report from Akron covered twenty cases of epidemic meningitis, and of these patients nine were not treated with the serum; eight died and one recovered. The remaining eleven patients were treated with the serum; three died and eight recovered. Two of the three fatal cases were of the fulminant type. In the patients who recovered it was found that the disease terminated by lysis in thirteen cases and by crisis in twelve. In a number of the cases the abrupt termination of the disease, after an acute and violent onset within about forty-eight hours of the serum injection, was very striking and impressive. In several cases the serum was injected as early as twelve hours after the onset of severe symptoms, with prompt arrest of the disease. Their choice of method of introducing the antiserum into the body, namely, by the spinal canal, should be justified. Two considerations led to this manner of employment. First, the theoretical advantage of bringing the serum in direct contact with the focus of infection and inflammation, to support which one possessed data based on experiments on animals; second, the consideration that the elimination of colloids, and even of crystalloids, from the cerebrospinal fluid was a slow and uncertain process in health and probably little better in inflamed states of the membranes. The cases reported in the paper were treated by intradural injection. They had evidence that the direct effect of the antiserum upon the diplococci present in the exudate in the spinal membranes was to bring about rapid degeneration and arrest of free multiplication. Twenty-four hours after the first injection of the serum they had observed great reductions in number and marked evidence of degeneration of the diplococci and loss of power of growth. After the serum injections striking changes in the character of the exudate had also followed; in twenty-four hours they had noticed a seropurulent exudate converted into a faintly turbid one. It appeared that the cases in which the exudate was really purulent or fibrinopurulent seemed to be less favorable to the action of the serum. It was evident, once they accepted the abortive and abrupt termination cases as being caused by the serum, that early injection of the serum was to be sedulously pursued. The figures pointed to better results in those cases of injection during the first three days as compared with those at later periods of the disease. In cases treated in the fourth, fifth, and eighth weeks of the disease several favorable results have been recorded. One would think that as long as living and multiplying diplococci remained in the membranes and their fluid the serum might be of value. It was quite clear that in the treatment of symptoms resulting from chronic obstructive lesions of the membranes it availed nothing. They believed that the data at

hand warranted a wider use of the serum, especially as no other and better means was at hand for combating the disease. Just at present it would be calamitous to use the serum indiscriminately and without proper and bacteriological control of the case.

The Recent Epidemic of Poliomyelitis.—Dr. VIRGIL P. GIBNEY said in this paper that early in the summer there began to appear at the out patient department of the Hospital for Ruptured and Crippled recent cases of acute poliomyelitis, and the number increased from month to month until toward the end of October, when it began to diminish. The height of the epidemic was in September, when 138 new cases were recorded on the books of the hospital. He gave in detail the symptoms observed in three cases of the disease in his own private practice.

The occurrence of the epidemic during the summer months had suggested a mode of infection through the intestinal tract. In obtaining the histories it not uncommonly appeared that paralyzes were preceded by diarrhoea or dysentery, and, while the cases were not analyzed carefully with this point in view, still accurate data from 100 had been obtained, and it was found that diarrhoea and vomiting occurred in 19 per cent.; that vomiting and constipation occurred in 11 per cent., diarrhoea alone in 11 per cent., constipation alone in 11 per cent., and vomiting alone in 11 per cent., making 63 per cent. that were, at least, the objects of suspicion. In proof of the severity of the epidemic, at the hospital alone, from June 1 to November 1, 1906, the cases of acute poliomyelitis were distributed as follows: In June, 4 cases; in July, 3; in August, 7; in September, 11; in October, 14—making a total of 39 cases. For the corresponding months of 1907, there were in June, 17 cases; in July, 24; in August, 86; in September, 138; in October, 122—making a total of 387 cases, or very nearly ten times the number that came under observation in the summer and autumn of 1906.

Special care had been taken to separate the old cases of paralysis after poliomyelitis from those of recent date, not later than May 27th of the present year, and the statistics here presented, therefore, included only those that belonged to the present epidemic. The final results, or even the proximate results, were not on record thus far, because sufficient time had not elapsed, and this report must necessarily be preliminary, and was presented more to call out a full discussion, to enable the fellows of the Academy who had seen these cases from the very beginning to contribute. It was a hopeful sign when pediatricists and neurologists invariably, when discussing the therapeutic problems of the disease, said that orthopaedic treatment was by far the most essential factor in the management of the resulting disability and deformities. We accepted the challenge with great pleasure, and felt like retorting that we should like to get them earlier. Our treatment would be, just as soon as the diagnosis was established, about as follows: Protect the limb or limbs from the strain at the joints by means of a trough, either of wire or wood or light steel, well padded with cotton batting; feet kept at right angles with the legs, the knees in slight flexion or very nearly straight, and the thighs on a line with the long axis of the body. In other words, we should aim to prevent any deformities which would arise

by the false positions into which the child put the limbs, whereby he sought to prevent strain. The limb in these false positions became fixed sometimes by contractions and then contractures, and so long as the opposing muscles might be more or less completely palsied, deformity was very easily induced. Given now a meningeal lesion, as so frequently occurred, and deformities could be the more easily induced. We should not resort to massage or electricity or to vibromassage, or to any of those excitants of the muscles or nerves until we felt pretty sure that all inflammatory changes had undergone resolution in the cerebrospinal axis. We should like to have the counsel then of a neurologist who would conduct the electrical treatment. For it must be understood now that orthopædic surgeons did not as a rule discourage these valuable aids in cases of this kind. We did sometimes object to the use of electricity in the paralyzes of many years' standing, but during the first year we felt that every aid must be employed to bring about the best possible result. We did object, however, to fatigue of the muscles or strain by having the children try to swing about a dangle leg and bear weight on a weakened joint. We did object to having these partially paralyzed muscles strained beyond endurance, and we did believe that if such measures were employed further destruction of the ganglion cells in the anterior cornua was possible. In other words, we believed in husbanding all our resources, and in this way encouraging regeneration of these ganglion cells, and we used this term with all due respect to the teachings of pathology. We aimed, furthermore, to avoid straining the capsule or ligaments of the joint, because when these were weakened the muscles were called upon for still greater efforts. We believed in preventing deformity rather than having to correct it. We believed, finally, that if the limbs were kept in normal position all these therapeutical aids which went to the overdeveloping of the muscle fibres not completely destroyed, and to the stimulation of the weakened muscle fibres in danger of destruction, and improved the circulation of the limb, a term very popular with the advocates of all forms of electricity; all forms of massage, vacuum treatment, *et id omne genus*, would be much more efficient, and our prognoses would be infinitely better than they had been in the past.

Dr. L. EMMETT HOLT said that in 1841, in Louisiana, the first reported epidemic of poliomyelitis occurred; in those cases paraplegia was present. Epidemics had taken place all over the world, the most extensive being that which occurred in Norway and Sweden. He detailed the number of cases in several epidemics. The present epidemic in New York was probably one of the largest on record. It looked very much as if the disease was an infectious one, as was indicated by more than one case occurring in the same family. The epidemics presented a striking uniformity as regarded the season of the year, since they nearly all occurred in hot weather, in July, August, and September, and terminated in October. Enteritis, cholera infantum, measles, and scarlet fever were often present during these epidemics, but poliomyelitis was not associated with any other disease. It affected all classes of people, the great majority of the patients being under four years of age, but adults as well

as children were attacked. There were no more sporadic cases after an epidemic than before it.

Dr. A. JACOBI pointed out that epidemics of poliomyelitis had been noted only during the last fifty or sixty years. He referred to the various modes of onset of the disease, and stated that the child usually became ill very suddenly, paralysis being seen in many cases. It had been shown that not only the cord but the brain as well was often affected. He gave details of the paralytic symptoms observed during the epidemic which occurred in Stockholm, and said we were just beginning to understand the disease anatomically.

Dr. HENRY KOPLIK said he had gone through the epidemic from June to September and had been impressed clinically—not pathologically—with three distinct sets of cases: 1. Those presenting cerebral symptoms. 2. The bulbar cases. 3. The neuritic cases. Those cases very frequently merged into each other, fatal issues occurring in the bulbar types. Those cases were often mistaken for other diseases. He had been much surprised at the rapid recovery made by children who had been paralyzed, and had never seen anything like this before. He had noted the rapid atrophy and contraction of the paralyzed muscles, some of the reflexes being even increased in many of those cases.

Dr. HENRY HEIMAN reported the treatment of two cases of cerebrospinal meningitis by serum furnished by Dr. Flexner. He also entered into details of the cases he had seen during the recent epidemic of acute poliomyelitis.



Letters to the Editors.

DIFFERENTIAL DIAGNOSIS.

157 LEXINGTON AVENUE,
NEW YORK, November 2, 1907

To the Editors:

At this season of the year, when the medical colleges have just begun another year's work and hundreds of young men who aspire to the ancient and honored medical profession have cast their lot among us, a thoughtful man often turns to the days of his early experiences, looking with interest upon those days as compared with the present. While in one of these reminiscent moods the writer by chance came across a book entitled "The Physiology of the London Medical Student," taken from *Punch*, and published in New York in 1859 by W. A. Townsend & Co. The author (whoever he may have been) said that he "once knew a medical student who, being naturally of a melodious and harmonic disposition, conceived the idea of learning the whole of his practice of physic by setting a description of the diseases to music. He had a song of some hundred verses, and this he put to the tune of the Good Old Days at Aden and Bive. Two of these verses, relating to the symptoms, treatment, and causes of hæmoptysis and hæmaturia, are so excellent that the writer takes the liberty to quote them, with the belief that they will be

of interest to the medical practitioner in general as well as the student in particular:

HÆMOPTYSIS.

"A sensation of weight and oppression at the chest, sirs; With tickling at the larynx, which scarcely gives you rest, sirs;

Full, hard pulse, salt taste, and tongue very white, sirs; And blood brought up in coughing, of color very bright, sirs.

It depends on causes three—the first's exhalation;

The next, a ruptured artery—the third, ulceration.

In treatment we may bleed, keep the patient cool and quiet.

Acid drinks, digitalis, and attend to a mild diet.

Sing hey, sing ho, we do not grieve

When this formidable illness takes its leave."

HÆMATEMESIS.

"Clotted blood is thrown up, in color very black, sirs,

And generally sudden, as it comes up in a crock, sirs.

It's preceded at the stomach by a weighty sensation;

But nothing appears ruptured upon examination.

It differs from the last by the particles thrown off, sirs,

Being denser, deeper colored, and without a bit of cough, sirs.

In phlethoric habits bleed, and some acid draughts pour in, gents,

With oleum terebinthinae (small doses) and astringents.

Sing hey, sing ho, if you think the lesion spacious,

The acetate of lead is found very efficacious."

It is certain that much valuable information is conveyed in these verses as well as an exceedingly clever differential diagnosis. While the signer of the verse is *Punch*, perhaps one of the many readers of your valuable journal might know the real name of the author.

WALTER B. JENNINGS.

Book Notices.

Elements of Physics for Medical Students. By FREDERIC JAMES M. PAGE, B. Sc., F. I. C., Associate of the Royal School of Mines, Lecturer on Physics and Chemistry in the London Hospital Medical College, etc. With a Colored Frontispiece and 230 Figures in the Text. Chicago: W. T. Keener & Co., 1907. Pp. xvi-288. (Price, \$1.25.)

Professional men in general frequently feel the need of knowledge in technical subjects apart from those with which they are conversant. Because of the labor involved in acquiring such knowledge from lengthy textbooks, it is often unsought. This little edition is admirably adapted to obviate such difficulty, being concise and yet covering its subject. Though written for medical students it should prove a convenient reference work for practitioners. It covers practically all the subjects included in the ordinary physics textbooks, emphasizing those necessary to the physician, and contains some explanations (such, for instance, as that of "dioptries") not commonly found. The treatment of units and methods of measurement for the different branches of the science is particularly good, and otherwise the book is a useful compendium of facts in physics.

Populäre Psychiatrie des Sokrates redivivus. Gespräche über den kleinen Verstand. Von DR. H. SCHAFER, Oberarzt a. d. Irrenanstalt Friedrichsberg in Hamburg. Würzburg: A. Stuber, 1906. Pp. 151.

It would seem from this rather satirical discussion that matters relative to the misunderstanding of mental disorders are not confined to the judiciary of the United States. The celebrated Tessnow process—having some analogies to a *cause célèbre*

in New York—has called forth a volume of protest from physicians concerning the universal ignorance of the laity of matters psychiatric.

To the layman, and most judges, *responsibility* is solely dependent upon a metaphysical knowledge of what constitutes right and wrong, without any further qualifications on what real knowledge is founded; "delusions" are considered by many only as active "imagination." Even professed psychiatrists call "fake" when called upon to judge the mental state of an accused criminal, especially when by so doing they see themselves on the stand and drawing their salary from the public crib, and the author sets before himself the task of educating the masses on many problems connected with insanity.

This he does in the dialogue form made classical by Plato, Socrates occupying the rôle of chief expounder. This is done with considerable skill as well as railery, much of which, however, overshoots the mark. The work has many useful points and will be appreciated by every one who has had the trying experience of endeavoring to explain the intricacies of abnormal mental processes.

Insanity and Allied Neuroses. A Practical and Clinical Manual. By GEORGE H. SAVAGE, M. D., F. R. C. P., Late Physician and Superintendent of Bethlem Royal Hospital, Lecturer on Mental Diseases at Guy's Hospital, etc., with the Assistance of EDWIN GOODALL, M. D. (Lond.), B. S., F. R. C. P., Medical Superintendent of the Cardiff City Hospital for Mental Diseases, etc. With Six Colored Plates and Forty-five Illustrations in the Text. New and Enlarged Edition. Chicago: W. T. Keener & Co., 1907. Pp. xiv-624. (Price, \$2.75.)

This small manual has run into a fourth edition since its first appearance in 1884. In the twenty-three years it has been revised twice, and this is supposed to be a third rewriting. It still retains its charm of expression which has made it so popular a handbook, and even if so many of its archaisms have been retained they are excusable in view of the exigencies of book publishing. In practically no country outside of Germany can an author really rewrite his previous editions, and we know of only one large textbook on psychiatry (Kraepelin) in which such rewriting is an accomplished fact. Savage's last edition fairly represents the lack of advance that we believe constitutes an essential feature of much English psychiatry. We cannot at this time point out in detail the various points of view which reduce us to this criticism, but a few striking features are noteworthy.

While the efforts of modern psychiatry seem to be bearing fruit in the delimitation of clinical types, based on a more rigid analysis of symptomatology with pathological coordination, it seems a long reversion to the days of our forefathers to find an author maintain that general paresis is not a specific disease. Certainly the work of Alzheimer, of Nissl, of Wassermann and Plaut, and a number of others is entitled to more consideration than the author would seem to give them. To say that general paresis exists without mental symptoms seems to us to reveal a startling lack of critical observation of the psychological mechanism, especially when they are subjected to the searching analysis made obligatory by the work of modern psychiatrists. This is lay psychiatry, not that of the trained and searching observer.

Savage's delusional insanity is a veritable hodge

podge, reminding us of the days when "fever" was a chapter in our textbooks, and pneumonia, typhoid, malaria, pleurisy, and tuberculosis were all described according to the symptom "fever." We feel that the chapter on Acute Mania deserves the same general stricture. In fact, the whole work is of the so called "anecdotal" variety, the word being used in the sense of the criticism that has been made on the early studies of animal intelligence. We miss entirely any clear appreciation of psychological values and cannot help expressing the wish that the author had really brought his work up to date as he states in his general preface.

L'Occultisme hier et aujourd'hui. Le merveilleux préscientifique. Par le DR. GRASSET, professeur de clinique médicale à l'Université de Montpellier, associé national de l'Académie de Médecine. Montpellier: Coulet et Fils; Paris: Masson et Cie, 1907. Pp. 435. (Price, 5 fr.)

Grasset, the well known author of volumes on psychical automatism, functions of the nervous system, and demifous, has given in this work an entertaining and critical résumé of the present status of occultism in its various phases, as well as an excellent historical sketch of the part it has played in many world movements of the past. Human nature remains much the same, and although the closer intercourse of minds has brought about a marked diminution in the violence of mental phenomena as seen in masses, yet the main-spring of action is worthy of careful scrutiny.

It is true that in the presence of the marvellous and the occult, which have no doubt had a marked influence on the masses, even in our own times, the scientific mind has often adopted a supercilious and disdainful attitude. Men shrug their shoulders and wonder how people can be so silly, and rail at the ignorance and superstition of the uneducated without raising a finger to find out the reasons for it or the means of modifying the same.

Grasset, however, with a sympathetic mind to experience as such, has made a scientific study of the entire question, separating the theories from the facts, and instead of mocking at the phenomena, has endeavored to arrange them in a form susceptible of understanding and of modification. He believes that many of the phenomena of the so called occult are capable of simple explanations, but they must, nevertheless, be approached from the scientific side. In view of the wideawake interest in problems of this nature the work will no doubt find an appreciative audience.

L'Âme et le système nerveux, hygiène et pathologie. Par AUGUSTE FÖREL, ancien professeur de psychiatrie à l'Université de Zurich. Paris: G. Steinheil, 1906. Pp. 334.

Hygiene of Nerves and Mind in Health and Disease. By AUGUST FÖREL, M. D., formerly professor of Psychiatry in the University of Zurich. Authorized Translation from the Second German Edition. By HERBERT AUSTIN ATKINS, Ph. D., Professor in the Western Reserve University. New York: G. P. Putnam's Sons, 1907. Pp. 343.

This work has appeared in translation almost simultaneously with the publication of the original. The French text differs in no particular regard from the translation, and both will be considered at this time.

Of late years the problems of nervous hygiene have become prominent. Physical hygiene, personal hygiene, sanitary hygiene, etc., have all received

their share of attention. The day has arrived when a consideration of the factors which make for health or disease of the nervous system demand a hearing if not an answer. And how complex they are! Family life is made miserable by unfortunate mental attitudes. Is life worth living? is no more answered in the old laconic strain that it depends upon the liver. It depends in these days upon the nervous endowment that man brings with him into the world.

It cannot be gainsaid that the complex relations of modern life, especially in large cities, have created problems for both physician and patient which were happily almost unknown in the simpler and more primitive conditions of existence of a generation ago. The excessive strain and competition of living are perhaps most keenly felt by the nervous system. The resulting wealth of special pathology and the innumerable organic and functional evidences of nerve degeneration which are the peculiar province of the alienist and neurologist constitute a formidable indictment of our boasted social order. It is an extraordinary fact that among wild animals and savages unspoiled by contact with civilization nervous diseases are almost unknown. Professor Forel, in this authoritative volume, graphically points out our many prevalent hygienic errors, and shows how they may be corrected for the most part by simpler and more rational living. Especially interesting and valuable are the sections dealing with alcoholism and drug habits, inheritance and the education of children, sexual hygiene, and medical quackery. The book should be read with equal interest by the physician and the intelligent layman. If a word of criticism is permissible where there is so much to admire in a work, it might be said that in the opinion of the reviewer the author overestimates the importance of hypnotism as a therapeutic resource.

The Pancreas. Its Surgery and Pathology. By A. W. MAYO ROBSON, D. Sc., F. R. C. S., and P. J. CAMMIDGE, M. B., D. P. H., London. Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 546. (Price, \$5.)

This textbook on the pancreas is from beginning to end an ideal work. A little over twenty years have elapsed since Dr. Senn, of Chicago, published his important work on the pancreas. Since then an enormous literature on the subject has sprung into existence, and Robson and Cammidge give us in their work a thorough scientific representation of our present knowledge of this gland, so important in the apparatus of digestion.

The book is divided into nineteen chapters, each one having its own literature, and as addenda are given an index of authors and a general index. While chapters one to eight deal with the anatomy, embryology, histology, physiology, and pathology of the pancreas, we find in Chapter XII general symptomatology and diagnosis. Although it is the general impression that diseases of the pancreas, excepting some of the grosser lesions, are not easily recognized during life, we may learn from this chapter that the cumulative evidence to be obtained from the case history, clinical symptoms and signs, together with laboratory examinations, can make an exact diagnosis possible. Two cases are cited. Thus chronic dyspepsia, gallstone attacks, recent infectious diseases, such as typhoid fever, influenza,

etc., may be followed by diseases of the pancreas. Loss of weight; alteration of appetite, especially an objection to meat and fat; nausea and vomiting; pain in the upper abdominal region radiating under the left scapula; jaundice, especially in sclerotics, will assist in making the proper diagnosis. Complete chemical and microscopical examination of the feces and urine should finally be made. The bibliography to this chapter goes back to 1788 (Cowley in *London Medical Journal*). This grouping of works of references under the separate chapters is certainly a great advantage.

The illustrations are properly selected and nicely executed. The book can be well recommended.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Principles and Practice of Modern Otology. By John F. Barnhill, M. D., Professor of Otology, Laryngology, and Rhinology, Indiana University School of Medicine, etc., and Ernest de Wolfe Wales, B. S., M. D., Associate Professor of Otology, Rhinology, and Laryngology, Indiana University School of Medicine, etc. With 305 Original Illustrations, Many in Colors. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 575. (Price, \$5.50.)

The Operating Room and the Patient. By Russell S. Fowler, M. D., Professor of Surgery, Brooklyn Postgraduate Medical School, etc. Second Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 284. (Price, \$2.)

Die Salzsäuretherapie auf theoretischer und praktischer Grundlage. Bearbeitet von Prof. Dr. Hans Leo, in Bonn, o. ö. Professor der Hygiene, Vorstand des hygienischen Institutes der böhmischen Universität und der staatlichen Untersuchungsanstalt für Lebensmittel in Prag. München und Berlin: R. Oldenbourg, 1907. Pp. 69.

Annual Report of the Board of Regents of the Smithsonian Institution, Showing the Operations, Expenditures, and Condition of the Institution. For the Year Ending June 30, 1906. Washington: Government Printing Office, 1907.

A Manual of the Practice of Medicine. Prepared Especially for Students. By A. A. Stevens, A. M., M. D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania, etc. Eighth Edition, Revised, Illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 558. (Price, \$2.50.)

Hospital Training School Methods and the Head Nurse. By Charlotte A. Aikens, Late Director of Sibley Memorial Hospital, Washington, D. C., etc. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 267.

Surgical Applied Anatomy. By Sir Frederick Treves, Bart., G. C. V. O., C. B., LL. D., F. R. C. S., etc. Fifth Edition, Revised by Arthur Keith, M. D., F. R. C. S., Lecturer on and Senior Demonstrator of Anatomy at the London Hospital, etc. Illustrated with 107 Figures, Including 41 in Color. Philadelphia: Lea Brothers & Co., 1907. Pp. 640.

Textbook of Organic Chemistry for Medical Students. By Dr. G. v. Bunge, Professor of Physiological Chemistry in the University of Basel. Translated with Additions by R. H. Aders Plimmer, D. Sc. (Lond.), Assistant Professor of Physiological Chemistry and Fellow of University College, London. London and New York: Longmans, Green & Co., 1907. Pp. viii-260.

The Reduction of Cancer. By the Hon. Rollo Russell. London and New York: Longmans, Green & Co., 1907. Pp. 62.

Diseases of the Rectum: Their Consequences and Non-surgical Treatment. By W. C. Brinkerhoff, M. D. Chicago: Orban Publishing Co., 1907. Pp. 207. (Price, \$2.)

Transactions of the Twenty-ninth Annual Meeting of the American Laryngological Association, held at Washington, D. C., May 7, 8, and 9, 1907. New York: Published by the Association, 1907. Pp. 268.

Technischer Fortschritt und seelische Gesundheit. Akademische Antrittsrede, gehalten am 25. Juni 1906. Von Willy Hellpach, Dr. med. et phil. Privatdozent der Psychologie. Mit einem Geleitwort: Vom Bildungswert der Psychologie. U. B. S. Carl Marhold, 1907. Pp. 30.

Aerztliches über Sprechen und Denken. Von Prof. G. Anton. Nach einem Vortrage gehalten in der Aula der Universität am 27. Januar 1907. Halle a.S.: Carl Marhold, 1907. Pp. 20.

Wellcome's Medical Diary and Visiting List. London: Burroughs Wellcome & Co., 1908.

The Practitioner's Visiting List. Philadelphia and New York: Lea Brothers & Co., 1908. Pp. 192.

Notwendige Reformen der Unfallversicherungsgesetze. Nach einem auf der Wanderversammlung der südwest-deutschen Neurologen und Irrenärzte in Baden-Baden am 1. Juni 1907 erstatteten Referate. Von Prof. Dr. A. Hoche, Freiburg i. Br. Halle a.S.: Carl Marhold, 1907.

Miscellany.

American National Red Cross.—The following resolutions have been adopted by the executive committee of the American National Red Cross, at the meeting of October 18, 1907:

Whereas, By international agreement in the treaty of Geneva, 1864, and the revised treaty of Geneva, 1906, "the emblem of the red cross on a white ground and the words red cross or Geneva cross" were adopted to designate the personnel protected by this convention, and

Whereas, The treaty further provides (article 23) that "the emblem of the red cross on a white ground and the words red cross or Geneva cross can only be used, whether in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and material protected by this convention," and

Whereas, The American National Red Cross comes under the regulations of this treaty according to article 10, "volunteer aid societies, duly recognized and authorized by their respective governments," such recognition and authority having been conferred upon the American National Red Cross in the charter granted by Congress January 5, 1905, sec. 2, "the corporation hereby created is designated as the organization which is authorized to act in matters of relief under said treaty," and, furthermore,

Whereas, In the revised treaty of Geneva, 1906, in article 27, it is provided that "the signatory powers whose legislation should not now be adequate engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this convention confers the right thereto of the emblem or name of the red cross, or Geneva cross,"

Be It Resolved, That the executive committee of the American National Red Cross requests that all hospitals, health departments and like institutions kindly desist from the use of the red cross created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's cross on a white ground, to be named the "hospital cross," and used to designate all hospitals (save such as are under the medical departments of the army and navy and the authorized volunteer aid society of the government), all health departments and like institutions, and, further,

Be It Resolved, That the executive committee of

the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva red cross for business purposes, kindly desist from such use, gradually withdrawing its employment and substituting some other distinguishing mark.

Plague Prophylaxis.—The following set of instructions have been issued to medical officers in the field by the United States Public Health and Marine Hospital Service, in connection with the epidemic of bubonic plague on the Pacific Coast (*Public Health Reports*, November 15, 1907):

Upon the discovery of a case of plague in a block, and when the infection is thought to have been contracted in that locality, concentrate a sufficient force to carry out, in as short a time as possible, the following measures, in addition to the disinfection of the infected house: (1) A rapid sanitary survey of the infected and contiguous blocks. (a) Note the cases of sickness at the time and for the past six weeks in each house. (b) Note the number of stables and their condition as to sewer connections, character of flooring and number of stalls; also the meat markets and bakeries for the same conditions. (c) Sanitary condition of occupied premises and vacant lots with regard to rat food and harboring places. (d) Note the prevalence of rats, and especially if dead ones have been seen recently. The inspector will enter every house in search of this information and impress upon the householders the necessity of destroying rats and rat food, and of making their homes rat proof. If a case of plague has gone unrecognized in the family, as shown by the sanitary history of the house, the facts should be reported at once to headquarters. (2) The rat holes and runs in the infected and adjoining houses should be flooded with carbolic solution (1-40) or bichloride of mercury solution (1-500), and then treated as follows: Holes in wooden floors to be sealed with tin or sheet metal, brick, or concrete; earthen holes to be filled with broken glass or brick. (3) Place poisons, preferably phosphorus and arsenic pastes, in holes and runs in the infected and contiguous blocks; (b) place traps, both spring and cage, over the same ground; (c) Danysz's virus of high virulence should be placed in cellars, kitchens, and households generally. (4) Send the sewer men to examine and report on the condition of sewers as regards choking, retardation of current, and the presence of dead rodents. Frequent flushing may be resorted to in order to insure the rapid disposal of infected material. The fact is often overlooked that it is as important to find and eradicate plague infection among rats as it is among human beings. Careful search, then, should be made for the cadavers of rats during plague times. Those that have died recently should be sent for bacteriological examination; the bodies in which putrefaction has occurred should be burned.

When plague continues to occur in a house or in a locality after a thorough disinfection has been done, make a careful search in the neighborhood for the cause of the continuance. All harboring places in which rat food is found in abundance should be looked upon with suspicion. Defective wooden floors and walls of the infected house and the adjoining houses may be torn out and a search made for rat cadavers. Stables and restaurants may be treated in a like manner. In 1903, 82 dead rats were found in the walls of a Chinese restaurant. After the destruction of this focus no further cases occurred. The measures that should be adopted to stamp out rat plague are the same as those recommended for human plague. It should then be the invariable practice to deal with rat plague in such a manner as to prevent human plague.

The vacation of buildings: (a) All defective buildings in which rats dead of plague have been found should be vacated at once, to prevent the occurrence of the disease among human beings. The same rule applies to adjoining houses. (b) Buildings in which plague continues to appear in spite of the measures enumerated above, should be vacated and destroyed.

These rules are in addition to general sanitary measures, the destruction of infected houses, and the isolation of those sick of the disease. Contacts should be kept under observation and inspected daily for a period of seven days.

—RICHARD ROSS.

—Public Health and Marine Hospital Service.

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, United States Public Health and Marine Hospital Service, during the week ending November 22, 1907:

Smallpox—United States		Cases, Deaths.	
		Cases.	Deaths.
California—Bakersfield.....	July 1-Nov. 13.....	1	Present.
California—Los Angeles.....	Oct. 20-Nov. 9.....	7	
California—Tulchua.....	June 1-Nov. 13.....	125	
Illinois—Chicago.....	Nov. 10-16.....	1	
Illinois—Springfield.....	Nov. 1-14.....	67	
Indiana—7 counties.....	Sept. 1-30.....	23	
Indiana—Elkhart.....	Nov. 3-9.....	5	
Iowa—Carterville.....	Sept. 21-Oct. 12.....	3	
Massachusetts—Fall River.....	Nov. 10-16.....	1	
Missouri—St. Louis.....	Oct. 20-26.....	1	
New York—11 counties.....	Aug. 1-Nov. 7.....	50	
New York—Kingston.....	Oct. 1-31.....	1	
North Carolina—9 counties.....	Sept. 22-28.....	34	
Tennessee—Nashville.....	Nov. 10-16.....	1	
Texas—San Antonio.....	Nov. 3-9.....	1	
Washington—Tacoma.....	Nov. 3-9.....	2	
Wisconsin—La Crosse.....	Nov. 3-9.....	2	
Smallpox—Foreign		Cases, Deaths.	
		Cases.	Deaths.
Argentina—Buenos Ayres.....	Aug. 1-31.....	3	
Austria—Vienna.....	Oct. 22-28.....	4	
Brazil—Para.....	Oct. 22-28.....	26	19
China—Hongkong.....	Sept. 30-Oct. 6.....	2	6
China—Shanghai.....	Sept. 25-Nov. 1.....	Present.	
Ecuador—Guayaquil.....	Oct. 16-20.....	2	
France—Marseilles.....	Oct. 1-31.....	23	
France—Paris.....	Oct. 27-Nov. 2.....	2	
India—Calcutta.....	Sept. 22-28.....	2	
India—Rangoon.....	Sept. 29-Oct. 5.....	1	
Java—Batavia.....	Sept. 29-Oct. 5.....	18	5
Peru—Lima.....	Oct. 13-19.....	Present.	
Russia—Batoum.....	Sept. 13-Oct. 13.....	3	
Russia—Riga.....	Oct. 20-26.....	5	
Russia—Warsaw.....	Oct. 8-14.....	11	
Spain—Barcelona.....	Oct. 10-20.....	2	
Spain—Buenos Aires.....	Oct. 7-26.....	2	
Spain—Valencia.....	Oct. 14-27.....	56	5
Turkey in Europe—Constantinople.....	Oct. 13-27.....	1	
Smallpox—Foreign		Cases, Deaths.	
		Cases.	Deaths.
China—Hongkong.....	Sept. 8-14.....	1	8
India—Bombay.....	Oct. 16-22.....	1	31
India—Calcutta.....	Sept. 14-21.....	1	12
India—Cochin.....	Sept. 7-Oct. 4.....	4	2
India—Rangoon.....	Sept. 29-Oct. 5.....	1	730
Japan—General.....	Aug. 19-Oct. 5.....	2,944	15
Japan—Kobe.....	Oct. 6-12.....	40	10
Japan—Yokohama.....	Oct. 15-21.....	10	9
Manchuria—Dai-ly.....	Oct. 6-12.....	12	6
Philippine Islands—Manila.....	Sept. 29-Oct. 22.....	55	48
Philippine Islands—Batas.....	Sept. 29-Oct. 22.....	55	48
Province.....	Oct. 6-12.....	1	
Straits Settlements—Singapore.....	Oct. 6-12.....	1	4
Turkey in Europe—Constantinople.....	Nov. 1-7.....	Present.	
Yellow Fever—Foreign		Cases, Deaths.	
		Cases.	Deaths.
Brazil—Para.....	Oct. 20-26.....	10	10
Cuba—Camaguey Province.....	Oct. 20-26.....	10	10
Cuba—Ciego de Avila.....	Nov. 6-18.....	3	1
Cuba—Havana Province—Germes.....	Nov. 13-16.....	1	1
Cuba—Matanzas Province—Matanzas.....	Nov. 17-18.....	1	1
Cuba—Sancti Spiritus Province.....	Nov. 19-20.....	1	1
Cuba—Santa Clara Province.....	Nov. 19-20.....	1	1
Santa Clara.....	Nov. 19-20.....	1	1
Plague—Foreign		Cases, Deaths.	
		Cases.	Deaths.
California—San Francisco.....	Nov. 10-16.....	12	6
Washington—Seattle.....	Nov. 10-16.....	2	1
China—Hongkong.....	Sept. 8-21.....	4	4
India—Bombay.....	Oct. 1-11.....	1	1
India—Calcutta.....	Oct. 1-11.....	1	1
India—General.....	Oct. 1-11.....	1	1
India—Bombay.....	Oct. 16-22.....	1	1
India—Calcutta.....	Oct. 20-26.....	1	1
India—Rangoon.....	Oct. 20-26.....	1	1
India—Yokohama.....	Oct. 20-26.....	1	1

Public Health and Marine Hospital Service:

Official List of Changes in the Staff of the United States Public Health and Marine Hospital Service, for the seven days ending November 22, 1907.

ANNOUNCEMENT.—The American Association of Surgeons, devoted to represent the Surgeon-General of the United States Public Health and Marine Hospital Service, will be held in Chicago, Illinois, December 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1907. The American Association of Surgeons, devoted to represent the Surgeon-General of the United States Public Health and Marine Hospital Service, will be held in Chicago, Illinois, December 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 1907.

- BAILHACHE, P. H., Surgeon. Granted leave of absence for seven days from November 20, 1907, under paragraph 189, Service Regulations.
- BOGESS, J. S., Passed Assistant Surgeon. Relieved from duty at Quebec, Canada, and directed to proceed to St. John, N. B., for duty.
- BRYAN, W. M., Assistant Surgeon. Directed to proceed to Savannah Quarantine Station for temporary duty; upon completion of which to rejoin his station at New Orleans, La.
- CARRINGTON, P. M., Surgeon. Granted leave of absence for six days from November 16, 1907, under paragraph 189, Service Regulations; granted two days' leave of absence from November 22, 1907.
- GILL, S. G., Acting Assistant Surgeon. Granted leave of absence for thirty days from December 4, 1907.
- GREGORY, G. A., Acting Assistant Surgeon. Granted leave of absence for fourteen days from November 14, 1907.
- HEPLER, G. K., Pharmacist. Relieved from duty at Chicago, Illinois, and directed to proceed to Louisville, Kentucky, reporting to the Medical Officer in Command for duty and assignment to quarters.
- HOLT, J. M., Passed Assistant Surgeon. Leave of absence granted for twenty-three days from September 7, 1907, revoked.
- LAGRANGE, J. V., Pharmacist. Granted leave of absence for seven days from November 14, 1907, under paragraph 210, Service Regulations.
- MCINTOSH, W. P., Surgeon. Granted leave of absence for ten days from November 27, 1907.
- SPRATT, R. D., Assistant Surgeon. Granted leave of absence for one month from December 12, 1907.
- STEARNS, H. H., Acting Assistant Surgeon. Granted leave of absence for two days from November 10, 1907, on account of sickness.
- VON ESDORF, R. H., Passed Assistant Surgeon. Directed to attend the third International Sanitary Convention, to be held in the City of Mexico, December 2 to 7, 1907; upon completion of which duty to rejoin his station at New Orleans Quarantine.

Resignation.

- HALL, L. P., Pharmacist. Resigned, to take effect November 2, 1907.

Board Convened.

A board of medical officers was convened to meet at Boston, Mass., November 20, 1907, for the purpose of conducting a physical examination of an officer of the Revenue-Cutter Service. Detail for the board: Surgeon R. M. Woodward, Chairman, and Assistant Surgeon T. W. Salmon, Recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending November 16, 1907:

- BAILY, H. H., First Lieutenant and Assistant Surgeon. Ordered to proceed from Fort Myer, Va., to Fort Slocum, N. Y., for temporary duty.
- HESS, L. T., Captain and Assistant Surgeon. Order of assignment to duty in the Philippines revoked, and instead ordered to Cuba for duty.
- IVES, F. J., Major and Surgeon. In addition to his present duties, will assume temporary charge of Chief Surgeon's Office.
- RAYMOND, T. U., Major and Surgeon. Relieved from duty in the Philippines Division about February 15, 1908, and will proceed to San Francisco, Cal., and upon arrival report to the Adjutant General of the Army for further orders.
- RICH, E. W., Captain and Assistant Surgeon. Will accompany Troops D and F, 6th Cavalry, from Fort Meade, S. D., to the Philippine Islands, for duty.
- TALBOTT, E. M., Captain and Assistant Surgeon. Granted two months' leave of absence.
- TORNEY, G. H., Lieutenant Colonel and Deputy Surgeon General. Ordered to proceed from the Army General Hospital, Presidio of San Francisco, Cal., with insane patient to the Government Hospital for the Insane, Washington, D. C.; granted thirty days' leave of absence.
- ZINKE, S. G., First Lieutenant and Assistant Surgeon. Left Fort Leavenworth, Kan., en route for duty with troops at Cheyenne Indian Reservation.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending November 23, 1907:

- LUNG, G. A., Surgeon. Detached from the naval recruiting station, Philadelphia, Pa., and ordered to the Hancock.
- MICHAELS, R. H., Passed Assistant Surgeon. Orders to the Missouri revoked; ordered to continue duty at the naval recruiting station, Kansas City, Mo.; resignation accepted, to take effect December 31, 1907.
- REYNOLDS, C. E., Pharmacist. Detached from the Bureau of Medicine and Surgery, Navy Department, and ordered to the Naval Hospital, New York, N. Y.
- SMITH, H. L., Assistant Surgeon. Detached from the naval recruiting station, Omaha, Neb., and ordered to the Missouri.
- WALDNER, P. J., Pharmacist. Detached from the Naval Hospital, New York, N. Y., and ordered to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.
- WICKES, G. L., Assistant Surgeon. Detached from the naval recruiting station, Kansas City, Mo., and ordered to the naval recruiting station, Omaha, Neb.

Births, Marriages, and Deaths.

Married.

- CROUCH—DIETER.—In Baltimore, on Thursday, November 14th, Dr. J. Frank Crouch and Mrs. Caroline Rennert Dieter.
- DALLENBACH—BRYAN.—In New York, on Sunday, November 17th, Dr. J. C. Dallenbach, of Philadelphia, and Miss Rebecca Bryan.
- EVANS—WILDBERGER.—In Chicago, on Wednesday, November 20th, Dr. W. A. Evans and Mrs. Ida M. Wildberger.
- HILTON—BALL.—In Washington, D. C., on Monday, November 18th, Dr. James Franklin Hilton and Miss Frances Virginia Ball.
- MCCARTHY—TINTLE.—In New York, on Wednesday, October 30th, Dr. Arthur J. McCarthy and Miss Jennie Tintle.
- SMITH—ROBINSON.—In Washington, D. C., on Monday, November 18th, Dr. M. Page Smith and Miss Carrie Robinson.

Died.

- BARKSDALE.—In Petersburg, Va., on Monday, November 18th, Dr. Randolph Barksdale, aged seventy-six years.
- BELCHER.—In Brooklyn, N. Y., on Wednesday, November 20th, Dr. William Nathan Belcher, aged forty-five years.
- BLOSS.—In Troy, N. Y., on Sunday, November 17th, Dr. Richard Dana Bloss, aged seventy-two years.
- CONSDINE.—In St. Catharines, Ontario, on Wednesday, November 13th, Dr. John Wyce Considine, aged eighty-eight years.
- EISENBREY.—In Gloversville, N. Y., on Friday, November 22d, Dr. Edward H. Eisenbrey.
- ESSICK.—In Murphysboro, Ill., on Friday, November 15th, Dr. W. W. Essick, of St. Louis, Mo.
- FRIEDMAN.—In St. Louis, Mo., on Thursday, November 14th, Dr. Monass Friedman, aged forty-one years.
- HOLGATE.—In New York, on Thursday, November 14th, Dr. Thomas H. Holgate, aged seventy-six years.
- HOUSTON.—In Washington, D. C., on Saturday, November 16th, Dr. Samuel Houston, aged sixty-five years.
- JONES.—In New Hampden, Va., on Tuesday, November 19th, Dr. E. J. Jones.
- McMILLAN.—In Cambridge, N. Y., on Thursday, November 14th, Dr. Joseph McMillan.
- MURRAY.—In Washington, D. C., on Thursday, November 21st, Dr. Hugh Thompson Murray, aged sixty years.
- PAMPINELLA.—In Philadelphia, on Friday, November 22d, Dr. F. Nathan Pampinella, aged forty-five years.
- SCHMIDT.—In Brooklyn, N. Y., on Monday, November 18th, Dr. William Charles Jacob Schmidt, aged fifty-seven years.
- WEST.—In Pittsburgh, Pa., on Wednesday, November 6th, Dr. Matthew H. West, aged sixty-five years.
- WHELEN.—In Naples, Italy, on Monday, November 18th, Dr. Alfred Whelen, of Philadelphia.

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DISEASES OF THE LIVER AMENABLE TO SURGICAL TREATMENT.*

By CLARENCE A. McWILLIAMS, M. D.,
New York,

Assistant Surgeon to the Presbyterian Hospital, New York; Surgeon to the Trinity Hospital; Instructor in Surgery, Columbia University.

In the short time allotted to me I cannot hope to make an exhaustive study of such a large topic as has been assigned to me. I shall have to content myself with briefly considering some surgical aspects of liver diseases, the indications for such procedures, and the results. Much of it is borderline surgery, the boundaries of which have not as yet been clearly defined. To accomplish this a sympathetic attitude between the physician and surgeon must be maintained, each realizing his own limitations and the other's good intentions.

Cirrhosis of the Liver.—According to authorities, less than one half of patients affected with atrophic cirrhosis develop ascites, which is explained by the establishment of sufficient collateral circulation between the general systemic and portal circulations to overcome the obstruction in the portal system dependent upon consecutive tissue growth in the liver. In the rare cases in which the ascites has disappeared after numerous abdominal tapplings the cures are due to the development of this accessory collateral circulation. This led to attempts to produce this collateral circulation by surgical procedures. Paracentesis, in the vast majority of cases, merely relieves, for a short time, the distressing symptoms due to the ascites, while it in no way prolongs life or delays the degeneration of the overburdened hepatic cells. Hale, in 1893, and Converse, in 1902, showed by conclusive statistics that the average length of time from the first paracentesis to the death of the patient was sixty-three days, while in those who were not tapped the average duration of life from the beginning of the abdominal enlargement to death was sixty days, thus indicating that paracentesis is of doubtful usefulness except in so far as it alleviates the patient's distress. Statistics show that surgical measures suffice to relieve from 30 to 40 per cent. of patients affected with cirrhosis of the liver of their ascites; notwithstanding this fact, surgeons in general see very few cases of ascites, the heavy mortality of about 25 to 34 per cent. in the past probably explaining the reluctance of the physician to resort to surgical procedure, which feeling may also be accentuated by a possible recurrence of the good result thus obtained. The mortality will be much reduced, how much will depend

on physicians in general and not on the surgeons—when the patients are operated upon as soon as the ascites first develops, before the liver cells are too extensively degenerated and before the patients are too enfeebled by malnutrition. It is no fair test of the operation when it is performed as a last desperate chance.

The following gives the results in various statistics:

Koslosky, 168 cases, 46 per cent. of cures of the ascites.

Greenough, 105 cases, 42 per cent. of cures of the ascites.

Montprofit, 224 cases, 35 per cent. of cures of the ascites.

Bunge, 33 per cent. permanent cures and 33 per cent. improved.

Operation is contraindicated when the patient is enfeebled by disease of the heart and of the kidneys, and when the liver has contracted to the extent of producing urobilinuria, acholia and hypocholia of the feces. Bunge considers that decreased urea and increased ammonia excretions and also levuloseuria are dubious symptoms, although they are not direct contraindications to operation. Long continued and deep jaundice renders the operation dangerous as predisposing to uncontrollable post-operative hemorrhage from the wound and as indicating such a degree and extent of destruction of the liver cells, as to preclude any compensatory hypertrophy of them.

I have the records of four patients who were operated upon at the Presbyterian Hospital for ascites who have remained free from fluid in the abdomen subsequently for varying periods of time. One is well after six years, his general nutrition, appetite, and digestion being excellent, and pursuing his work as a day laborer without any difficulty. Abdominal paracentesis had been performed eleven times prior to operation, this being necessary about every ten days. Another patient required tapping every eight days, and the circumference of the abdomen measured forty-four inches. After sixteen months there is no recurrence of the ascites, and his digestion is excellent. A third patient had had his first abdominal paracentesis fifteen months previous to the operation, at which time it had to be performed every five weeks. He is now perfectly well after 18 months and is in general good health. The fourth patient had an enormous accumulation of fluid in her abdomen and marked edema of the lower extremities. Four and a half years after the operation she is well in every way. There is no reaccumulation of the ascites and no edema of the legs.

*Based on a discussion of the Medical Association at the University of New York, November 1906.

According to Kocher, it should be the rule in all diseases of the liver, accompanied by persistent jaundice, in which the jaundice is clearly not due to an inoperable disease, such as advanced liver and pancreatic cancer, to perform an exploratory laparotomy. In any such procedure, whatever be the ultimate cause, as is the case in calculus in the common duct, it goes without saying that the operation should not be put off until the changes in the liver have gone on to such an advanced stage as to threaten the cholamic condition. Such an exploratory operation should expose the entire extent of the biliary passages, and an exact examination should be made of them, from the hilus of the liver to the duodenum, to ascertain whether there may not be some removable obstruction which causes the bile stasis and its results. Calculi, tumors, chronic pancreatitis, adhesions, and cicatrices within or without the biliary passages may be discovered. Where no evident obstruction in the territory of the greater biliary system is found, one should perform a cholecystostomy of the simplest kind. Some have even gone so far as to advise draining the liver directly.

W. J. Mayo says in regard to cirrhosis with abscesses: "A careful selection of the patients for operation is necessary. The results are most favorable in those not too old, who are otherwise in good health and free from vascular changes, from arteriosclerosis, endocarditis or nephritis. There is an obscure group of cases occurring in young people, especially women, without alcoholic history, which has been greatly benefited by operation. It appears to me that we have gone about as far as we can with this subject from a clinical standpoint. We must know more of the function of the liver before we can solve the problem. Adams shows that one of the functions of the liver is to strain out and destroy or eliminate with the bile bacteria picked up in the portal circulation. What relation has this to hepatitis? Why is it that the spleen is so often enlarged in cirrhosis of the liver and that primary splenic hypertrophy later involves the liver, as in Banti's disease? We must appeal to the experimental physiologist to secure for us information as to the function of the liver and spleen. They must develop for us pathological conditions of a similar nature and enable us to clear up this dark territory of borderline surgery."

It may be a surprise perhaps to some to learn that very successful results have been obtained by performing the operation of drainage of the biliary passages (cholecystostomy) in the hypertrophic variety of cirrhosis of the liver accompanied with icterus. This follows from the established fact that certain cases of cirrhosis are primarily due to infection carried by way of the biliary passages from the intestine to the liver. Charrin and Roger have been able to reproduce the lesions perfectly in their experimental work by directly injecting living or sterilized microbic cultures into the common duct. Hypertrophic cirrhosis has been known to be secondary to biliary calculi and to circumscribed carcinomata of the biliary passages, etc. These lesions in themselves predispose to infection. Bacterial examinations of the bile taken from patients affected with biliary cirrhosis have almost invariably shown the presence of microorganisms.

Cumston says (*American Journal of the Medical Sciences*, 1900, p. 56, 1906): "Hant's disease is merely a subacute, ascending catarrhal and obliterating angiocholitis, susceptible of becoming combined with cirrhosis, the latter being only a secondary phenomenon added to the lesion of the biliary ducts. For this reason it is quite natural to

foresee the excellent results that drainage of the infected biliary ducts can give." He cites several reasons why surgical interference is indicated in hypertrophic cirrhosis with icterus. The first is the absolute failure of medical treatment in the case of a disease which is inevitably fatal. Secondly, surgical interference is very benign, as the operative mortality of a well conducted cholecystostomy has been excessively low. Thirdly, the results of such interference in very many instances have been therapeutical successes, both immediate and definitive. Terrier, Michaux, Delagenière have published brilliant recoveries after using this operation. Cumston himself publishes three cases of hypertrophic cirrhosis with jaundice upon whom he had performed cholecystostomy, producing in each case successful and lasting benefits. Kocher and Cumston both affirm that better and surer results have been obtained in hypertrophic than in atrophic cirrhosis.

Abscess of the Liver.—The diagnosis of this affection is often in this climate rendered difficult by reason of the absence of any appreciable ætiological factor. This is particularly true in the chronic cases, where there may be no fever present. In addition, the general leucocyte count may not be much elevated, because of the lack of absorption through the thick walls of the abscess. In some cases, owing to the intermittent type of the fever, they are usually mistaken for malaria. In other cases, typhoid fever is suspected. Malignant disease of the liver may also be mistaken for abscess of the liver. I have notes on three such cases. This occurs because malignant neoplasms of the liver frequently cause fever and also increased leucocyte and polymorphonuclear counts.

I have notes of sixteen cases of abscesses of the liver which were operated in at the Presbyterian Hospital. None of these cases were instances of abscess secondary to abdominal operations for other purposes. Six patients had more than one abscess, of which number four died; while ten patients had single abscesses, and of these three died. Thirteen of the sixteen were men, of whom six were heavy drinkers. No patient gave a history of an antecedent trauma. Only five of the sixteen gave a history of previous diarrhœa, while five gave a history of distinct constipation. Ten of the patients exhibited no apparent ætiological factors whatsoever. Jaundice was present in only one third of the cases. All showed tenderness over the liver, while ten of the sixteen had a distinct mass in the region of the liver. In many cases this mass was hard to the feel, corresponding to the depth of the abscess in the liver substance. This may be so hard as to suggest a neoplasm. From observations made in studying these cases, I should like to emphasize the fact that a low general leucocyte count neither rules out the presence of pus nor does it indicate a bad prognosis. The number of the polymorphonuclear leucocytes is a far more reliable guide as to the presence of pus than the general leucocyte count.

In many cases there may be doubt as to whether or not an abscess of the liver is present. This doubt must then be cleared away by an exploratory puncture by means of a full sized needle, always employing a general anæsthetic, and with the strictest antiseptic precautions. If there are localizing signs,

such as a tender spot, a fixed pain, localized bulging, localized pneumonic crepitus, pleuritic or peritoneal friction sounds, the puncture should be made in this region. If none of these localizing signs are present, then, considering the fact that the majority of liver abscesses are situated in the upper and back part of the right lobe, the needle should first be inserted in the axillary line in the eighth or ninth interspace. The instrument is carried in a direction inwards and slightly upwards and backwards, and, if necessary, to its full extent. If no pus appears in the aspirator, the remainder of the dull hepatic area must be systematically explored, both in front and behind, regard being had for the lung and pleura on the one hand and for the gallbladder, large vessels, and intestines on the other. At least six punctures should be made before the attempt to find pus is abandoned. Before reintroducing the needle into a new place it should be sterilized. When pus is found, operative treatment to evacuate the collection of pus should be instituted at once without delay.

Recent published cases of unilateral septic infarcts—abscesses—of the kidney prove that this organ is infected at times (e. g., when its integrity is lowered by trauma) while exercising its function of excreting bacteria brought to it by the blood current. In many of these cases it has been found impossible to ascertain how the bacteria gained entrance to the blood stream. Since the liver has also this function of filtering bacteria from the blood (Adami), the development of abscesses in it indicates an analogous pathology, with often a similar difficulty in determining the portal of entry of the bacteria. It has been found that bacteria pass through the mucous membrane of the intestinal tract into the blood and lymphatic vessels with far greater ease and with less appreciable local and general disturbance than has previously been supposed possible. Possibly the tonsils, lungs, or bronchial glands may likewise be entering points. Certain it is that abscesses, not only of the kidney, but also of the liver, develop in persons in apparent good health.

Malignant Disease of the Liver.—The existence of primary cancer of the liver was at one time denied, yet there can now be no doubt of its occurrence, as a number of published cases prove it. In primary carcinoma the nodules are almost always single, while in secondary deposits they are multiple. In the early stage diagnosis is very difficult. Even when the abdomen is opened it may be perplexing to make an exact diagnosis of a malignant growth from gummata or simple tumors, etc. As has been the case with the stomach, increasing operative experience will enhance the surgeon's ability to discriminate between these conditions.

The following diseases may have to be considered in making a diagnosis: Enlarged amyloid liver with irregular gummata, echinococcus cyst, hypertrophic cirrhosis, abscess of the liver, biliary calculi, etc.

I have data of twenty-five cases of malignant disease of the liver operated in at the Presbyterian Hospital. In seven of the cases erroneous diagnoses before operation were made as follows: Cancer of the colon, biliary calculi, cancer of the stomach, twice; abscess of the liver, three times. Prior to operation, only one gave a history of hemiplegia. Of

sixteen patients the first symptom complained of was pain. In no case was there an antecedent history of a distinct trauma. Only four of the patients gave an alcoholic history, yet symptoms referable to the stomach were present in sixteen patients. A distinct tumor was palpable in eighteen patients and it was absent in seven. An interesting fact was observed in eight patients, or 32 per cent., all of whom had some degrees of fever before the operations. This led in three cases to the erroneous diagnoses of abscess of the liver. The temperature in these cases rarely went higher than 101° F. The polynuclear leucocytes in several of the patients, in whom they were counted, were much increased, and a number of them had high general leucocyte counts. In none of these cases were abscesses found at the time of the operations.

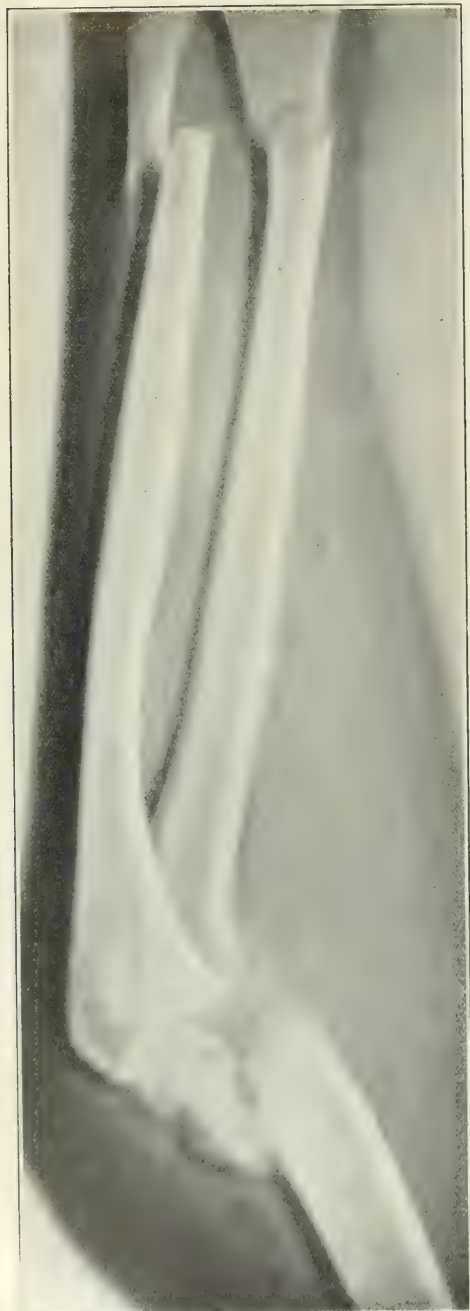
In conditions where tumors of the liver are present, the question of operative removal will have to be considered. Keen has collected reports of seventy-six cases of resection of tumors of the liver, of which number sixty-three patients recovered. When the tumor is exposed, resection should be undertaken (Moynihan) only when the tumor is primary and solitary, when its margins are clearly defined, when it is quite certain that the whole of the tumor can be removed, and, in malignant cases, that such a margin can also be cut away as to make it probable that recurrence will be prevented or will be long postponed. Gummata should not be removed unless calcification or other degenerative changes in an advanced stage are discovered.

Prolapse of the Liver is recognized as existing in two forms:

(a) Partial hepatoptosis, in which there is a downward prolongation of a portion of the liver, usually that part immediately to the right of the gallbladder. This results in the condition known as Riedel's lobe. Riedel maintained that this tongue-like process is very frequently associated with gallstones, and is due to the dragging downwards by the gradual distension of the gallbladder of that portion of the liver in its immediate vicinity. In such cases it has been shown that when the gallbladder so affected has been drained of its contents by cholecystostomy, the abnormal lobe shrinks, and the shape of the liver gradually returns to its natural form.

This abnormal lobe may itself alone become inflamed, resulting from trauma or tight lacing, etc. It may then be difficult to make a correct diagnosis of the condition present. I have seen such a case operated on for supposed gallbladder disease. This latter viscus was found to be normal, and the tender tumor was discovered to be an inflamed Riedel's lobe. In another case a similar misapprehension made with the idea of inspecting what was thought to be an enlarged kidney, fixed in a prolapsed position. The tumor was found to be an abnormal and inflamed lobe projecting down from the under surface of the liver, without any other pathological condition.

(b) The second variety of liver prolapse is called complete hepatoptosis. In this there is a descent of the whole organ. It is almost always associated with evidence of other disease, a condition known



as Glenard's disease. It is unnecessary to go into its symptoms.

Treatment of prolapse in general consists, in the vast majority of cases, in applying a well fitting abdominal supporter of some kind. The best of these is Gallant's corset, which is made to fit tightest just above the pubis. It must not be forgotten that a neurotic element is a marked feature in most of these cases, requiring patient medical and mental therapeutics. Surgery should not hastily be undertaken, but is required only in the most extreme cases, where a "floating" lobe is persistently painful, or when a wandering liver cannot adequately be kept in position by some mechanical support. Riedel's lobe has in various cases been treated by excision, fixation to the abdominal wall, and by cholecystostomy. Total liver prolapse has been treated by suturing it in place by various methods.

112 WEST FIFTY-FIFTH STREET.

PLASTIC X RAY PICTURES OR ROENTGENOGRAMS.*

BY WILLIAM H. DIEFFENBACH, M. D.,
New York.

Dr. Alexander's method is quite complicated and requires much time and special photographic technique, so that, at my suggestion, my photographer, Mr. H. L. Steidel, experimented during the past summer with a view of securing similar results in a quicker manner and with fewer details. The pictures which accompany this paper are the result of this experimental work and speak for themselves. The technique follows:—

1. Lumière x ray and slow plates are employed.
2. Tubes of from 8 to 10 Benoist penetration at 10 to 12 ampères are used, exposures depending on the part rayed, ten seconds for hands, fifteen seconds for elbows, thirty seconds for knees, etc.
3. We make but one exposure, eliminating the indirect rays by means of a diaphragm or an improved steel covered diaphragmed anode placed in the tube.
4. The plate is developed, fixed, washed, and dried in the usual manner, avoiding excess of contrast.
5. We next proceed to make a positive from the negative secured, using a slow plate for this purpose and exposing same in the printing frame carefully so as to avoid fogging, and attempting to secure equal density.
6. Both plates being dried, the glass sides are carefully cleaned and placed together, making the outlines register *accurately* by holding them up to a good north light. If good approximation has been secured the plates are bound together with lantern slide binder, being careful not to disturb the accurate position.
7. We now place the joined plates in the printing frame, using the positive side to print from and using a slow bromide paper (carbo and portrait argo). Exposure must be gauged by the character of the *light*, the frame being placed at an angle of forty-five degrees in a north light.

*Read before the Academy of Pathological Sciences, New York, Dr. Bela Alexander, of Koenigsberg, Prussia, some months ago was the first to introduce this process and exhibit the now-called "plastic" Roentgenograms. His contribution and date appearing in volume No. 1 of Pathological and Anatomical Research.

8. The paper is next developed in an antifriction developer, rinsed, fixed in a fresh acid hypobath, and when washed is ready for mounting.

If permanent records on plates are desired another plate must be made from the plates as arranged, instead of using the *paper*, and the prints subsequently secured from a *fourth* plate taken from the third. Thus plates one and two as described furnish plate three; from plate three we secure plate four, and the latter is the permanent record from which the prints are made.

This latter detailed method (excepting differences in exposure) is the original Alexander procedure.

These plastic x ray pictures are particularly

A CHEMICAL AND MICROSCOPICAL ROUTINE IN THE INVESTIGATION OF GASTROINTESTINAL DISORDERS.

By D. M. KAPLAN, M. D.,

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(From the Women's Hospital, New York.)

The physician of to-day, with the great tendencies to specialize, has to contend with many difficulties to suit not only his own mind but that of his colleagues and patients. He has to become, so to say, polyvalent in his attainments and be able to see the situation from more than one point of view in order to become successful. The law of the survival of the fittest is as well applied to him as to



FIG. 1.—Showing the location of the stomach in the body.

valuable in the study of normal and pathological osteology; in subluxations the relationship of bones is well brought out, in the determination of syphilitic bone lesions it renders great service in clearing up the diagnosis.

Osteitis, periosteitis, osteomalacia, osteomyelitis, tuberculosis of bone, osteoma, and osteosarcoma are more readily distinguished through this aid in diagnosis. In osseous deformities, congenital and acquired, in acromegaly, and in some rheumatoid conditions these pictures will be of service. The ordinary radiological films suffice in many instances; in others the plastic pictures will be found superior. SOUTHEAST CORNER, BROADWAY, AND FIFTH AVENUE STREET.

any other living being. This is the more evident in the light of the twentieth century, since no stone is left unturned in order to come to a definite conclusion as to a patient's condition. Indeed, there seems to be no end in exactitude.

In the course of evolution of the human race the gastrointestinal tract became the least amenable to resistance, and I am sure is compensating for the worse, unless its function will be given an opportunity to reassume a more normal and less artificial mode of activity. But in our efforts to tickle the palate we have turned almost everything into sweets and have given names to our dishes which are as purring as they make up and as hard to digest. The outcome of such treatment is a chronic maladjustment of the still conserved in digestive

and the consequent derangement and missadjustment of the entire organism; in other words, we have been gradually, although slowly but steadily, poisoning ourselves, for which only ourselves are to blame. A patient with such a deranged digestive system, thrown out of gear by some dietary indiscretion, usually first consults his family physician, who without much trouble restores him to his previous condition. The repetition of such occurrences causes a more permanent disturbance of the gastrointestinal functions, and the advice of the family physician no longer helps. The specialists are usually consulted, who on account of their more

will hardly fare well in the hands of any one unless the most painstaking, thorough and systematic examination and treatment is resorted to; in other words, no stone is left unturned. The methods employed by me in the investigation of cases like the ones last cited, although I assert nothing original, still present a few new points of interest from the chemicomicroscopic point of view, and being that a few patients of the last mentioned category were benefited, it seems to me not out of place to describe the procedure, pointing out here and there suggestions that are new and heretofore not mentioned. Needless to say, the gastric contents, feces,



Dreffenbach FIG. 3 Normal foot

extensive experience are able to help the sufferer and define the condition. There are, however, many cases where the specialists of this country could produce no satisfactory improvement and after advice by friends or physician the patient usually seeks advice abroad. With the trip across the ocean, change of scenery, absence from business cares, and the strict *régime* that the specialists in Europe enforce and which the sufferers strictly adhere to, together with the more thorough and systematic methods of our transatlantic colleagues, it is no wonder that the derangement is either entirely or partly removed. Nevertheless, one comes across patients who have tried almost everything, including a sojourn in Europe, whose condition is so persistent that it is really discouraging.

It is not to be commented that such a patient

blood, and urine are examined, the entire procedure requiring about one week or ten days.

To describe this I will begin with the introduction of the stomach tube. Every physician knows that there are people who are horrified at the idea of having a stomach pump (as they call it) passed into their stomach, especially if it is done for the first time, therefore, in order to quiet the patient the use of a little suggestion is not out of place. Having overcome the imaginary difficulties as much as possible, the next step is to be able to overcome the real ones. These lie in the physician himself. In attempting to pass the tube there is no use in commanding or begging; if the tube is not held right, or the position of patient and doctor is faulty, the tube will not go down, but will be expelled every time by the frantic movements of the patient and

by the reversed action of his deglutory apparatus. To overcome these and to guard against other mistakes the tube must be of proper size and consistency, and must be properly prepared and handled. The tube used satisfactorily by me is 75 cm. long and 3 cm. in circumference, its walls being 1.5 mm. thick. There are two eyes at the stomach end, each 1 cm. long and 3 cm. wide, one situated 1 cm. from the tip, the other 2 cm. from the tip, but on the opposite side of the tube. Attached to the distal end is a well fitting piece of glass tubing to which is attached another secondary piece of rubber tubing 40 cm. long. The stomach tube proper is

up somewhere and a gentle blowing through the suction tube will dislodge the obstructing piece and permit of a free flow again. Any speck of blood or tissue is at once recognized; the tube is then removed immediately. The great cleanliness speaks for itself, still I always blow through the tube five or six times after it was washed to assure myself that there are no pieces left in its lumen from a previous aspiration and thus influence the following gross and microscopical examination. Such errors cannot occur if the tube is perfectly clean. The usefulness of the measured scale will be spoken of later, at present be it sufficient to say that in short

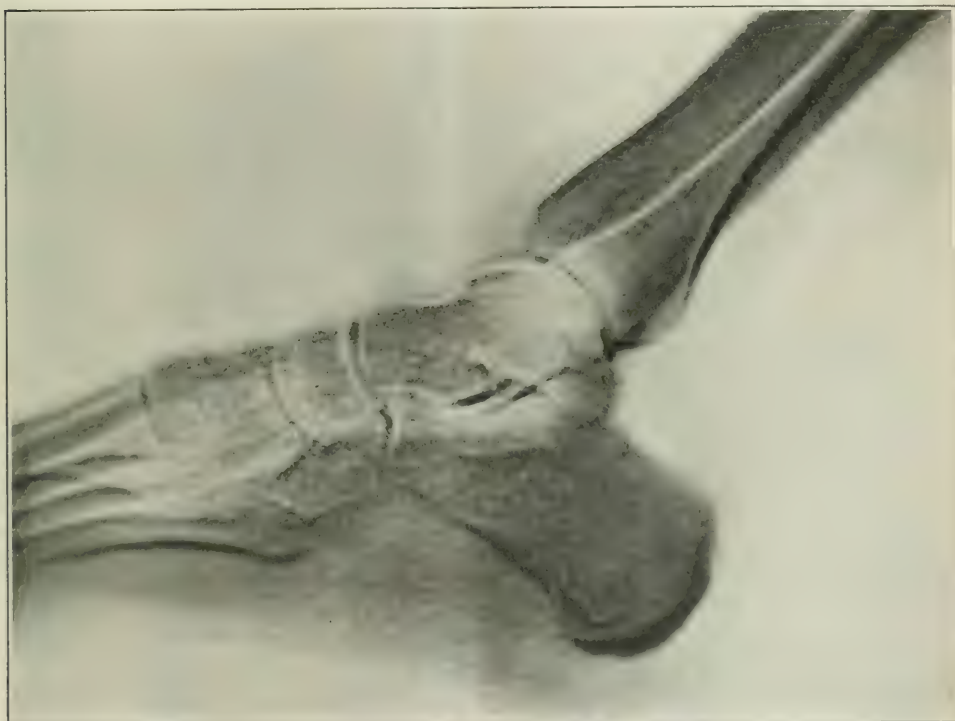


FIGURE 1. Aspiration of contents of stomach.

marked off into centimetres beginning 10 cm. from the tip. Before introducing the tube it is well to wash it thoroughly, especially the inside. Lubricate with a very thin coating of glycerine, attach the secondary piece of rubber tubing to the aspiration bottle as shown in the diagram, and after the attachment of the suction tube the contrivance is ready for use. In order to make proper use of this apparatus the function of the individual parts, although self evident, still need a little explanation. (See Fig. 1, p. 1061.) As the connecting tube is of glass, one can see the rate at which the contents flow from the stomach into the receiving bottle, something that can be regulated by gliding the tube in or out for a few centimetres, or by stopping the suction. In case there is no flow of contents the tube is stopped

people fewer centimetres are introduced than in tall people. After inspection of the mouth and pharynx the tube is grasped between the thumb, index, and middle fingers of the right hand about 10 cm. from the tip, the tip pointing toward the physician and not toward the patient. The patient, properly covered, is asked to hold a basin in his lap, so that any regurgitating contents may be caught in it and at the same time prevent unnecessary soiling of clothing and furniture.

The physician takes his seat behind the patient with the aspiration bottle in his upper coat pocket, and places his left hand on the patient's mouth, so that the index finger rests on the upper lip and the rest of the hand on the chin. The position is similar to the one taken by dentists to extract an upper left lower tooth; the patient's head, grasped by the

doctor's left arm and forearm is thus held in perfect control. The doctor's left hand (see Fig. 2, p. 1061) in this position is ready to receive the tip of the tube, which is now held between the index and middle fingers of the left hand, and the first 10 cm. are gently slipped into the patient's mouth with the command to swallow. The swallowing, together with the help of the doctor's right hand, causes the tube to glide down into the stomach without any trouble, the head being steadied by the left arm and the tube

prevented from being expelled by the fingers of the left hand. If gentle suction is now employed the contents will flow into the receiving bottle in a constant stream, provided the meal is in a finely subdivided condition. The obtained chemismus is almost entirely free from buccal admixtures.

The receiving bottle used by me holds about 250 c.c., but if a larger bottle is necessary one can easily fit the cork to another bottle. Required for such a bottle is a well fitting rubber cork with two perforations, into which two glass tubes



FIG. 5.—Normal hand.

fit tightly, the tubes being about 6 cm. long. One tube serves as an attachment to the secondary piece of rubber tubing, connecting it with the stomach tube; the other connects it with the suction tube. Of course, during the period of aspiration the re-

course, anomalies of position must be made out by other means, in which case the stomach tube can also be made use of to blow up the organ and thus bring out its outline sharply. In the study of gastric disorders, especially if a number of cases are at the disposal of the investigator, one finds here and there loop holes and difficulties, which only exist to be overcome.

To acquaint the reader with the everyday procedure used by me in the analysis of gastric functions I will give the laboratory reports of one of my patients.

Although a good laboratory report is of great help, in itself it amounts to very little unless it is accompanied by the bedside view of the case, plus a thorough knowledge of the patient's history. Therefore, before going any further I will state in as few words as possible a few facts which together with the laboratory findings will help to make a diagnosis in the case of Mr. R.

CASE.—Mr. R. is forty years old, married, by trade a dyer using anilin dyes. In 1900 he suffered from cramps and constipation. In 1905 he vomited a great deal, and had pains in the stomach region which would radiate to the left and upward. In August, 1906, he vomited a great quantity of blood. In September of the same year he entered Mount Sinai Hospital, again vomited much blood, after which he was unconscious for two days. After treatment in Mount Sinai he gained ten pounds in weight. In April, 1907, he weighed 117 pounds. At time of laboratory report he weighed 106¼ pounds.

It is clear that many physicians will have enough

ceiving bottle either hangs suspended from the aspirator's mouth or is held in his right hand.

To this method of obtaining gastric contents there may be many objections, but the only drawbacks I find are the odor at times associated with the contents, or the chances of aspirating the chemismus into the mouth. The first is soon overcome by the physician getting used to the odor, or he may employ a Politzer bag; the second may be obviated by observing the rate of flow and extent of filling of the bottle. By this method air can be introduced into the stomach and permitted to escape at will, so that use can be made of this in ascertaining the distance between the incisor teeth and the floor of the stomach. Here the usefulness of a measured tube becomes at once apparent, and may be utilized in the following manner:

The patient having had his Ewald breakfast, the stomach tube is introduced, depending on the case, three-fourths or one hour after ingestion, and the contents begin to flow, for example say at 50 cm.; that means that the tube is below the level of stomach contents. The tube is now withdrawn for 5 cm. and the contents cease to flow even with forceful suction. Clearly, we are above the contents, and if air is now blown in (gently of course) it will return with the characteristic odor of the chemismus. It is now shoved down 7 cm. more, and with suction a flow is again established. It will be seen that 52 cm. of tubing are used for this purpose. Soon, however, the flow again ceases and upon gentle blowing the air comes back again; we now introduce 5 cm. more and reestablish the flow; when it ceases, blow again, and so on. Supposing we introduce air at 60 cm. and it comes back, we introduce 3 cm. more and again only air returns with suction, we are safe to say that the second eye of the stomach tube no longer comes in contact with aspirable material, but is on the floor of the stomach, and the distance (60 cm. minus 3 cm.) distance from tip to top of second eye, equals the distance from the incisor teeth to the floor of the stomach. On

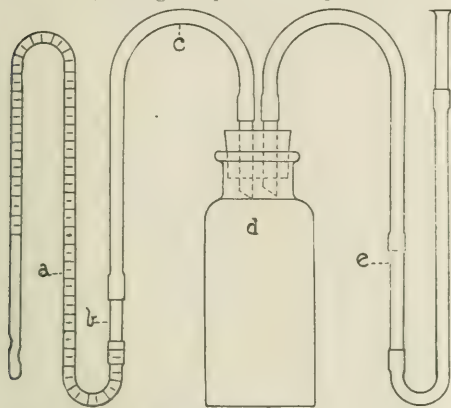


FIG. 1.—Stomach pump.



data from the history alone to come to a conclusion as to the diagnosis and be able to affect an improvement in Mr. R.; but as I say, no stone is to be left unturned, just because some day a complication may arise or a peculiar feature manifest itself, and then one is at a loss to say what is what. Bearing this in mind I always proceed in the manner as described plus other tests to be described directly.

The next step is to examine the patient's stool. For this I always give a slightly modified Schmidt's test diet which is taken for three days, the first



FIG. 3.—Showing position of tube in stomach.

breakfast being taken with a 5 grain carmin capsule to demarcate the test diet stool. This diet consists of:

In the Morning.

One glass of cacao (prepared from $\frac{1}{3}$ of an ounce of cacao powder, $\frac{1}{4}$ ounce of sugar, 2 ounces milk, and 6 ounces water); with this eat 2 ounces zweiback.

In the Forenoon

Two glasses of oatmeal gruel (made from $\frac{1}{3}$ ounce oatmeal, $\frac{1}{2}$ ounce butter, $\frac{3}{4}$ ounce milk, 10 ounces water, and one egg—strained).

At Noon.

Four ounces chopped beef (raw weight), broiled rare, with $\frac{3}{4}$ ounce butter, so that the interior will still remain raw. To this add 8 ounces potato broth (made of 6 ounces of mashed potatoes, $3\frac{1}{2}$ ounces milk, and $\frac{1}{2}$ ounce butter).

In the Afternoon.

As in the morning.

In the Evening.

As in the forenoon.

These diet instructions are left with the patient, and the first red colored stool (mahogany red) is submitted to the following tests:

ANALYSIS OF URINE.		Date, July 15, 1907.
GENERAL CHARACTERISTICS.		
Quantity in 24 hours—1250 c.c.	Color—Amber	
Specific gravity—1010.	Odor—Uremic	
Reaction—Acid	Transparency—Good.	
Acidity in terms of 10% NaOH 10-15 c.c. reflux.	Sediment—None.	
CHEMICAL EXAMINATION OF NORMAL CONSTITUENTS.		
Total nitrogen—	Urea basis—	
Urea 46 gr. mmoles.	Amido acids—	
Uric acid—0.290.	Ammonia—	
Kreatinin—		
Sulphates (Sog)		
Sulphates		
Neutral sulphur (S)		
Chlorides (as NaCl)		
Phosphates (as P ₂ O ₅)		
CHEMICAL EXAMINATION OF ABNORMAL CONSTITUENTS.		
Proteid bodies—None.	Bile constituents—Normal.	
Carbohydrate bodies—None.	Blood—None.	
Indican—Very great excess	Pigments—Normal.	
	Diazo reaction—Negative.	
	Chemicals and drugs—None apparent.	
MICROSCOPIC EXAMINATION.		
Crystalline constituents—Calcium oxalate.	Microorganisms—None.	
Amorphous constituents—None.	Epithelia—None.	
Organic constituents—None.	Casts—Cylindroids.	
Analyzed by Dr.		

In testing for occult blood the diet must be blood free and is given for five days; the stool of the fifth day is submitted for a separate analysis. In the case of Mr. R. no occult blood was found.

It is needless to say that the twenty-four hour quantity of urine, as well as the blood, is examined in each instance, the following points being covered:

ANALYSIS OF URINE.		Date, July 15, 1907.
GENERAL CHARACTERISTICS.		
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Sulphates (Sog)		
Sulphates		
Neutral sulphur (S)		
Chlorides (as NaCl)		
Phosphates (as P ₂ O ₅)		
CHEMICAL EXAMINATION OF ABNORMAL CONSTITUENTS.		
Proteid bodies—None.	Bile constituents—Normal.	
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	Diazo reaction—Negative.	
	Chemicals and drugs—None apparent.	
MICROSCOPIC EXAMINATION.		
Crystalline constituents—Calcium oxalate.	Microorganisms—None.	
Amorphous constituents—None.	Epithelia—None.	
Organic constituents—None.	Casts—Cylindroids.	
Analyzed by Dr.		

As far as the urine is concerned, the only deviation of note is the diminished quantity of uric acid and the great excess of indican (the color of Fehling's solution), many calcium oxalate crystals and cylindroids. There is no denying that laboratory reports are useful, but there are a good many reasons from the standpoint of the patient and doctor why thorough examinations are not resorted to in every case. In the first instance, there are patients in whom complete examinations for various reasons are contraindicated, then the bother and cost, and lastly the physician is certain he can fathom the case without any analyses. Very often he may strike it, but sometimes he does not, and only sees the necessity when it is perhaps too late. It also depends a good deal upon the ability of the physician to interpret chemicomicroscopical findings and give each item proper significance and weight, without which he certainly cannot see the value of such work as well as to treat the patient the better. It is much safer to go by one's diagnostic acumen in such a case and leave out confusing laboratory reports.

Every item covered by a laboratory report has some significance of theoretical value, but taken together as a whole the deductions that such a report permits of are of great practical application. Of course, single statements, as, for instance, tubercle bacilli present, or lactic acid present and hydrochloric absent, are conclusive in themselves. Very often the entire laboratory report sheds a light on cases which do not present distinct signs of any disease in particular, and, in fact, the patient often

to be poured off completely; the tubes, 1 mm. in diameter, must be filled from end to end, avoiding the introduction of air bubbles. The coagulation in these tubes must be uniform, i. e., without the formation of air bubbles. After proper coagulation it is best to preserve these tubes imbedded in sterilized petrolatum, in which medium the tubes will keep for about two weeks. Before using the tube is washed in warm water to remove the petrolatum and inspected with a magnifying lens to detect minute air bubbles or incomplete filling. After digestion these tubes are again inspected with the lens and the amount of digestion ascertained.

The test for lactic acid also requires a good deal of expertness, many positive findings often being due not so much to lactic acid as to succinic acid. The positive reaction with Uffelmann's reagent is a cedar oil yellow. To make the reagent it is best to

sought for, excepting for the alizarin beaker, which must be diluted with four times its quantity of water. These color comparison beakers retain their tints a short time only. In the case of Mr. R., as determined on subsequent occasions, the peptic digestion with the Mett tube was 3 mm., which, together with the hydrochloric acid values (with the Ewald and Riegel meals), justified the conclusion that, among other things, an overfunctionating mucous membrane was most likely at the bottom of the malady.

The next item to be considered is the motility. Properly speaking, one should learn to think of this function in a twofold manner; first, a churning action on the food, resulting in the formation of a more or less finely divided mass, depending upon the amount of force present in the musculature, and, secondly, a propelling force which sends the properly

Name—Mr. R.

Date—May 13, 1907

ANALYSIS OF GASTRIC FUNCTIONS.

OBTAINED CONTENTS

Vomitus—Yes.
Tube—Yes, aspiration.
Calibre of tube—18 English.
Length of tube introduced—23 inches.
Introduction of tube—Easy.

FASTING STOMACH

Last food taken at—Last night.
Consisting of 3 figs.
Time of test—9.30 a. m.
Quantity obtained—300 c.c.
Gross appearance of fluids, solids, fat, fig seeds— CH_2O
Microscopic—Much neutral fat, starch.
Chemical analysis— F 1.1, A 0.950, Free HCl 8.4%,
acid salts 14.4%, Comb. HCl 41.4%.

DIGESTING STOMACH

Test meal—Ewald breakfast.
Quantity—300 c.c.
Time of ingestion—10.10 a. m.
Time of removal—11.10 a. m.
Quantity obtained—280 c.c.

GROSS APPEARANCE

Degree of solubility of food particles—Very fine.
Layers—Top fluid, bottom mealy and in pieces.
Color of toast.
Color—Vary.
Amount of undigested food—Trace.
Abnormal constituents—None detected.

MICROSCOPIC EXAMINATION

Food particles—Much fat.
Organic constituents—None.
Microscopic structure of tube—None.
Pathological organisms—None.
Cells—None.

QUANTITATIVE ANALYSIS

Proteids—
Carbohydrates—Achromodextrin to glucose.
Free HCl—Present.
Pepsin and Zymogen—Present.
Chymosin and Zymogen—Present.
Fat splitting ferment—
Lactic acid—None.
Volatile organic acids—Butyric and acetic.
Blood or bile—None.

QUANTITATIVE ANALYSIS

	Ewald meal	Riegel meal.
Total acidity	85/40	140/40
Acid salts	16/40	1/40
Amount free HCl	62/40	102/40
" combined HCl	7/40	34/40
" total HCl		
Degree of diminution of HCl		

MOTILITY

Test meal—Riegel.
Time of ingestion—10 a. m.
Time of removal—5 p. m.
Quantity obtained—300 c.c.
Appearance—Much undigested meat and bread. Neutral fat

ABSORPTION

Method—Potassium iodide, 8 grains in capsule.
Results—1st time in saliva after 16 min.

SPECIAL TESTS

Mett tube—3 millimeters.

Analyzed by Dr. S. M. Kaplan.

use a weak phenol iron chloride solution, consisting of 20 c.c. of a 2½ per cent. phenol solution plus 3 drops of a 10 per cent. solution ferri chloridi. This reagent must be utilized at once, otherwise the color changes to a dirty yellowish green.

In testing quantitatively for the hydrochloric acid values the Toepfer method used exclusively will give good results, and, having used this method for the past four years, I can heartily recommend it. To the beginner the question of end reactions is a serious one, and misleading values are often the result. For such workers it is advisable to prepare a set of small color comparison beakers, each containing 10 c.c. of a 1 per cent. solution of anhydrous sodium carbonate, and to each is added respectively one c.c. of phenolphthalein solution, one drop of dimethylamidazo benzol solution, and one drop of alizarin. These solutions will give a color which in shade more or less correspond to the end reactions

divided food into the duodenum. The latter I prefer to name the emptying capacity, as a distinction from the churning power. In Mr. R. the churning power was normal, for the test meal removed by the tube came away in a finely subdivided state, indicating that sufficient pressure was exerted on the toast to effect this change. The emptying capacity, however, was very much impaired, as could be seen from the quantity of food obtained after the Ewald and Riegel meals. Bearing in mind these findings, our patient, therefore, had a normal churning force and a greatly impaired emptying power. An apparently healed scar at the pylorus was evidently responsible for the interference with the onward propulsion of the food, as well as an oversensitiveness of the pyloric region, causing a compensatory hypertrophy of the muscularis and a secondary dilatation of the organ.

The absorption in the stomach is another voucher

as to the condition of the mucosa, although recent investigation tends to minimize its value. The test is performed as follows: A 5 grain gelatin capsule is filled with granular potassium iodide at the time when the test is performed, the patient is directed to swallow the capsule quickly and rinse his mouth thoroughly with water and expectorate into a beaker after the rinsing, when the saliva is tested for iodine with nitric acid and chloroform. In case the saliva gives a positive reaction for iodine the test has been faulty, for some potassium iodide was permitted to stick to the outside of the capsule and thus contaminate the saliva, permitting the reaction to take place at once. If the test is faultless, the saliva is then examined for iodine every 4 or 5 minutes. In Mr. R. absorption was normal.

To the appended laboratory report of the *fæces* a good deal can be added. Firstly, it is important to know how long the *fæces* were kept before they were submitted for an analysis. Secondly, mention is to be made of the use or nonuse of artificial means to evacuate the bowels—in other words, a full account of the defæcatory act is to be submitted. Thirdly, a quantitative estimation of the fat content is essential, as well as the preponderance of bacilli or cocci, and in some cases even a study of the flora is to be made. As to the reaction of the *fæces*, I always test it as a routine before and after fermentation. The figures obtained seem a little mysterious and need some explanation. If books on coprology are consulted one is at a loss to form an opinion as to the proper manner of testing for the reaction of the *fæces*. It is a known fact that normal stools react differently with different indicators; so that with phenolphthalein normal stools are always acid, with litmus neutral, and with cochineal slightly alkaline, the same being the case with methyl orange. It is interesting to note that medical students are still instructed that the reaction of normal stools is alkaline, no mention being made as to the indicator used.

From the uncertain manner in which the testing of the reaction of the stool is described it became necessary for my work to establish a way in which to overcome this. The outcome of this investigation was the following test: Five grammes of *fæces* are weighed off and rubbed up well in a mortar and 30 c.c. of distilled water is gradually added. Two c.c. of this mixture is placed in a test tube and a few drops of phenolphthalein solution added, well shaken and titrated with decinormal soda. As said before, every stool reacts acid with phenolphthalein; the acidity, however, of a normal stool with the modified Schmidt diet, as the experiment cited showed, never exceeds 1.5 c.c. of decinormal sodium hydrate solution employing 2 c.c. of a 5 in 30 suspension of *fæces*. It is just to consider a stool acid if it takes more than 1.5 or 1.6 c.c. of alkaline solution to overcome its acidity, and if it takes less than 1 c.c. of the solution it is safe to consider it alkaline.

The fermentation test of Schmidt is not very often carried out in this country, partly on account of the unwieldy instrument, partly on account of the uncleanliness of the process. For this purpose I use a specially constructed tube, which is more serviceable and less clumsy than the one used by Schmidt. As seen in the diagram, it consists of a straight tube graduated into 1 c.c. down to 10 c.c., the bottom

being at the bottom. At the lower end of the graduated tube is a bulbous receptacle, from which starts a curved tube connecting it with the receiving bulb. The entire outfit is capable of holding about 25 c.c. of fluid.

I am indebted to Dr. Richard Weil for this suggestion and other valuable hints, for which I take pleasure at this juncture to thank him. The tube properly filled without air bubbles is placed in a thermostat at 37° C. for twenty-four hours. At the end of this time about 1 c.c. of gas will develop if the stool comes from an individual who does not suffer from a fermentative or putrefactive intestinal process; if more than 1 c.c. of gas is formed it is to be considered as excessive. The *fæces* are again emptied into a mortar and its reaction once more ascertained. It has been customary to say that a fermentative process is present if the reaction of the *fæces* after incubation is decidedly more acid than before, say, requires about 4 c.c. of soda to bring out the red with phenolphthalein as an indicator. As an outcome of a number of observations I am unable to fully corroborate this idea, for patients who did not receive any carbohydrates also gave reactions of a fermentative nature. There must be present other factors that influence the post fermentative reaction causing an increase in the acidity. In the case of Mr. R. 3.5 c.c. of gas were produced and the acidity of 2 c.c. of *fæces* increased to 1.8 c.c. of decinormal soda.

A few words regarding tests for occult blood. It is needless to emphasize that before such a test is undertaken one must ascertain the condition of the mucous membranes of the nose, buccal cavity, and rectum; if these parts are so injured that they give rise to bleeding the resulting positive test for blood in the *fæces* can not be ascribed to bleeding points in the stomach or intestines. The diet must also be hæmoglobin free and medicines containing iron must be abstained from. The iron free diet is taken for five days and the stool of the fifth day is submitted

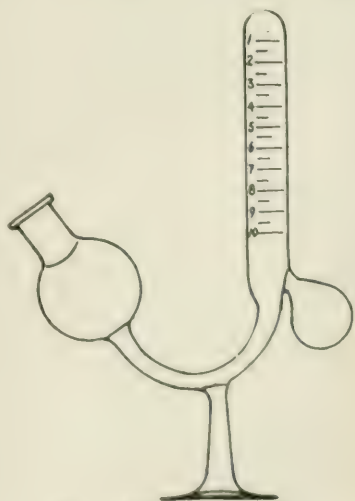


FIG. 4. Fermentation test tube.

for examination. The question of occult blood in the feces, received a good deal of attention, of late so much so that a good number of investigators thought it profitable to devise methods or modify the methods of others in testing for occult blood.

A good many tests appeared in the literature of late, but the one that received most attention is the benzidin test of O. and R. Adler, their first publication on the subject appearing in 1904. Many modifications of this test appeared in the medical press, some so slight that they do not in the least deviate from the original method excepting that instead of a test tube a strip of absorbent paper is used, and so on. I used this test for the last year and a half in the following manner: 1. From the original stock of 5 grammes feces in 30 c.c. water I take in a test tube 2 c.c. and bring it up to 5 c.c. with distilled water. 2. In order to remove enzymotic influences the feces are boiled for half minute. 3. The reagents are prepared as follows: A knife point quantity of Merck's benzidinum purissimum is placed in 3 c.c. of glacial acetic acid in a test tube and warmed in a glass of hot water until the benzidin particles have dissolved; $\frac{1}{2}$ c.c. of the solution is mixed in a separate test tube with 1 c.c. of hydrogen peroxide, and the reagent is ready for use. 4. Three or four drops of the now cooled feces are added to the second test tube and after the lapse of about ten seconds shaken. If occult blood is present the mixture turns a dirty blackish blue with at times a tinge of brown. In order to bring out a clear blue color I always add 2 c.c. of acetic ether and shake; after half a minute the acetic ether takes up the blue and gives it in unmistakable clearness. This blue gradually changes into a green, which becomes brownish and finally a dirty brown. For the past year I have been in the habit of performing the guaiac test in conjunction with the benzidin test, for it occurred to me that the benzidin test is too sensitive and that the positive outcome of using two tests is more conclusive. When the benzidin test alone is positive it is not safe to view the result as final, and repeated tests are necessary in order to be able to render a satisfactory report. In performing the guaiac test the usual reagents are used, i. e., a freshly prepared tincture of guaiac and old french oil of turpentine, which is to be kept in a semidark cellar loosely stoppered. The same boiled feces are used as for the benzidin test, and after bringing together the reagents and the feces I always shake the mixture with a few cubic centimetres of chloroform, which when the test is positive assumes a clear blue color.

Repeated tests in the case of Mr. R. never gave a positive reaction with the guaiac test; with the benzidin test, however, a blackish brown was obtained, which in inexperienced hands could be mistaken for the positive reaction. This uncertainty is done away with when the mixture is shaken with acetic ether, which did not turn blue in the above tests.

From the routine urinary examination in gastrointestinal disorders one may form a fair opinion as to the extent of absorption of noxious products from the gastrointestinal tract. The indicanuria in such cases is due to increased decomposition products in the intestines, which are absorbed and excreted in the urine as the conjugate aromatic sulphates; in

other words, phenols having an SO_3 group attached, together with a base. The substance appearing in the urine and generally called indican is, chemically speaking, indoxyl potassium sulphate. This substance is not the only aromatic body in the urine, but with it are also excreted scatol and paracresol.

It is needless to describe the tests in vogue for the detection of indican, but I would advise a certain regularity in carrying it out, i. e., always use the same quantity of urine and reagents, for it sometimes becomes necessary to ascertain the time of day or night when the indicanuria reaches its height, and unless one uses the same quantities all the time, the tests are valueless for comparative uses. I proceed as follows: 10 c.c. of urine, 1 c.c. of basic lead acetate, filter, 6 c.c. of filtrate plus 6 c.c. of Obermeyer's solution; let stand for five minutes and shake with 2 c.c. of chloroform.

It is interesting to note the effect of these poisons on the kidneys. In the beginning usually only calcium oxalate crystals appear in the urine, then as the absorption persists for a longer time cylindroids appear, and later even hyaline and fine granular casts. Usually, no albumin is found unless the disease is complicated by an endocarditis or nephritis. With improvement or *restitutio ad integrum* these elements gradually disappear. In my mind there is no doubt as to this cylindruria of intestinal origin, for they appear and increase in number with aggravation of symptoms and disappear with improvement and cure. In the case of Mr. R. these findings helped to form a complete entity. In the blood examination nothing special was found excepting the number of neutrophiles.

The counting of nuclei in the Montefiore Laboratory is a matter of routine, and no blood record is without it. Having examined up to this time about 350 bloods with nuclear counts from different cases it seems to me that the normal picture is different from the one originally given by Arnet, and that 35 number ones is not too much for healthy, vigorous and active individuals. Patients with chronic diseases of the vegetative organs, joints, or nervous system often show as many as 50 or even 65 per cent. of number ones. The manner in which the nuclei behave in these conditions is interesting. We will look at the nuclear picture from a case of paralysis agitans: Of number ones, 62 per cent., of number twos, 30 per cent., of number threes, 7 per cent., of number fours, 1 per cent. The patient may live for five or ten years and rarely have less than 60 number ones provided the disease is in *statu quo*. However, if the end is approaching, if there are bed sores or not, the number ones increase at once, rising up to 70, 80, or 90 per cent., the last number usually appearing shortly before death. A good many tuberculous patients manage to get along comparatively well at the same time showing as many as 70 or 75 number ones, but the alarming sign in these cases is the rise up to 80 or 90. The behavior in acute infectious diseases in previously healthy individuals is different; there a sudden rise up to 60, 70, or more takes place and then there is a gradual fall as the disease subsides.

In conclusion, I wish to thank the entire medical staff of the institution for their help, and Dr. S. Wachsman in particular.

139TH STREET AND BROADWAY.

A CASE OF EPILEPSY OF THE FAMILY TYPE.*

By WHARTON SINKLER, M. D.,
Philadelphia.

There is a general opinion that direct heredity is the most important factor in epilepsy, and this is true to a certain extent, but I believe that careful investigation of all the cases recorded will show that the number of epileptics in which a parent or grandparent has suffered from the same disease is comparatively small. Spratling, *Epilepsy and Its Treatment*, page 64, finds that, of 1,070 cases which came under his observation (660 men and 410 women), 15 per cent. of the men and 17 per cent. of the women had epilepsy because of the same disease in the parents. Déjérine, quoted by William Aldren Turner, *Epilepsy, a Study of the Idiopathic Disease*, London, Macmillan & Co., 1907, gives 21.2 per cent. of epileptics with a direct inheritance of the disease; Binswanger found 11 per cent. and Doran 10.3 per cent. of their cases with a direct heredity of epilepsy. Gowers states that, of 2,400 cases which were observed by him, 40 per cent. had a hereditary history, but he probably included in his heredity not only epilepsy but alcoholism, insanity, and other neuroses. Of 1,124 cases which have been treated at the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, in 157 cases, or 13.96 per cent., there was traced a hereditary cause. This heredity included epilepsy in the parents or grandparents, brothers and sisters, or in an uncle or aunt, or first cousins. If we take the cases in which only the parents were affected with the same disease, the percentage would not be more than 5 per cent. or 6 per cent. Very careful inquiry was made in regard to this point in taking the histories of the cases, and even allowing for deception, either through ignorance or intention, the percentage could not be much greater than this.

Other neuroses, no doubt, play an important part in the production of epilepsy. Alcoholism in the parents is probably one of the most potent causes. Déjérine gives alcoholism as a hereditary factor in 51.6 per cent. of his cases. Binswanger gives 22 per cent., Spratling 14 per cent., and Doran 21.6 per cent. of their cases as having an alcoholic heredity. In 951 cases at the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, examined in regard to an alcoholic heredity, there were 130, or 13.67 per cent., in which one parent or the other was alcoholic.

The family tendency in some cases is very strong. Gowers, *Epilepsy and Other Convulsive Diseases*, page 8, cites one instance in which a patient's mother, maternal aunt, two uncles, and cousin were epileptic. In another of his cases there were fourteen members of the family affected; in a third, eleven, and in another case the patient's father, two of the father's brothers, and three of his sisters were epileptic.

The following case shows distinctly a tendency to the disease which has extended through several members of the patient's immediate family. It is suggestive of some of the family neuroses, like Friedreich's ataxia, familial dystrophies, or Huntington's chorea.

C. B. H., aged twenty-six, consulted me September 14, 1907. He had always been strictly temperate and denied any venereal disease. He said that he had always had excellent health, with the exception of the trouble for which he consulted me.

His father's father and all other paternal antecedents, as far as he knew, were perfectly healthy and normal. His mother's father drank a great deal and her mother's father was alcoholic. The father's mother had epilepsy, but nothing is known of her relatives; as far as the patient knew she had only one attack; he admitted, however, that he was not well informed on the subject; she was of sound mind and died young, at about the age of thirty-five. His father had been married twice and had had a large number of children—about fifteen. He was entirely free from epilepsy. One brother, that is, an uncle of the patient, had had epilepsy quite violently, often having six or eight fits in one night, but he recovered from the attacks and had now had none for about thirty years. None of his children had been afflicted. Three sisters of the father were married. None had had epilepsy, but two children of one became epileptic and one of them was insane and died in this condition. Each of the other sisters had had one child who was epileptic. The patient himself had two brothers and two sisters who had had epilepsy. One brother and two sisters of these became insane and died in an asylum. One brother, now aged nineteen, had had epileptic attacks for several years, but he had now had none for three years. So that in this and the two preceding generations there had been eleven epileptics.

About eight years ago, when the patient was sixteen years of age, he had an epileptic seizure at night. Since that time he had had attacks recurring every three or four weeks. They generally occurred at night, but for the past year there had been more in the day than previously. The longest interval that he had had since the attacks began had been three months. The attacks usually came on at night, but the last two or three had been in the day. On June 11th he had an attack at night in his sleep, and the next morning soon after going to work he had another attack. It was only occasionally that he had had two attacks so close together. He did not bite his tongue, but occasionally injured the inside of the lower lip. He had broken his upper teeth in falling, but had done no other injury to himself. His wife stated that in an attack his eyes were first staring, and then there was a general convulsion, which lasted for a few minutes; then he slept heavily for two hours. If the attack occurred at night, he slept very profoundly the remainder of the night. His memory was unimpaired, except that just after an attack he was very forgetful. About once a month he had an attack of *point mal*. He became slightly confused for a few moments, and then seemed as well as ever. He worked for the Southern Express Company, where he did office work and was very active and capable. He was a strong, well built man, had the appearance of good health, and was bright and intelligent. His heart was normal; his pulse was rather sclerotic. There was no kidney disease. He had taken bromides in doses of from 10 to 30 grains three times a day, of the potassium bromide, without apparently any marked effect.

1000 WALNUT STREET.

INFECTIONS WITHIN THE THORAX. EMPYEMA.*

By JOHN H. MUSSER, M. D.,

Philadelphia.

In the University Hospital I have found that nine in 480 cases of pneumonia, or 1.8 per cent. of all cases of pneumonia, were followed by empyema. From the literature I have collected 12,802 cases; 270, or 2.1 per cent., had empyema. These figures are based upon clinical reports. Based upon autopsy empyema was present in 5.1 per cent. of 973 cases of pneumonia. These figures illustrate the frequency of this complication in the disease.

My object in bringing forward the subject is to call attention to some points in the early recognition

*Read at the National Association for the Study of Epilepsy, held at the University of Philadelphia, on a special call, at Philadelphia, October 16, 1907.

*Read at a meeting of the University of Pennsylvania, Philadelphia, October 16, 1907.

of empyema and to suggest that attempts be made to recognize and to resort to operative procedure early. It is not much credit to the physician to send a patient, with a chest full of pus, to the surgeon.

The diagnosis must be made in part from a full understanding of the antecedents of the infection. Just as with peritonitis, there is no doubt that empyema does not occur idiopathically. This antecedent condition is pneumonia in a large majority of cases. The pneumonia is almost always attended by a serous pleurisy, and frequently serous pleurisy is followed by empyema. A serous pleurisy may be due to other than the pneumococcus organism. The streptococcus is the most common, and the tubercle bacillus the next. Typhoid fever and scarlet fever are two of the other fairly common antecedents of empyema. It follows local conditions, such as disease of the rib, the subpectoral tissues, the œsophagus, and disease below the diaphragm.

We have chiefly, in the recognition of the small empyemas, to remember the relationship between pneumonia or other infections and this secondary infection and, therefore, to be on our guard if the development of the general phenomena of infection after the pneumonic or other infectious process has apparently subsided, occurs. Sometimes local infection of the pleura may develop coincidently with the crisis, and the characteristic phenomena of localized pus occur, such as intermittent fever, chills, and sweats. A leucocytosis persisting after the crisis and associated with the general phenomena of infection is one feature of great significance. In this instance also great stress must be laid upon the presence of a rise after the normal fall of the leucocytes at the period of crisis of pneumonia. Therefore, the pleural infection may develop before the crisis with persistence of leucocytosis; it may develop gradually after the crisis, or may occur suddenly after the crisis, the leucocytosis rising after the critical fall. If sudden, usually, there is a mixed infection and generally that of the streptococcus and pneumococcus.

Sufficient attention has not been paid to the significance of what might be considered minor local symptoms in the course of the convalescence of pneumonia and the early period of a beginning empyema. Pain is one which need not be severe and not of the type seen in acute pleuritis, but the persistence of steady pain, however, especially in certain localities, leads us to suspect the possibility of empyema developing. It certainly leads us to recognize the location of the empyema. More significant is the localized tenderness, first, as an indication of the development of abscess, and, second, as an indication of the location of the abscess. The pain elicited by pressure of the finger is at first deeply seated and requires pretty firm pressure, afterward becoming more and more superficial. As is generally pointed out in the discussion of the physical signs, this localized tenderness is in certain definite localities.

In addition to the general symptoms and the small localized signs suggestive of the presence of pus, of a localized abscess, we have the results of the physical examination next to support us. Not the physical signs of pleural effusion or of even a moderate collection of fluid, but the physical signs indi-

cating that there is impairment of the expansion of the lung of the affected side and the presence of localized pleuritis. We must seek for the latter signs, not particularly in the classical regions in which we are taught to look for pleural frictions, but along the divisions of the lobes and at the extreme base.

Of great importance is localized friction. After the subsidence of pneumonia the occurrence of friction with pain and tenderness may be the only physical signs for some little time. These frictions are very good guides as to the position of the abscess when it is between the lobes or under the diaphragm. When between the lobes the frictions are along the septa, I have found them in the anterior axillary line, either on the left side or right, when the abscess may be two or three inches above between the septa, and practically almost near to the root of the lung.

The physical signs of impaired expansion are determined by inspection, palpation, percussion, and the occurrence of the Litten phenomena. Little, if any reliance, can be placed upon the fremitus, as it is variable. If the abscess is diaphragmatic the change of percussion note begins below and extends upward. Very frequently the abscess is primarily interlobar. At points corresponding on the surface of the chest to the fissures the changed note extends along their course, but generally anteriorly it is below, laterally opposite and posteriorly below the line of division, the interlobar pus by its weight sagging in these deviations.

At first the note is over resonant or skodaic. After three or four days the quality of the resonance changes to impaired and then dullness, depending upon the rapidity with which the abscess increases in size. It is surprising how long the abscess may remain localized and of moderately small area. By this time the voice sounds are not usually different from those we find in the occurrence of small effusion.

The x ray is of some value in the recognition of the presence of an abscess. When small abscesses are present one is only able to see that a well defined shadow is present. We cannot, of course, make a diagnosis of abscess within the pleura, and can only state that there is a consolidation or effusion by the difference in the density.

When we have put together the occurrence of antecedents, well defined local symptoms, and the physical signs, we are well up to the point of determining upon the last, the final, and crucial method of diagnosis. I am thoroughly convinced that under the circumstances that I have mentioned we are not doing our duty to our patient or to ourselves if we do not seek the advice of a surgeon and ask from him exploratory operation. That such is expedient I am convinced from the number of cases that I have seen in which such exploratory operations are done without harm to the patient. I mean by exploratory operation not the mere cutting down upon the pleura, but resection of the rib. I have regretted more frequently that exploratory operation was not done than that I had resorted to it. I urge it, too, because in most instances, just as in exploratory operations of the abdomen, it is more free from danger than exploration with a needle or trocar. Against the use of the needle I might say that it is

almost impossible to localize the abscess to such an extreme degree of fineness as to direct the needle right to that point. We have had too sad an experience with failure with the exploratory needle. It is too important a matter with which to take any chances.

The surgical procedure is followed by rapid and perfect convalescence, without the long period of drainage ensuing, without the danger of secondary infection or the risk to the general health of the patient, in the development of amyloid disease, Bright's disease, myocarditis, etc. For these reasons I urge the importance of the early recognition of small abscesses within the thorax, and their speedy detection and immediate cure by early exploratory operation.

1927 CHESTNUT STREET.

SOME THINGS NOT GENERALLY KNOWN ABOUT SYPHILIS.*

By JOHN A. HAWKINS, M. D.,
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It is not to be implied from the title of this paper that its object is to present anything that is new. No matter how familiar we may be with a subject, it is possible that some things have escaped our memories. This is particularly true with medicine, owing to the multiplicity of facts and hypotheses, and the everchanging current of thought, which marks every effort made in direction of progress.

In no other disease was speculation and argument more rife than in syphilis. Much of this speculation was due to the belief that gonorrhœa, chancroid, and chancre were one and the same disease, and even John Hunter, near the end of the eighteenth century, was convinced of the "unicist doctrine" from the fact that he had inoculated himself with gonorrhœal pus and thought to have developed true syphilis. Twenty-five years later, in 1792, Benjamin Bell inoculated a number of medical students and thus proved that gonorrhœa and syphilis were separate diseases. This proof was further augmented by the many experiments of Ricord during the seven years prior to 1838. This occurred, you will note, forty-three years after the death of Hunter. The individuality of the venereal diseases is absolutely proved to us by the discovery of the gonococcus by Neisser in 1879, of the bacillus of soft chancre by Ducrey in 1889, and of the *Spirochæta pallida* by Schaudinn and Hoffmann in 1905.

To absolutely prove its pathogenic property, Koch's law ordains that in addition to certain other requisites the germ must be cultivated. So far this has not been accomplished, but the many inoculation experiments and the constant presence of the *Spirochæta pallida* in primary and secondary and many tertiary lesions, and in the lesions of hereditary syphilis, rather convince us of its pathogenic character. It is a protozoön of spiral form, of eight to twenty-four turns, with a long flagellum at each end. It is very difficult to find on the slide and

failure to find it does not disprove that the patient is syphilitic.¹

It has been found in primary and secondary syphilis on the surface of ulcerations, in papules, vesicles, lymphatic glands, in the viscera and in the blood. It has been found in the viscera and blood of all syphilitic fetuses. It has been found in a few cases of tertiary or latent syphilis.

Schaudinn found it in a few gummata. Its presence in tertiary lesions will yet prove that this stage of the disease is infectious when the spirochæta is active.

Metchnikoff and Roux have found it in syphilitic lesions of monkeys which had been inoculated with unfiltered virus, both from other monkeys and from the human.

It has never been found in nonsyphilitic lesions of the skin, mucous membranes, blood, or glandular secretions.

Acquired syphilis is a constitutional disease and belongs to the infectious granulomata, being in the same class as tuberculosis, glanders, and leprosy. When infected, removal of the chancre and neighboring glands will not check or modify the course of the disease. There is no well defined line of demarcation between the different stages and periods, but for descriptive convenience we follow the divisions, as arranged by Ricord, into three stages: primary, secondary, and tertiary.

Infection always takes place in a manner similar to vaccination, but the changes produced by the absorption of the virus is slower. This period, known as the first period of incubation, lasts about two to three weeks, and is followed by the appearance of the chancre. During the first period of incubation, and for a short period after the appearance of the chancre, there are no constitutional symptoms—nothing whatever, as a rule, to indicate an infection until the appearance of the sore, whose nature may be easily overlooked by the inexperienced, as it usually heals without antiluetic treatment.

From the appearance of the chancre to the appearance of the secondary symptoms—about six weeks—is known as the second period of incubation of the primary stage. The second period of incubation, like other infectious diseases, is often marked by all the symptoms of systemic intoxication, as malaise, mild fever, anorexia, cephalalgia (more marked at night), progressive general adenopathy, together with rheumatoid symptoms in joints and muscles, sometimes accompanied by synovial effusions.

The principal diagnostic points in secondary syphilis are the symmetrical rash, usually roseolar, enlargement particularly of the epitrochlear, suboccipital, cervical, and other superficial glands, alopecia with papules on the scalp and below the hair line on the forehead. If even a disappearing indurated scar can be found, it certainly assists in the diagnosis. To this might be added the symptoms usually occurring during the latter end of the second period of incubation, viz., malaise, mild fever, anorexia, headache with nocturnal exacerbations, adenopathy, pains in the joints with or without swelling.

¹At first I was unable to find the spirochæta in Dr. McNeely's blood. When I was returned there with a new needle, and when I was told that he had found it, I was able to find it. I am sure that the spirochæta is not a new discovery.

*Read before the American Gynecological Society, October 14, 1907.

As to the syphilides, it is well to remember that they may simulate all types of dermatoses. They are seldom or never itchy. Shortly after their appearance, the elevation of temperature usually declines. There may be, and frequently are, more than one type of eruption present, and the distribution is symmetrical. The tendency of the eruption is to arrange itself into rings or parts of rings. The coppery or ham color, due to deposits of blood pigment, is characteristic. As to location, their preference seems to be for the palms, soles, forehead, neck, trunk, the flexor surface of the limbs, most commonly, and on opposed surfaces; but rarely on the face, backs of the hands, or tops of feet. No anti-syphilitic treatment should be administered in a suspected case, until the appearance of the secondaries, except where the chancre is rapidly destroying tissue or threatening scars, as on the face, and where there is a very clear history of infection.

Under appropriate treatment the secondary lesions usually disappear entirely within three weeks, and the patient is often lulled into a very dangerous sense of false security.

The tertiary lesions may appear at any time, but are most common in the second, third, and fourth years, becoming less until the twentieth year, after which such lesions are rarely seen, but Fournier mentions cases where tertiary lesions appeared as late as fifty years after infection.

Ten years ago several authorities ventured statements to the effect that there were, at that time, approximately 7,000,000 syphilitics in the United States. To the average family physician, who will recognize probably one or two cases of syphilis in a year, this estimate may be overdrawn. It is principally the hospital and dispensary doctors, especially those who are constantly engaged in treating genitourinary, nose, throat, eye, mental, skin, and women's diseases, who see the bulk of these cases. Morrow says: "Ninety per cent. of all cases of locomotor ataxia, 75 per cent. of ocular paralyses, 80 per cent. of paresis are of specific origin. This is especially true of syphilis. Forty-two per cent. of all abortions are due to syphilis and 60 to 80 per cent. of the results of syphilitic impregnation die *in utero*." Morrow is rather conservative.

As in typhoid fever, smallpox, and other infectious diseases, some patients may have severe attacks, while others, owing to personal resistance, virulence, or quantity of the virus absorbed, may have scarcely noticeable symptoms. The latter class make up a large number of cases which are never seen by the physician and may explain the cause of many cases of angina pectoris, and deaths from so called heart failure.

According to Post, of Boston, in the United States Army records for 1895, there were 4,704 cases of gonorrhoea and 1,251 of syphilis, or 163 cases of venereal diseases per mille. In the navy there were 1,514 cases of gonorrhoea and 880 of syphilis. It is interesting to note that in the land service there were nearly four times as many cases of gonorrhoea as there were of syphilis, while in the navy there were not quite twice as many. In all, there were more than 23,000 days' loss of time due to syphilis.

In the United States Public Health and Marine Hospital report for the same year 4,100 cases of

syphilis are reported, or four times as many cases as of tuberculosis.

Tabulated reports from many cities show that 10 per cent. of skin diseases reported are syphilodermata, or more than one half as many cases as of eczema. This alone should show the prevalence of syphilis.

Of 2,962 cases in the nervous department of the Massachusetts General Hospital, there were fifty-six of general paralysis of the insane, 160 of tabes, and sixty-four of syphilis of the central nervous system—280 in all, or about 10 per cent.

Fourteen of the 150 cases at the McLean Hospital for the Insane, or about 10 per cent., were considered syphilitics. This agrees with the general belief that 10 per cent. of all mental and nervous diseases are of syphilitic origin.

At the Boston Dispensary 11 per cent. of primary lesions were extragenital. This agrees with reports from all other sources.

During the fiscal year about ended there were admitted to the mental and nervous department of St. Francis Hospital, of this city, 132 women and 90 men. Of the women there was not a single history of syphilis, but several were suspected. There were twenty-four cases of paresis (about 10 per cent. of all admissions), all occurring in the males, and of these twenty-one gave histories of syphilis, two were suspicious, but denied it, and one gave no history, but was an old alcoholic. This practically agrees with a statement made to me by Dr. Henry A. Hutchinson, of the Dixmont Hospital for the Insane, that of one hundred cases of paresis, ninety-nine patients have had syphilis. It is not generally known by the family doctor that this is a syphilitic sequel, parasyphilis seldom being seen before the thirtieth or after the sixtieth year, and usually between the ages of forty and fifty years. *Evidences of syphilis or a history of infection at some time in the patient's life should be sought for in all cases of chronic disease.* This statement is well shown in the following, which is abstracted from *Annals of Surgery*, xiv, p. 141, 1896: Dieulafoy, Paris, reports three cases of syphilitic aortitis. The patients all suffered severely from angina pectoris and two of the three denied syphilis. One of them had aortic insufficiency; the other no murmur. The third acknowledged syphilis and had aortic insufficiency. He did well for a time on inunctions, but less than a year later returned and was treated by daily injections of 2 centigrammes of benzoate of mercury, but at the fourth injection mercurial stomatitis set in. The angina pectoris then reappeared in all its fury, when he was given daily injections of 1 centigramme of biniodide of mercury in water¹ for six days. Improvement followed and shortly after a second series was begun, this time 1.5 centigrammes being injected daily. This was followed by a third series. The other two were treated in the same manner and all three cases were freed from the angina symptoms and lived in comparative comfort, one of them for more than seven years. Like paresis, angina pectoris is thought by many to be always a postsyphilitic affection, and this belief is making converts every year.

¹Biniodide of mercury is insoluble in water. To make a solution take biniodide of mercury, 8 grains; potassium iodide, 15 grains; distilled water, 1 ounce. For minims equal 1/2 grain, or 1 milligram. Inject preferably under skin of buttocks.

There is no sharp line of demarcation between secondary and tertiary syphilis from a pathological standpoint. They are simply different degrees of the same process. Clinically, this is also true, as has already been stated. Malignant syphilis, which is marked by the tertiary syphilides, may occur during the first year of the disease. Then, again, often we see secondary syphilides, especially of the plantar and palmar forms, many years after infection. It is absolutely impossible to always distinguish between the contagious and noncontagious syphilides, as cases of contagion have been reported from apparent secondary lesions occurring from four to twelve years after infection; Fournier says as long as even twenty years after the chancre, and he has collected 1,006 cases of secondary syphilis occurring after the third year, of which there were nine cases of palmar syphilides occurring upwards of twenty years after infection. This again teaches us that we should warn our patients that if they are not treated until cured at the beginning of the infection, there is no limit to the time when they will cease to be dangerous; and I affirm that syphilis can be cured and is being cured every day, but no doctor will cure a large proportion of his patients who gives each and every one of them an eighth or a quarter of a grain of the yellow iodide, three times a day, or a teaspoonful of the so called "mixed treatment" after meals.

The pathology of syphilis should, at all times, be borne in mind. All syphilitic lesions of any stage of the disease comprise an interstitial infiltration of embryonic cells, inflammatory, and of perivascular origin. All cases are affected with endoarteritis and periarteritis and endophlebitis and periphlebitis, and Levaditti has demonstrated the presence of *Spirochaeta pallida* in the walls of the bloodvessels, and especially around them.

The action of the germs of syphilis on the tissues produces syphilotoxins or toxalbumins. The absorption of these substances produces, as Fournier says, "a series of morbid manifestations which, although they have nothing syphilitic in nature, are none the less syphilitic in origin, in that they are born of syphilis and produced by its existence, and in all probability would not be produced without it." These toxins are the results of the action of the microbe on the cells, thereby producing degeneration of them which give rise to sequels of syphilis known as metasymphilitic, parasymphilitic, post-symphilitic changes or quaternary syphilis. Among many other symptoms attributed to parasymphilitis might be mentioned that peculiar pigmentary syphilide most commonly seen on the neck and known as "the collar of Venus." In this condition the skin is of a dirty or brownish gray, through which are seen spots of normal skin.

A number of fallacies have found their way into syphilology. It is believed by many that only the human is subject to syphilis, but it has been clearly demonstrated that some of the apes, and possibly other animals, can be inoculated with the virus, with the evolution of typical syphilis.

It is not generally known that syphilis can be contracted from bodies of syphilites, dead for as long as twenty-four hours. Many well authenticated cases of infection from this source are on record. Many persons are not aware that syphilis

can be acquired more than once, but the fact is true. Diday, in 1862, reported twenty-seven cases, Hutchinson has observed two cases, Berkeley Hill reported one case, and many others have likewise. In 1897 I saw a man with the late Dr. Thomas McCann, who had a chancre on the nipple, with secondaries, who gave history of typical syphilis more than fifteen years before. This man took as high as eight grains of the protiodide, three times daily for a long time, and became stout on it. He stated that in his previous infection he had taken very large doses of mercury. Reinfection after hereditary syphilis has been clearly proved numberless times. This has been named "binary" syphilis by Tarnowski. Finger believes that immunity ceases about the age of puberty. It is possible for a child born of a syphilitic parent, who shows signs of its recurrence after its birth, to be free from syphilis at the time of its birth and to contract it in early life in the usual way.

The prognosis in ordinary secondary syphilis is good. In the malignant form it must be guarded because these patients, at times, cannot take mercury in sufficient doses. A peculiar condition is sometimes observed of patients who were not energetically treated in the early stage, responding fairly well to treatment in the late stages. The reverse of this is also true. Old persons in whom arterial degeneration is expected make very little progress under treatment. The progress of parasymphilitic neuroses, tabes, paresis, etc., are occasionally retarded by judicious treatment, but the lesions can never be cured.

In the treatment of this disease, mercury has been used since more than 2,000 years before the beginning of the Christian era. When properly used it may be considered a specific. *No two patients will take the same dose of a drug and get exactly the same effect.* This is a point too often overlooked. I have seen the gums touched in a patient taking one grain of yellow mercurous iodide per day. On the other hand, it is not uncommon to see patients thrive on from 20 to 50 or more quarter grain tablets a day. The patient must be given all he can take without poisoning.

There are better forms of mercury than the protiodide, as it is prone to produce stomatitis and gastrointestinal distress, in some patients, long before the maximum dose is reached. For this reason gray powder, blue pill, or the red mercuric iodide is better for internal use. Deep muscular injections of gray oil or salicylate of mercury is really the best treatment, but many patients will not tolerate this, owing to the pain of the operation or the fear of after distress. In patients who cannot take large enough doses by mouth, the injection method often produces most remarkable results after but one or two treatments. This is also true when the lesions do not yield to internal medication. The advantage of it is that you have your patient under control; you know how much of the drug he is getting, and he needs to take his medicine but once in seven to fourteen days. Mercury has been used in the urine thirty days after a single injection. Inunctions are valuable, but they are too filthy to use on fastidious patients.

For the late lesions, the most good has been derived from the daily hypodermatic injections of the

biniodide of mercury in a watery solution. It is well to remember that mercury acts best on the younger products of syphilis, but not on the scleroses.

The effects of mercury on *Spirochaeta pallida* was to render them scarce seven days after an injection of gray oil; a week after the second injection they had almost disappeared.

The iodides are not at all indicated in the early syphilides, and their use is limited in the latter stages. This fact is becoming better understood every year. Iron and the bitter tonics have their uses, as indicated by the symptoms. So also with the so called vegetable alteratives. Experiments in serotherapy have proved of no value, either as a prophylactic or curative agent. Experiments with different sera showed that some were inert, while others produced chancres.

The points I wish to emphasize are: That all diseases due to nontraumatic arteritis, as paresis, tabes, true angina pectoris, aneurysm, etc., are due to syphilis.

That they are parasymphilitic or quaternary manifestations and are seldom amenable to treatment as usually exhibited.

That the iodides are of little value in the class of cases just mentioned, and if any benefit is expected, it must be obtained through the use of mercury, preferably administered in the form of hypodermatic injections of biniodide of mercury.

That no other disease is more often maltreated than syphilis.

That secondary syphilis, if energetically and intelligently treated, is positively curable.

That mercury, and not iodide, is the drug to use in the early stage, and is often the drug for the later stages. But to get the effect, it must be given in increasing doses until the point of tolerance, and then continued in tonic doses intermittently, at least two years. In the early stage, deep intramuscular injections are most effective, the salicylate of mercury being preferred.

That two years of active intermittent treatment, after disappearance of the secondary syphilides, will assure a cure, as proved by a number of women and their offspring in my own practice¹.

That syphilis is far more prevalent than the majority of physicians suppose, and is frequently overlooked by the family physician through his lack of familiarity with its various phases, with consequent disastrous results to the patient or his progeny.

FULTON BUILDING.

TREATMENT OF FRACTURE OF THE PATELLA.*

BY GEORGE W. ELY, M. D.,
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The best treatment for all varieties of fracture of the patella has not, as yet, been formulated. Innumerable methods have, from time to time, been exploited, each hoped to be the ideal, but time and experience have shown their defects.

I have no method which will be the best for all cases, but I think in selected cases that it is the best so far described.

It is not my purpose to detail and review all of the many methods practised, but merely to describe the manner in which I have been treating suitable cases for the past few years.

The objects to be kept in the foreground in treating these cases are important. First, we must recognize that there is a definite mortality connected with fractures of the patella, no matter what form of treatment may be used. Therefore, the one which shows the lowest mortality should, all else being equal, be the method of choice. Second, the restoration of the function of the joint. There is probably no more important joint in the body than the knee, to the working man particularly, and if we can assure him a useful and substantial joint we have accomplished a great deal. Third, the shortening of the period of recovery is of the greatest importance in a great number of cases. It is indeed the working man, with a family, who is most frequently the recipient of such an injury. A few weeks' shortening of his morbidity period means an item worth considering.

Generally speaking, there are two methods of treating fractures of the patella: The operative and the mechanical or nonoperative.

The objections to the nonoperative treatments are that they are unscientific, indefinite, uncertain, and expensive, both as to the time lost and the medical attention, while the results are unsatisfactory to both the patient and surgeon. It is generally conceded that practically never is a bony union secured by any of these methods. When a so called good result is obtained, that is, a fibrous union of the fragments, there is a flaillike joint, with which the patient can extend the leg, but which is very unreliable to stand upon, making the strain upon the opposite leg so great that it not infrequently happens that the other patella is fractured, under conditions which would not, with a good joint, have resulted so seriously.

There are objections as well to the operative methods. However, I feel that the advantages so far outweigh them that I am justified in recommending operation, in suitable cases, in preference to all others, particularly if the patient is a working man, or otherwise reliant upon a firm, dependable joint.

Should the patient be old, feeble, sickly, or the subject of constitutional disease, making the administration of general anaesthesia dangerous, or where shock might jeopardize life, then resort should be had to the expectant treatment, unless spinal or local anaesthesia could be used.

We must recognize that the opening of the knee joint is one of the most dangerous procedures known to ordinary surgery. It is far more dangerous, relatively, than is the opening of the abdomen. Many times it has resulted in death, and the cases are not few in which the loss of a leg has been the unfortunate outcome, while many an ankylosed joint has been an eyesore to the surgeon. It is evident, then, that it should be the work of experienced surgeons only, and that, under the most rigid enforcement of aseptic technique.

While surgeons all over the world have, for some years, resorted to the open methods for treating fractures of the patella, it has been but comparatively recently that the real causes of the only too

*As soon as the way of telling what a syphilitic patient is cured my rule is to advise the patient to avoid possible recurrence by having the "best" treatment possible as long as he lives. A small article appeared in the columns of the Medical Journal, October 28, 1907.

frequent failures to meet the conditions have been recognized.

It has been demonstrated, experimentally and practically, that the power of extending the leg is not alone resident in an intact patella. The leg can be fully extended without a vestige of the patella being present. The greater part of this function is supplied by the lateral ligaments of the patella and other expansions of the capsular ligaments of the knee. It has also been proved that these lateral ligaments are, as a rule, torn at the same time that the patella is fractured. Therefore, it is of the utmost importance that these powerful adjuncts to a properly functioning leg be restored to as nearly a normal condition as possible.

That it is manifestly impossible to bring these parts into accurate apposition without a positive knowledge of the conditions present, is easily apparent to any one. How is such knowledge to be obtained if not by a free exposure of the parts by open incision?

We may take it for granted that if all of the divided structures are returned to their normal relations, and held there until union has taken place, we will have a normal joint action, providing there has been nothing done to the joint, in the process of reposition of the parts to jeopardize the object for which we are working. To unite these torn parts in a proper manner would seem to be a comparatively simple matter. It is. But the means heretofore employed, in the majority of cases, have been at fault, both as to the suture material employed and the manner of its employment. I refer especially to silver wire, as being the most frequently used, but will include all nonabsorbable materials; and to the habit of suturing the patella directly. This is unnecessary, generally speaking, and is one of the most frequent causes of the failures to get the desired result, bony union and a movable joint. The other common reasons for failure are sepsis and the irritation of the nonabsorbable materials used for suturing. When we can overcome these defects and accidents we ought to get nearly perfect results in suitable cases. This, I believe, to be possible.

The means for overcoming these objections are easily secured and always at hand in hospitals. The details of the aseptic technique need not be entered into here any further than to insist upon the most scrupulous care in the preparation of the operative field. As to the exclusion of the nonabsorbable suture materials, that is easy. We have suitable and reliable materials in kangaroo tendon and properly prepared catgut. That it is not necessary to suture the bony fragments can easily be demonstrated in any case in which the parts are exposed or upon the cadaver. When the soft parts, the patellar ligaments, capsular ligament, and the periosteum, have been firmly united, and there is nothing intervening between the bony fragments, as blood, synovial membrane, or detached pieces of bone, the portions of the fractured patella will be in accurate apposition and will thus be held until union will have taken place and motion begun.

When the patella has been sutured directly with nonabsorbable material we have placed obstacles in the way of securing the objects for which we aim.

There has been additional injury inflicted upon the patella with destruction of more periosteum, a denuding of a greater part of the patella than is necessary, and we have left in the joint an irritant which will cause serious after trouble, possibly necessitating a second operation to correct the faults of the first, and an unnecessarily prolonged period of morbidity.

The objections to the use of silver wire are so well known that it is not necessary to detail them.

In treating such fractures for the past few years I have endeavored to exclude these objectionable features; how well I have succeeded, I will let a few cases demonstrate.

The operation consists in opening the joint, cleansing it of all blood and debris, and bringing all of the separated surfaces together by suture of the soft tissues only and with absorbable sutures.

There has been considerable discussion as to the proper time to operate in these cases. Some have advocated waiting until all signs of traumatism have disappeared, and others have used varying shorter periods subsequent to the receipt of the injury. For my part, I cannot see any possible objection to operation as soon as the parts have been properly prepared—in fact, I believe the sooner it is done the better the results will be. When immediate operation is done, the time for passive motion subsequent to the receipt of the injury will have been materially advanced, meaning a quicker recovery and better final results.

Technique.—An U shaped incision is made, with the convexity either up or down, dependent upon the conditions present in the individual case. By this incision the entire field is easily and freely exposed, there is ample opportunity for drainage, should this be deemed advisable, and the scar, while large, is well away from the line of suture of the torn structures and the fracture line. When the joint is opened, all of the clots, spiculae of bone, and other possible foreign substances are removed, the joint is irrigated with warm sterile water or normal saline solution. The tears in the lateral patellar ligaments are then sewn, the periosteum united over the line of bony apposition, and then, to make the union closer and more firm, a suture is thrown around the entire patella beneath the soft parts and tightly drawn. By this means, should there be a comminution of the bone, all of the fragments will be brought into accurate and firm apposition and bony union be sure to result, providing infection does not follow.

The skin wound is then sutured, leaving a few strands of silkworm gut in the joint and protruding from one of the angles of the wound to provide for the escape of serum and synovial fluid which will accumulate within the next twenty-four or forty-eight hours.

The wound is then dressed in the usual manner, the leg immobilized by a posterior splint and the patient put to bed.

At the end of twenty-four hours the wound is dressed and the silkworm gut removed, if thought advisable.

In two weeks passive motion is begun, first by a gentle moving of the patella from side to side, then by gentle flexing the knee, each day a little

more, and within three to four weeks the patient may be allowed to walk.

Cases.

CASE I.—C. E., age twenty-seven, brakeman on the Baltimore and Ohio Railway. On the night of January 7, 1906, he was held up by footpads, thrown down, and kicked over the right patella. When brought to the hospital, he had a marked effusion into the joint, which persisted until the time of the operation, eleven days later, this length of time being necessary to get his consent for operation.

It was a very easy matter to make out the fracture, and seemingly it would have been easy to get bony union in this case with mechanical treatment, as it was possible to obtain decided crepitus, indicating that the fragments were in direct apposition without the intervention of clots or synovial membrane. When the joint was opened it showed how easily we can be led astray by the accepted signs, as it was found that while there was contact of the fragments it was merely at the sharp edges of two of the inverted fragments. All around and about the fragments were numerous clots of blood, and the pieces of the patella were floating in synovial fluid, a condition which precluded positively the obtaining of bony union. The joint was thoroughly irrigated with a normal saline solution, the soft parts united by continuous catgut sutures, and a circular suture of catgut was thrown about the entire patella. Although the patella was comminuted, this last suture brought all of the fragments into direct apposition in their normal relations. The skin wound was closed with silk-worm gut and two strands of the same were left into the joint, emerging at the outer, upper end of the suture line for drainage. The drainage was removed at the end of twenty-four hours, and the skin sutures removed at the end of ten days, with perfect union throughout.

Passive motion was begun in the patella at the same time that the skin sutures were removed, gradually increased each day until the fourteenth, when the leg was slightly flexed.

He was discharged, cured, at the end of four weeks, with a very movable joint. Soon after leaving the hospital he was able to flex and extend the leg as well as he could sit fellow. He has been following his occupation of brakeman ever since, and has not experienced the slightest trouble from the knee.

CASE II.—M. F., laborer, age thirty-five. His injury was also caused by direct violence. He was brought to St. Francis Hospital, June 6, 1907, the day of the accident, and was operated upon the next day.

The usual incision was made, and numerous clots and free blood turned out from the joint. The joint was washed with saline solution, and the same treatment as was given the other patient was given in this case, it being almost an exact reproduction of the first fracture, the patella being in three pieces. The only difference in these cases was the time of operation. The former patient was not operated upon until eleven days after the receipt of the injury, while the latter was operated upon the next day.

A comparison of the results in these two cases will demonstrate that it makes but little difference in the time for operation, unless the case be delayed long enough to come under the class of ununited fractures.

Unfortunately, for a more thorough trial of the method I have not had, as yet, a case of nonunion to try it upon, therefore I am not prepared to say what the results might be. I do not doubt, however, that they will be equally as good, providing it is possible to reproduce the original conditions due to the injury and bring the fragments into direct apposition and retain them there.

These two cases are all that I can show, for others are not now available. These, however, are sufficient to demonstrate that perfect bony union and a movable joint can be secured in suitable case without the suturing of the patella itself.

THE CORPORATION AND THE MEDICAL WITNESS.

By W. H. PETERS, M. D.,

Providence, R. I.

The recent exposure, printed in a popular magazine, of the methods used by a gang of swindlers who brought suit against street railway companies for alleged injuries, and who were awarded damages in many instances, shows plainly that the dishonest plaintiff, lawyer, and physician are a combination that should cause a corporation great uneasiness.

Many fake cases are brought every day by individuals who are awarded damages by an intelligent jury on the testimony of the physician. It is my opinion that the physician plays the most important part in these farces. It is true that he may be perfectly honest in his opinion in many crooked cases. For instance, a dishonest plaintiff is sent by the lawyer to a reputable physician for examination as to the injuries supposed to have been received in an accident. After getting the history of the accident the victim is asked various questions as to symptoms. He usually complains of great pain in some part of the body, loss of appetite, weakness, dizziness, headaches, insomnia, inability to work, weak kidneys, and numerous other ills, without any external evidences of an injury. On examination it is absolutely impossible for the physician to determine whether the statements made are the truth or not, and only by repeated examination and careful observation is he enabled to arrive at a definite conclusion. As a rule, the physician makes but few examinations and from the first forms an opinion from the plaintiff's statements which is in perfect harmony with the views of both plaintiff and counsel.

Then, again, the plaintiff when on the stand presents a picture of great mental and physical suffering, and the jury, which knows little of the symptoms of injuries, especially to the nervous system, is easily led to believe the statements made by the plaintiff and his physician.

The jury is often also made to believe by the plaintiff's counsel that the physicians for the defendant are paid yearly salaries by the corporation. Whenever this is proved, and in many cases it is a fact, it tends to bias the jury regardless of the merits of the case.

The public hear and read of so many cases in which large damages are awarded to individuals receiving trivial injuries that many are ready to rush into court with suits for damages on account of injuries that were never received. No external evidence is necessary in these cases: merely subjective symptoms are required to make a diagnosis of that medicolegal bugbear "neurasthenia."

Defendant corporations are in most cases at a great disadvantage from the start in damage suits, especially when a dishonest lawyer joins hands with a dishonest physician.

The average jury, selected to listen to the testimony and assess damages against a corporation, is generally made up of men opposed to the power granted to corporations and trusts by the city and state officials. Therefore, the jurors have little

sympathy to extend and are prejudiced, to a certain extent, against the defendant company before the testimony has been given. The lawyers defending the corporation often lose sight of this fact and make matters worse by not being diplomatic and tactful. They are apt to bully the plaintiff's witnesses and to further prejudice the jury by their pugnacious and sneering manner, so that the sympathy is all with the plaintiff. The average jurymen does not enjoy seeing the witness bullied.

It must be admitted that at least a few of the damage cases brought against corporations are of a fraudulent nature, and the "shyster" lawyer and dishonest doctor are responsible for many cases that otherwise would die a natural death. Unfortunately, counsel for both sides are usually deficient in medical knowledge and the "coaching" given to both plaintiff and his counsel by physicians has the effect of complicating matters to such an extent that the jury is oftentimes greatly confused. In the majority of cases the symptoms exhibited by the plaintiff are subjective, and the medical terms employed, such as anæsthesia, hyperæsthesia, reflexes, etc., are Greek to the average jury. The jurors think from the sound of the words that serious results must follow such symptoms, and it is surprising how often these symptoms occur in trivial cases. The verdict and amount of damages in these cases depends almost entirely upon the testimony of the medical witness. He has generally a better knowledge of human nature than the lawyer, on account of his more intimate relations with people, and he knows the effect on the average mind of the use of such terms. He also realizes more fully than the lawyer the feeling against corporations in general, as referred to in the preceding, and if, in addition, he possesses a smooth tongue and convincing manner he can often succeed in influencing a jury.

There are two questions that are almost invariably asked of the plaintiff's counsel in a suit for damages which carry a great deal of weight with the jury, as follows:

Question 1. "Provided that the plaintiff in the case had been perfectly well before and up to the time of the accident, what is your opinion as to the cause of his present condition of mental or physical suffering?" The answer to this question is always, "The accident," whereas, in many instances, the patient is malingering and recovers immediately upon receiving compensation for the alleged injuries.

Question 2. "Do you think he will ever entirely recover from the effects of this accident?" This question is usually answered as follows: "The plaintiff has probably sustained injuries of such a nature that he will never entirely recover."

I do not mean to say that the physician answering these questions in this way is always influenced by or interested in the plaintiff, but there is no possible way, if the plaintiff is dishonest, to ascertain if the condition existed prior to the accident. On the contrary, it is often the physician's honest opinion, but he is deceived by the plaintiff's statements. In a large percentage of fake cases the diagnosis is frequently "neurasthenia," caused by a severe shock or injury to the nervous system. It is surprising how many people allege to be severely injured for life by a very slight accident. Of course, there are genuine cases, resulting seriously from

apparently trivial causes, but a great many of these neurasthenia victims are fakes, and their tremulous nerves are greatly soothed by the check of the defendant corporation, the amount of soothing depending entirely upon the size of the check. Almost every newspaper one reads contains an account of a trial against a corporation in which the plaintiff is awarded damages, the amounts varying from hundreds to thousands of dollars. In the State of Rhode Island during the past year \$150,000 in judgments was awarded to plaintiffs against corporations in damage suits.

In regard to the remedy necessary for fighting these fake cases, it would seem that the defendants should not call as witnesses physicians employed by them at a yearly salary, or engage the same physicians to examine every case following an accident. It is too often evident that the corporation does not intend to pay any damages, whether the injury is genuine or not, and their physicians are obliged to keep this fact in mind or else seek other fields for the employment of their abilities. A disposition on the part of the corporations to see justice done would go a great way to remove the prejudice now existing against them.

When the case comes to court, as unfortunately for all concerned is the general rule, the defendant's lawyer should treat the plaintiff's witnesses with deference. They should not endeavor to impress the jury that the medical witness is incompetent. Some of the most prominent men in the medical profession make very poor witnesses and they are easily confused on cross examination. It does not help the defendant's cause to held up to ridicule a man who has the respect and confidence of the entire community, and if this man should happen to have a patient on the jury it would make matters still worse.

Any lawyer makes a mistake in allowing a physician to sit beside him and "coach" him during the testimony of the physician for the opposite side. The physician on the stand is conscious of the fact that the lawyer's questions are formulated by the coaching physician. These circumstances tend to irritate the medical witness, and his answers to the questions are apt to be stretched and more in favor of the plaintiff, even though he be expected to testify to nothing but the truth and facts of the case.

It is also poor policy to employ expert witnesses who deliver long discourses on accidents and their results, using scientific medical terms that are not understood by the jury. Many jurymen are bored by court proceedings and become too tired to take any interest in matters not easily understood.

It is greatly to be hoped that the time will come when these damage suits will be decided upon their merits and not upon technical subterfuges of any description.

ANIMAL THERAPY IN TUBERCULOSIS

By GEORGE H. SHEENY, M. D.

Chicago, Ill.

The response to the article published in the article by Dr. Charles R. Smith in the *New York Medical Journal*, under the title "Animal Therapy in Tuberculosis," encourages the author to report the results of his

servations made by himself and other physicians during the past five years, the immunizing agent being, as Dr. Ross suggested, bovine cattle, although immunity was invoked through other channels. It was the good fortune of the author, together with Dr. Edward T. Smith, of Buffalo, N. Y., to observe the results of the experiments instituted by Professor Behring, at Marburg University, six years ago, for the purpose of rendering bovine cattle immune to tuberculosis. The success of these efforts has since become history in the worldwide crusade against tuberculosis. Behring succeeded in producing artificial immunity in cattle which has satisfied the most rigid clinical tests (1). He perfected a technique which is endorsed by scientific veterinarians and has been employed with success as a practical measure by large stock raisers and proprietors of dairy herds in southern Germany, Hungary, Bohemia, and the United States.

Immunity is conferred upon bovine cattle in the following manner: Inoculation material consisting of dried tuberculous bacilli, in a sterile emulsion, is injected into the circulation of the animal, through the jugular vein. In the preparation of the emulsion the bacilli are carefully triturated to avoid the entrance of coarse particles into the blood current. Before using, the inoculation fluid is slightly warmed to approximate the temperature of the blood. The treatment is usually completed in two injections, separated by an interval of twelve weeks. In the first injection one unit (0.004 gramme dried bacilli) is used, in the second the dose is increased to five units (0.02 gramme). The most suitable age for the initial inoculation is three months. After repeated examinations, at stated intervals, it has been absolutely proved that these animals do not become tuberculous when intimately associated in infected stables with other cattle with open tuberculous lesions, and that they cannot be experimentally inoculated with tuberculosis.

At a later date, while studying at the Pasteur Institute in Paris and a pupil of Professor Metchnikoff, the author became profoundly impressed by the doctrine of phagocytic defense, so ably expounded by that eminent scientist. Believing that the immunity transmitted to the bovine cattle through the inoculations of Behring, resided in the lymphocyte, the author conceived the idea of utilizing the lymph collected from the thoracic duct of the immunized bullock in treating patients suffering from tubercular infection. In a monograph published some time ago (2) the method employed by Dr. Smith in preparing this lymph for hypodermic administration is described. During the past five years this lymph has been administered to tuberculous patients, and observations have been made by the author, Dr. Smith, and other physicians whose experience and location offered superior facilities for scientific experiments and accurate observations. These observations may be summarized as follows:

1. Injected into the healthy organism no febrile reaction is observed to follow the administration of the lymph and no special influence is exerted, excepting that which follows the administration of a simple cell tonic;

2. When injected into the tuberculous patient, at first there is a period of intoxication, characterized by a lowering of the antibacterial power of the

blood cell. This negative phase is more or less marked and prolonged, according to the dose of lymph injected. If the dose is large, the negative phase may be revealed by a rise of temperature and a reaction of the organism. If the dose is small, the negative phase may be accompanied by no clinical signs whatever. After the negative phase there comes a positive phase, which is characterized by an increase of the antibacterial power of the blood. This phase represents an increase of resistance against intoxication. The curve, which represents the variation in the opsonic influence on the blood, often rises suddenly and descends at first quite rapidly and later more slowly. The patient experiences a feeling of well being and of physical vigor at the time when the positive phase reaches its apogee. These "negative and positive phases" of opsonic influence may be aptly called the ebb and flow of the tide of immunity. When immunity seems to have been acquired, the "negative phase" entirely disappears, and the results following injection are identical with those observed in 1.

3. A decided tendency to approach and maintain a normal temperature, whether this has been conspicuously above or below normal.

4. Night sweats, which had previously accompanied fever, are absent or materially modified.

5. Marked stimulation of the secretions, as manifested by facilitating expectoration, where this is scanty and tenacious. Consequent amelioration of cough. The alvine and urinary discharges display a like stimulation.

6. Where hæmorrhages have occurred from lungs, previous to administration of lymph or where cavities are present, cicatrization is encouraged by a process of lymphocytosis (?) directed toward the seat of the lesion. Concomitant with this condition is an increase in weight and bodily vigor.

In a patient treated by the author four years ago, when a cavity existed in the upper lobe of the left lung, cicatrization is complete at the present time, and patient is in robust health. Another patient, a nine year old girl, with cavity in the upper lobe of the left lung, treated two years ago, shows perfect cicatrization at the present time.

The author need scarcely add that he regards the tuberculous bacillus one and the same germ, whether found in the human subject or among his more humble neighbors, being modified in its character only by the organism of its host. This we believe to be established beyond cavil (3). Even those who verbally denounce this belief tacitly endorse it by subscribing to every effort put forth to prevent tuberculous contamination in the human subject through the use of infected milk and meat.

At the present time the author is engaged in making systematic observations upon the opsonic influence of this antituberculous lymph upon the blood of tuberculous patients of which he hopes to soon make a report.

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3. See report of Nocard. *Annales de l'Institut Pasteur*, t. p. 504, Paris, 1887, t. i. o. 501.

Therapeutical Notes.

Operations in Cases of Hæmophilia.—At the recent French medical congress, held in Paris from October 14th to 16th, among the subjects discussed was that of hæmophilia. (Report in *Journal de médecine de Bordeaux*, October 27, 1907.) Carrière, of Lille, called attention to the fact that the condition, characterized by tendency to hæmorrhage, and insufficient coagulating power in the blood, is the consequence of several pathogenic factors. There are cases due to insufficiency of plasma, and others to the presence in the blood of anticoagulating substances; some are due to a deficiency of lime salts, others to vascular disorders. Labbé made a distinction between isolated sporadic hæmophilia, and hereditary hæmophilia, the latter being the far more serious in character. Sabrazes insisted on the importance of taking great care of the young hæmophile, bringing him up, as it were, "wrapped in cotton." He stated that surgical operations might be performed without fear, among hæmophiles, if we take the precaution, as recommended by P. Emile Weil, to inject, under the skin, or into the veins, 20 c.c. of fresh blood serum, taken either from man, the horse, or rabbit, or even antidiphtheritic serum. This procedure may also be resorted to every three months as a curative measure.

Gastric Hæmorrhoids and Simulated Gastric Ulcer of Biliary Origin.—Gilbert and Lereboullet (Proceedings of the French Medical Congress, *La Tribune médicale*, November 2, 1907) have described, under this title, a syndrome, which they have observed in the course of diseases of the biliary passages, characterized by (1) the association of hæmatemesis, with or without melæna, and (2) gastric pain, more or less severe. The diagnosis of ulcer of the stomach is usually made in these cases, although in reality no true gastric ulcer is present, but simply ulcerated gastric varix, as is shown by autopsy. To the cases published by them in 1902 Gilbert and Lereboullet have added several of more recent date in their report, and they point out, in conclusion, the elements of the clinical diagnosis. The pains, resembling those of hyperpeptic dyspepsia, are ordinarily early, but only rarely do they come on immediately after a meal. They are also very variable in intensity. The hæmatemesis ordinarily consist of venous blood, of a dark red color, and never of arterial blood; sometimes they are quite black, and these cases must be distinguished from those of cancer of the stomach, for which they may be mistaken (pseudo carcinoma of biliary origin). There are also cases in which melæna is the only symptom present, and which might be thought to be due to duodenal ulcer. These hæmorrhages are the result of a portal hypertension, and are often associated with other symptoms arising from the same cause, viz., more or less enlargement of the spleen, hæmorrhoids, sometimes supplementary circulation, and slight ascitis. In some cases there may be observed some relation apparently existing between these symptoms, e. g., the splenomegaly notably diminishing following gastric or hæmorrhoidal hæmorrhages. To these symptoms may be added others properly belonging to the causal biliary affection (cholelæmæterus, icterus, etc.), but while

sometimes evident (biliary cirrhosis, gallstone, etc.), it is often latent, and easily unrecognized. These cases are very much like those in which the cause of the hæmorrhages is a venous cirrhosis of the liver, which also may be latent (as in hypertrophic cirrhosis, alcoholic cirrhosis), and in which the confounding with gastric ulcer is equally frequent. In the cases of disease of the biliary passages or of venous cirrhosis examined post mortem by the reporters, the gastric lesion consisted of a slight erosion situated on the line of the great curvature, a few centimetres below the cardiac orifice. This is connected with a dilated vein, belonging in these different cases to the same group of veins, which are tributary to the left gastroepiploica. The histological examination showed the existence of a true, ulcerated gastric hæmorrhoid. The existence of this lesion being explained likewise by the presence of intrahepatic lesions, possibly light, but sufficient to profoundly disturb the portal circulation. This idea of a pseudogastric ulcer dependent upon biliary affections has a real clinical importance, because it enables us to avoid committing a number of errors, which might lead to a surgical intervention which would be both useless and harmful.

Solution of Caffeine and Camphor for Hypodermic Use.—A. Claret (*Bulletin Général de thérapeutique*, October 23, 1907) reports a case of œdema of the lungs and albuminuria; the patient, when apparently in a dying condition, received an injection of caffeine and camphor, and five hours later was much better, dyspnea was relieved, and expectoration became free. On subsequent days the injection was twice repeated, and the patient finally recovered. No other heart tonic was employed. The formula employed was the following, devised by Claret:

R Glycerin (sterilized), 30 c.c.;
Add:
Caffeine,
Sodium salicylate, 0.25 gramme;
Distilled water, q. s. ad., 1.0 c.c.;
And finally add:
Ten per cent. alcoholic solution of camphor, 1.25 c.c.

M.

This formula represents in five cubic centimetres twenty-five of the usual doses of camphor and caffeine. The solution is placed in a small flask, which is kept sealed. If after a time a precipitate occurs it immediately disappears when the solution is heated by plunging in water at 50° to 60° C. The following conclusions are drawn: 1. This solution of caffeine and camphor responds to the indications common to these agents, in infectious diseases and in cardiopathies. 2. It gives the best results in these cases, which could be expected from the association of these remedies. 3. The pain of the injection is moderate and of brief duration. In the author's experience no abscess has followed one of these injections. For these reasons he recommends this combination for general use, which he originated in 1905.

Potato Starch as a Food for Diabetics.—Marcel Labbé (*La Presse médicale*, October 14th) and René de Thérapie médicale (*La Presse médicale*) has shown by experiments that starch from the potato is the best supported of all the usual carbohydrates, as in six cases out of seven it was better tolerated

than bread. The potato starch is much better borne than sugar of milk, and has real superiority to oat flour and leguminous food. In equal weights, it contains two and a half to three times less of carbohydrates than bread, and it may be given to a diabetic to whom bread is forbidden. If he takes only one potato at each meal, he will not have, on the average, more than forty grammes of starch. It is, moreover, much easier to suppress bread entirely than it is to greatly reduce the quantity, and its substitution by an aliment, easily tolerated even in large quantity, is generally well accepted. With a thousand grammes we give only two hundred of carbohydrates, which is sufficient. The potato, besides, has the advantage of permitting the absorption of large quantities of fat, and may be prepared in many different ways. Potato, therefore, may well enter into the diet of diabetics, but not as a specific or curative regimen. Whatever may be its advantages over bread, we should never lose sight of the well founded principle that in the food of the diabetic the quantity of hydrocarbons is of greater importance than their quality.

The Employment of Radium in Dermatology.—Wickham and Degrais (Proceedings of French Medical Congress, in *La Clinique*, November 1, 1907), in treating cases of tuberculosis of the skin with radium, succeeded, by commencing with short exposures and gradually prolonging them to seven or ten hours, in obtaining smooth, soft cicatrices in cases of tuberculosis of the skin, in cancrroid of the skin, vascular nævus, and in a pulsatile tumor of the forehead in an infant six months old. Photographs were also presented in support of the value of radium in practice of dermatology. Dominici and Barcat, in a communication on the histological reactions of radium, reported the following results: Irradiation transforms the papillary layer and the derma into an embryonic connective tissue, without producing either diapedesis or phagocytosis, or any inflammatory phenomenon. The subepithelial portion of the skin acquires, in its totality, the structure of an embryonic angiomyoma, which therefore evolves into the fibromatous type. It is a common mistake to refer the cure of certain inflammatory conditions and of certain tumors of the connective vascular tissue, by the action of radium, to the destruction of these morbid tissues, a destruction followed by phagocytosis; they should rather be ascribed to modifications of cellular evolution, under the control of physical phenomena.

Prolonged Nervous Anuria.—Blum and Comte (*Revue de thérapeutique médico-chirurgicale*, November 1, 1907) report a case of a girl of eighteen years, who was, during a nervous attack, taken with anuria, which lasted for four months, during which time the patient did not spontaneously urinate. The catheter, passed every two or three days, withdrew only 20 to 30 grammes of urine. On one occasion, after five days, there was 150 grammes. She, therefore, excreted only about 30 grammes (one ounce) a day. At the beginning the attack of anuria was accompanied by paraplegia, which lasted three months, and which was cured by suggestion. Nothing in the way of treatment was of avail to put an end to the anuria, neither diuretics nor electricity nor suggestion. The anuria ceased spontaneously

in a gradual manner at the end of the fourth month. During the whole period of the attack the patient absorbed three fourths of a litre of liquid daily; she presented no evidence of vicarious elimination, no vomiting, no sweats. She had anorexia and constipation, but not emaciation. Careful supervision excluded simulation and deceit. The reporters offer the explanation that there was in this case a slowing down of the cellular life, similar to that which occurs in hibernation, and to the cases of lethargy with fasting.

Distribution of Arsenic in the Body Following Acute Intoxication by this Drug.—H. Lescœur (*Le Nord médical*, September 1, 1907) reports an analysis of the several organs of a woman who was treated by an empiric for cancer of the breast, and who died soon afterwards with symptoms of acute poisoning. In one hundred grammes of each organ the following quantities of arsenic were found: Mammary gland, more than 3 milligrammes; small intestines and blood, about one milligramme; lungs, heart, liver, and stomach, about 0.2 milligramme; and brain, only traces. The treatment had consisted in making incisions around the tumor and introducing therein an arsenical preparation consisting of artificial orpiment, arsenic sulphide, a very toxic preparation as found in commerce, since it contains a large proportion of arsenious acid. On the contrary, the mineral orpiment, such as is found in nature, is only slightly active, and, in fact, almost inert; it passes through the intestinal tube almost without change or dissolving. This enters into a great many prescriptions of old pharmacopœias, and the author warns against the use of old formulas containing the mineral orpiment, which would now be made up with artificial orpiment if sent to the druggist.

Prevention of Antitoxine Rash and Improved Salt Solution.—Netter has for a long time substituted the following, known as Howell's solution, in all cases when an artificial serum was required:

1) Pure distilled water,	1,000 grammes;
Sodium chloride,	7.0 grammes;
Calcium chloride,	0.26 gramme;
Potassium chloride,	0.30 gramme;
Sodium bicarbonate,	0.20 gramme.

One of the properties of the calcium chloride is to prevent the eruptions which are consecutive to injections of antitoxine in diphtheria. Thus, to a child, on the day of injection, one gramme of calcium chloride, dissolved in syrup of mint, may be given during the day. If the quantity of antitoxine exceeds 40 grammes, the calcium chloride should be increased.

The Method of Bier in Gonorrhœal Rheumatism.—Harvier, in a communication to the French Medical Congress recently held at Paris (*La Clinique*, November 1, 1907), reported excellent results which he had obtained by the induction of artificial hyperæmia by Bier's method in eight cases of gonorrhœal rheumatism. It exercises an action which is at the same time analgesic, resolutive, and autothermic, both in acute and in subacute cases. The analgesia thus obtained permits early mobilization of the joints and thus prevents consecutive ankylosis or stiffness. In chronic forms its resolutive action is manifest.

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THE NAVAL MEDICAL SCHOOL.

Rigid as is the examination of candidates for appointment on the medical staff of the navy, it is very properly recognized that it gives but an inadequate idea of the actual fitness of a young man for naval service. Observation of the appointee during his career of several months in the Naval Medical School supplements the entrance examination most usefully and enables the higher officers of the corps to rate him more accurately than they could otherwise do within a reasonably short period and assign him to duty accordingly. This function of the school, which is set forth in the surgeon general's recent report, seems to us quite as important as that of familiarizing the young assistant surgeon with the ways of the navy, if not more so.

Another very useful part played by the school is that of refreshing older medical officers in special features of their professional knowledge on their return from long absences at sea or at distant posts, where they have seldom had at their disposition such facilities for experimental work as are now almost essential to one's keeping up with the rapid progress of medicine. The spring term, continued through the months of April, May, and June, is specially devoted to this rejuvenating work, which seems to resemble in many ways the course pursued by our postgraduate institutions. During the fiscal year ending June 30, 1907, five surgeons, seven passed assistant surgeons, and one assistant surgeon took advantage of this instruction.

We learn that during the five years of its operation the school has shown great improvement in its

equipment and in its course of teaching. Tropical medicine, with which destiny has of recent years constrained us as a nation to occupy ourselves more and more, has received additional attention, and naval hygiene, a distinct branch, has been made prominent in the curriculum. The school library is constantly growing. The hospital attached to the school is increasing as a field for bedside instruction, and it is the intention to augment its usefulness in this respect by appropriate transfers from other hospitals. A pathological museum is in course of establishment, and the teaching in operative surgery is soon to be more amply provided for. It is evident that the Naval Medical School is satisfactorily progressive, and its work must tell decidedly in improving the efficiency of the medical service of the navy, a service which has always been honorable.

THE NEW CORNELL REQUIREMENTS.

Striving to attain a higher standard, the Cornell University Medical College has not lengthened its course to five years, but has raised the entrance requirements. In the year 1908 and thereafter candidates for admission must be either graduates of some approved college or scientific school, or seniors in good standing in Cornell University or in some other approved college or scientific school the faculty of which will permit them to substitute the first year of a professional course for the fourth year in arts and sciences and will confer upon them the bachelor's degree upon the satisfactory completion of the first year of the course in the Cornell University Medical College, or persons who, while not possessing a bachelor's degree, give evidence by examination that they have acquired sufficient education to merit that degree, and such a training as will enable them to profit by the instruction afforded in the medical college.

In 1900 and thereafter all candidates for admission must have at least such knowledge of physics and inorganic chemistry as may be obtained in a college by a year's course in those subjects when accompanied by laboratory work. In 1910 and thereafter all candidates for admission must possess a similar knowledge of biology. The university announces that, although all approved colleges or scientific schools offer courses in the natural sciences, those courses are not always obligatory, and it has been felt to be unfair to demand a knowledge of those subjects during the first year of the operation of the new requirements. It has also been felt to be unfair to refuse admission to exceptional students of unusual abilities who have been able to obtain independently an education equivalent to that implied by a degree from a college or scientific school, and to avoid such injustice a committee will

be appointed from the faculties of the different colleges in the university to pass upon the qualifications of such individuals as may apply for admission without the official certificates that would otherwise be requisite. In the circular in which these facts are announced, dated December 2, 1907, it is explained that the four years' medical course is considered as sufficient for the present if it can be devoted wholly to strictly medical subjects, but not if the subsidiary sciences have also to be taught. This seems to be an altogether reasonable position to take.

THE LEGEND OF SYPHILIS OF ANCIENT TIMES.

Freiherr von Notthafft, of Munich, has published a book, *Die Legende von der Altertumssyphilis*, Leipzig, 1907, to which he refers in an essay in the *Dermatologische Zeitschrift* for October. In this article the author remarks that, in his opinion, he has succeeded in demonstrating that there does not exist one quotation, either in the medical or in the lay literature of ancient times, which would admit of the conclusion that syphilis could have been meant. The numerous citations, says the author, which have been made as referring directly or indirectly to syphilis, are either wrong interpretations or translations of the text or taken from incorrect or corrupted texts, or they can as well have alluded to syphilis or any other disease. The citation then becomes valueless, for it must have only one meaning and not be ambiguous, to be of any scientific value.

Dr. von Notthafft therefore concludes that the assumption that syphilis occurred in ancient times is untenable, and that we must accept the theory that the disease originated in the middle ages. There is absolutely no proof that syphilis existed in the times of Greek or Roman supremacy; the disease may have existed, it is true, but it is nowhere mentioned as such. He refutes the quotations from the Bible, the Talmud, and the Roman, Greek, and old and new Hebrew writers, including Galen and Hippocrates, and cites Isaac Abrabanel, who as a marano had to leave Spain in 1492, settled in Venice, and died there in 1508. This Hebrew scholar wrote in his exile a *Commentarius super Isaiam, Jeremiam, Iehazkelem, et prophetas XII minores*, which appeared in Amsterdam in Latin translation in 1642. Fracastori, by the way, who published a Latin poem at Verona in 1521, represents his hero, Siphilus, Syphilus, or Siphylus, as smitten with the disease for disrespect shown to the gods. (See Foster's *Illustrated Encyclopædic Medical Dictionary*, iv, p. 2893.) Speaking of Zechariah, xiv, 12: "And this shall be the plague wherewith the Lord will smite all the people that have

fought against Jerusalem; their flesh shall consume away while they stand upon their feet, and their eyes shall consume away in their holes, and their tongue shall consume away in their mouth," the commentator, Abrabanel, remarks: "It seems that this is the disease which has arisen in our times, and which was formerly not suspected nor seen by physicians, and which is called sarfosim disease, and which is leprosy like, and which is prevalent among all nations except the Israelites. Possibly this is the sign of the beginning." From this commentary of the Hebrew scholar Baron Notthafft surmises that syphilis is mentioned first directly after the terrible epidemic in Italy, 1494 and 1495, during the French invasion. Sarphat originally stands for the name of a Phœnician town (Obadiah, xx), but the Hebrew writers of the middle ages use it for France, and sarfosim means, therefore, French.

But this name French disease, or *morbus gallicus*, does not prove the French origin of syphilis. The author reminds us that nearly every nation called a new disease after the people from whom it believed itself to have acquired the illness. Thus, syphilis is called by the Spaniards *serampion de las Indias*; by the Portuguese *mal de los castellanos*; by the Hollanders, *Spaanse Pocken*; by the Italians, Germans, English, Danes, and Swedes, *morbus gallicus*; by the French *mal de Naples*; by the Poles, German disease; and by the Russians, Polish disease. In the Orient syphilis is called the disease of the Franks, in Japan the Portuguese illness, in Tahiti the English disease, etc. The name *morbus gallicus*, as applied in Italy, to syphilis, therefore means only that syphilis was introduced into Italy by the army of the French King Charles VIII.

Dr. von Notthafft thus refutes the modern medical and lay writers who try to prove the ancient origin of syphilis, taking up a great number of quotations, and shows the fallacy of the theory. The question of the origin of syphilis he does not answer.

PHARMACOLOGICAL AND CHEMICO-PHYSIOLOGICAL STUDIES OF QUININE.

G. Giemsa and Dr. H. Schaumann have made interesting studies on quinine in the Institute for Marine and Tropical Disease in Hamburg. Although similar experiments have been made with this most important drug, and many such reports have been published, it is always instructive to read what careful and painstaking investigators have to say. Our authors' essay appears in volume xi of the *Beihfte zum Archiv für Schiffs- und Tropenkrankheiten* as number 3 for 1907 (October), under the title of *Pharmakologische und chemische Studien über*

Chinin. Some points brought out are well known, but others have not been brought to the attention of the general practitioner so far, and some others are new.

The authors say that the absorption of quinine introduced by the mouth takes place mostly in the stomach and the small intestines. Given by the mouth on an empty stomach, the drug is mostly absorbed during the first twelve hours, but when taken on a full stomach, during the second twelve hours after its administration. Their experiments on animals show that the blood takes up only a small quantity of absorbed quinine, carries it quickly to the organs of the body, and again becomes laden with quinine, so that by its often taking up and forwarding small quantities a relatively large amount is carried to the organs. The same experiments demonstrated that small quantities of quinine were stored up in the liver, gallbladder, kidneys and suprarenal glands, brain, and spleen (more in the liver than in the other organs), while the drug could not be found in the lungs, cervical glands, and muscles. The urine discharges quinine in an unchanged form only. The authors believe that the so called metabolic combination of quinine, such as dihydroxyl quinine, chitinine, amorphous quinine, etc., which have been found by other investigators, are produced during examination of the urine by reagents strongly acting upon the quinine.

Quinine disappears relatively quickly from the body, the greater amount being discharged during the first twenty-four hours, less during the second twenty-four, and after seventy-two hours the secretion being concluded, or only very minimal traces remaining. Approximately, two thirds to three quarters of medicinal doses (one gramme, or fifteen grains) are taken up by absorption, while the residue is discharged nearly entirely through the urine, very little through the fæces, and nothing through the skin.

The power of splitting up of a given quantity of quinine, exercised by the cells of the human body, is disproportionately much greater when this quantity is given at one dose than when it is distributed in smaller doses over a period of twenty-four hours. A certain quantity of quinine administered in divided doses is therefore of greater value to the body and is better absorbed by it than a quantity introduced as one dose.

The average daily amount of quinine of fifteen grains, divided during twenty-four hours into three grain doses, would be, according to Giemsa and Schaumann, the ideal method of administration.

Turning to the administration of quinine hypodermatically, the investigators state that the absorption depends upon the possibility of dissolving quinine salts in water and the concentration of such

solution. The greater the solubility of the quinine preparation and the greater the dilution of this solution the quicker the absorption. A stasis of quinine in the lymphatic vessels over a period of many days takes place only when saturated quinine solutions are used. Such a saturated solution carries with it the danger of abscess and necrosis formation, which danger is avoided by a sufficiently dilute solution. The excretion of quinine introduced hypodermatically is larger than when it is taken by the mouth; the absorption is therefore less.

The authors found that the best quinine preparation for subcutaneous injection was a solution of one to ten of acid quinine hydrochlorcarbamide (chininum bimuraticum carbamidatum).

The absorption of quinine given by enema is much smaller than of that given by the mouth; only quinine salts very soluble in water should be used for such a method of administration. Quinine preparations not soluble in water are absolutely not adapted to absorption.

THE PYTHON AND CRUELTY TO ANIMALS.

We learn from the *Sun* of December 1st that the Society for the Prevention of Cruelty to Animals of England has annoyed the London Zoological Society by an objection to the feeding of live animals to the pythons in the London Zoological Garden. It appears that the snakes are perfectly satisfied with recently killed animals and that they swallow them with the same gusto as the living beasts.

It is not improbable that Nature, who has tempered conditions to animal feelings, has also taken into consideration what is to human beings the terror of death. It is unlikely that this terror exists to any considerable extent in the lower animals. We read in Livingstone's memoirs that he experienced a total lack of sensation when he was struck by the paw of a lion, and it is reasonable to believe that if death had supervened the explorer would have suffered no further discomfort. If man, therefore, foresees death without fright, how much the less must a lower animal with a lack of imagination undergo the change.

We believe, therefore, that, although the S. P. C. A. of England is apparently justified in its protest to the London Zoological Society, it is evident that the pythons and other animals which live on living food must also have a right to exist. We do not think that the lower forms of animal life, whose existence is apparently destined to contribute to the welfare of higher animal forms, are intended to live for much other purpose. Death cannot be to them a very serious matter, deprived as it is of the vivid imagination that renders it terrifying to living man.

Obituary.

GEORGE FREDERICK SHRADY, M. D.,
of New York.

After an illness of about a fortnight, Dr. Shradý died at his home, in New York, on Saturday, November 30th. He was nearly seventy-one years old. Up to the time of the fatal attack, in spite of his mature years, Dr. Shradý appeared to be in good physical condition, and his mental powers were unabated. Of remote German ancestry, he was born in New York, and was a graduate of the College of Physicians and Surgeons, of the class of 1858. Immediately on his graduation in medicine he was appointed on the house staff of the New York Hospital, where he served for the full term with distinction. He subsequently served professionally in the civil war.

Dr. Shradý was a surgeon of excellent attainments, but it is as a journalist that he was best known. He began his editorial career as assistant editor of the *American Medical Times*, a very creditable weekly published in New York during the early years of the civil war and for a few years preceding that time. Soon after the discontinuance of the *Times* the *Medical Record* was established, and Dr. Shradý was made its editor. He continued in the active duties of that office until three or four years ago. His editorial articles were always telling, and they were marked by a quaint humor which made them peculiarly acceptable to the profession. But it was not as an editorial writer solely that he made his influence felt in medical journalism; he was fertile in his advice to inexperienced and hot headed writers, and it was given with such gentleness and courtesy that those who received it rarely failed to feel thankful for it. There was, of course, a brisk rivalry between the *American Gazette* and the *New York Medical Times*, but this was never productive of acrimony, either expressed or suppressed.

Like most Dr. Shradý was genial and lovable, and he was very popular with his professional brethren. He was intensely interested in the New York

Pathological Society, and for years he himself wrote the reports of its meetings. He will long be remembered for his excellent personal qualities and for his creditable public work.

News Items.

Donation Day for Various Philadelphia Hospitals occurs during Thanksgiving week. This year, as usual, donation days were held during the week ending November 30th.

The Cincinnati Academy of Medicine recently passed a resolution requesting the city council to take the power of a board of health from the Board of Public Service and to place it in the hands of an official Board of Health consisting of five members, appointed by the Mayor.

Floyd County, Ga., Medical Society.—The regular meeting of this society was held in Rome, Ga., on Thursday, November 28th. A paper on Appendicitis was read by Dr. William J. Shaw.

The Nobel Prize for Physicists has been awarded to Dr. A. A. Michelson, professor of physics in the University of Chicago, who is the discoverer of a new method of determining the velocity of light.

Changes of Address.—Dr. J. H. Güntzer, to 1333 Madison avenue, New York; Dr. Leonard A. Jaslow, formerly surgeon on the *Trinidad*, Quebec Steamship Company, to 221 West One Hundred and Twenty-third street, New York.

Hospital for Crippled Children.—It is announced that Charles M. Schwab has made a gift of Richmond Beach, Staten Island, to the Roman Catholic Sisterhood of St. Francis. A hospital for crippled children will be established there.

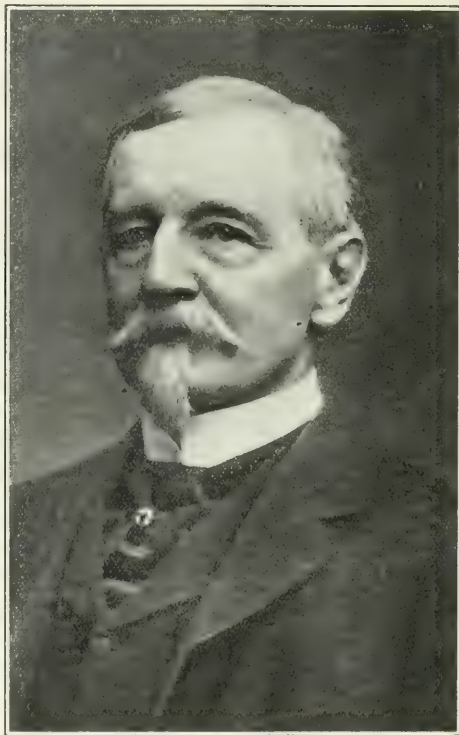
The Illinois State Board of Health.—A bill was recently passed by the Senate which gives to this board the power to regulate and control medical colleges and to determine

the educational qualifications of applicants for admission to medical colleges.

To Investigate Charges Against Manhattan State Hospital.—It is reported that the State Commission in Lunacy will make a public investigation of the charges which have been made in regard to conditions in the Manhattan State Hospital for the Insane on Ward's Island.

Postgraduate Lectures in Berlin.—The spring course of postgraduate lectures at the University of Berlin will begin on March 2d and will end on March 28th. Full particulars can be obtained by applying to Herr Melzer, Lamsenbeck Haus, Ziegelstrasse 10, Berlin.

The New Henrotin Memorial Hospital, Chicago, has been opened for the reception of patients. The hospital bears the name of the late Dr. Fernand Henrotin, to whose efforts its existence is largely due, and it is under the practical direction of the faculty of the Chicago Polytechnic



George Frederick Shradý, M. D.

Home for Incurables.—A new home for incurables was opened in New Brunswick, N. J., on November 25th. The building was erected as a memorial to the late Francis E. Parker, and the purpose of the home is to provide a comfortable resting place, with the best of care, for incurables.

Elmira, N. Y., Academy of Medicine.—At a meeting of this academy, held on Wednesday evening, December 4th, the following papers were read: Local Anæsthesia, by Dr. C. G. R. Jennings; Maladies of the Workers, by Dr. T. A. Wales. Dr. C. L. Stiles, of Owego, also read a paper.

Florence Nightingale Honored.—We learn from press dispatches that Florence Nightingale has been decorated with the Order of Merit. She is the first woman to receive this distinction, which has been bestowed upon only nineteen men. The order was founded by King Edward in 1902.

The Pathological Club of the College of Medicine of the University of Nebraska meets weekly during the college year. Dr. H. Winnett Orr is the president, Dr. A. E. Guenther is secretary, and Dr. R. G. Clapp is treasurer. An interesting programme has been arranged for the coming winter.

Medical Inspection of Schools in Chicago.—During the week ending November 23, 1907, the medical school inspectors made 26,252 examinations of school children, and excluded 455 children on account of infectious diseases. The work of the inspectors has stayed a threatened epidemic of diphtheria.

Appointments at the Cincinnati Hospital.—The following physicians have received appointments on the staff of this hospital: Dr. R. W. Thomas, pathologist; Dr. D. I. Wolfstein, neurologist; Dr. M. L. Heidingsfeld and Dr. A. J. Markley, dermatologists, and Dr. W. H. Lewis, assistant in the laboratory.

The Anniversary Meeting of the New York Academy of Medicine was held on Friday evening, November 29th. Colonel W. C. Gorgas, chief sanitary officer of the Isthmian Canal Commission, delivered an address on Sanitation in the Canal Zone, illustrating it with stereopticon views. A reception followed.

Clinic for Speech Defects.—A special clinic for stuttering, stammering, aphasia, etc., with curative exercises and treatment, will be held in the Vanderbilt Clinic, Tenth avenue and Sixtieth street, New York, on Mondays, Wednesdays and Fridays from 2 p. m. They will be under the direction of Dr. E. W. Scripture.

An Antituberculosis Society Has Been Organized in Chelsea, Mass., the object being to promote a movement for the relief and control of tuberculosis. At a meeting held on November 24th Dr. David Townsend, of Boston, gave a lecture on the method of treatment, which was illustrated by roentgenium views and photographs.

The New York Academy of Medicine held a stated meeting on Thursday evening, December 5th, at which the following papers were read: The Pathology of Diabetes, by Dr. Eugene L. Opie; The Symptomatology and Treatment of Diabetes, by Dr. Frederick E. Beal; Practical Experience in the Dietary Treatment of Diabetes, by Dr. James P. Tuttle.

A New First Aid Packet for the Army.—A new first aid packet, similar to that used by the Navy, has been adopted for the Army. The packet is two inches wide, four inches long and three-quarters of an inch thick, and is placed in a leather pouch which it attached to the belt by brass hooks. It holds two antiseptic bandages and two compresses.

The Medical Society of the County of Wyoming, N. Y., held its annual meeting recently, and elected the following officers for the ensuing year: President Dr. Mary E. Green, of Cently; vice-president Dr. J. S. Wright, of Fort; secretary and treasurer Dr. L. H. Humphrey, of Silver Spring. The next meeting will be held in July.

International Laryngo-Rhinological Congress.—It has been announced by the organizing committee of the congress, which is to be held in Vienna, April 15 to 20, 1968 that there will be an exhibition of electronic equipment with laryngology, rhinology, otology, otoscopy and audiometry in connection with examination, operation and treatment apparatus of all kind, books, drawings, etc. All

who are interested in the undertaking are invited to take part. Communications should be addressed to the Secretary of the Congress, Professor Dr. Michael Grossmann, Wien, IX, Garnisongasse 10, not later than December 31, 1907.

Clinical Lectures on Orthopædic Surgery.—The trustees of the New York Orthopædic Dispensary and Hospital, 126 East Fifty-ninth street, announce that Dr. Russell A. Hibbs will give a course of clinical lectures at the institution on Tuesday and Friday afternoons, at 4.30 p. m., from December 3d to January 3d, inclusive. The course is free to members of the medical profession and to students.

The Williamsburgh Medical Society of Brooklyn, N. Y., will meet at the Willoughby Mansion, 667 Willoughby avenue, on Monday, December 7th, at 8.15 p. m. A case of Intussusception will be presented by Dr. Le Grand Kerr and Dr. William L. Chapman, and Dr. Boleslaw Lapowski, of Manhattan, will read a paper on Syphilis and Its Treatment. There will be an election of officers for the ensuing year.

Public Lectures on Medical Topics in Brooklyn.—The last of a series of lectures on medical topics, given, during the months of October and November, under the joint auspices of the Kings County Medical Society and the Brooklyn Institute of Arts and Sciences, was given on Saturday evening, November 30th, by Dr. Harvey W. Wiley, chief of the Bureau of Chemistry, Department of Agriculture, Washington, D. C., on the subject of Adulteration of Foods and Drugs.

Society of Sanitary and Moral Prophylaxis.—A meeting of this society will be held at the New York Academy of Medicine on Thursday, December 12th, at 8.30 p. m. The following papers will be read: Personal Observations of Police Methods of Dealing with Prostitution in Germany, with Conclusions as to Their Sanitary Value, by Dr. Henry T. De Forest; Statistics of Prostitution in New York City, by Mr. Frederick H. Whitin, secretary of the "Committee of Fourteen."

Medical Society of the County of Otsego, N. Y.—The one hundred and first annual meeting of this society will be held in Oneonta, N. Y., on Tuesday, December 10th, at 1.30 p. m. Dr. Andrew J. Butler, of Unadilla, will read a paper on Puerperal Infection as Seen by the Country Practitioner, and Dr. Henry D. Sill, of Cooperstown, will read a paper on Medical and Surgical Treatment of Intestinal Obstruction. There will be a banquet in the evening.

Inspection of Milk and Other Foods in Chicago.—During the week ending November 23, 1907, the milk inspectors made 227 sanitary inspections of city milk depots, and condemned 153 that were not up to the standard required by the department. The milk supply of 67 scarlet fever and diphtheria cases was investigated, and it was found that the quarantine rules regarding the delivery of milk were improperly observed. The food inspectors condemned a total of 88,547 pounds of foodstuffs for the week.

Scientific Society Meetings in Philadelphia for the
Week Ending December 14, 1907.—Monday, December
10. Section on General Medicine. Tuesday, December
11. Wills Hospital Ophthalmic Society. Tuesday, December
11. Philadelphia Pathological Society. Wednesday, December
12. Academy of Natural Sciences. Thursday, December
13. Philadelphia County Medical Society. Thursday, December
13. Pathological Society. Section on Microbiology.
Institute. Friday, December 14. Wills Hospital Ophthalmic
Philadelphia County Medical Society.

[illegible][illegible]

8 deaths. The total deaths for the week numbered 151, in an estimated population of 403,303, corresponding to an annual death rate of 19.46 in 1,000 population.

The Department of Health of the City of New York.

—Statistics of the general work of the department for the week ending November 2, 1907, are as follows: Total inspections of premises, 45,245; orders issued for abatement of nuisances, 584; inspections of milk and other foods, 20,314; pounds of food condemned and destroyed, 468,415; chemical analyses made, 216; bacteriological examinations made for diphtheria, 1,204; bacteriological examinations made for tuberculosis, 499; vaccinations performed, 3,312; children's employment certificates granted, 435; children's employment certificates refused, 27; medical school inspections, 2,863.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending November 30, 1907:

	November 23—		November 30—	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever	86	12	77	22
Smallpox	..	..	..	..
Varicella	136	..	113	..
Measles	293	5	343	15
Scarlet fever	278	17	323	11
Whooping cough	27	1	9	3
Diphtheria	282	31	343	26
Tuberculosis pulmonalis	345	154	337	164
Cerebrospinal meningitis	4	5	8	12
Totals	1,451	225	1,538	253

Medical Inspection of Schools in Minneapolis.—

Plans for conducting a medical examination of the pupils in the public schools have been presented to the Board of Education of Minneapolis. Three physicians, who are specialists in children's diseases, have offered their services, and the plans contemplate the organization of a board of consultation, consisting of physicians who represent the regulars, the homeopaths, and the osteopaths. No child will be examined contrary to the wishes of the parents, and full liberty will be given in the choice of physicians to give treatment.

The Health of Philadelphia.—During the week ending November 16, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Philadelphia: Malarial fever, 1 case, 2 deaths; typhoid fever, 41 cases, 9 deaths; scarlet fever, 69 cases, 2 deaths; chickenpox, 53 cases, 0 deaths; diphtheria, 129 cases, 8 deaths; cerebrospinal meningitis, 1 case, 1 death; measles, 27 cases, 1 death; whooping cough, 17 cases, 4 deaths; pulmonary tuberculosis, 82 cases, 53 deaths; pneumonia, 55 cases, 40 deaths; erysipelas, 2 cases, 0 deaths; cancer, 16 cases, 17 deaths; mumps, 3 cases, 0 deaths; simple meningitis, 1 case, 0 deaths; septicaemia, 1 case, 1 death. The following deaths from other transmissible diseases were reported: Tuberculosis, other than tuberculosis of the lungs, 6; puerperal fever, 1; dysentery, 1; diarrhæa and enteritis, under 2 years of age, 16. The total mortality numbered 428 cases, in an estimated population of 1,500,595, corresponding to an annual death rate of 14.80 per 1,000 population. The total infant mortality was 92; under one year, 80; between one and two years, 12. There were 39 still births, 23 males and 16 females. The total precipitation amounted to 0.35 inch.

The Mortality of Chicago.—According to the report of the Department of Health for the week ending November 16, 1907, there were during the week 525 deaths from all causes, as compared with 514 for the corresponding week in 1906. The annual death rate in one thousand of population was 12.99. The principal causes of death were: Apoplexy, 10; Bright's disease, 33; bronchitis, 15; consumption, 59; cancer, 30; convulsions, 9; diphtheria, 12; heart diseases, 50; influenza, 1; intestinal diseases, acute, 22; measles, 2; nervous diseases, 17; pneumonia, 76; scarlet fever, 18; suicide, 5; typhoid fever, 14; violence (other than suicide), 34; whooping cough, 2; all other causes, 116. For the week ending November 23, 1907, there were 535 deaths from all causes, as compared with 577 for the corresponding week in 1906. The annual death rate in one thousand population was 13.24. The principal causes of death were: Apoplexy, 9; Bright's disease, 48; bronchitis, 10; consumption, 57; cancer, 26; convulsions, 7; diphtheria, 5; heart diseases, 51; influenza, 3; intestinal diseases, acute, 30; measles, 3; nervous diseases, 17; pneumonia, 81; scar-

let fever, 10; suicide, 6; typhoid fever, 12; violence (other than suicide), 44; whooping cough, 2; all other causes, 114.

Meetings of Sections of the New York Academy of Medicine.—At a meeting of the Section in Dermatology, held on Tuesday evening, December 3d, Dr. Albert C. Geyser read a paper on the X Ray in Dermatology.

The Section in Surgery met on Friday evening, December 6th. Dr. Alfred S. Taylor read a paper on Nerve Bridging, and Dr. A. Sturmdorf read a paper entitled 'The Clinical Significance of McBurney's Point.'

The Section in Neurology and Psychiatry will hold a meeting on Monday evening, December 9th. Dr. William Booth will report a case of Tumor of the Left Frontal Lobe, and a case of Internal Hydrocephalus Due to the Occlusion of the Aqueduct of Sylvius will be reported by Dr. M. G. Schlapp. A paper on General Paralysis of the Senile Period will be read by Dr. Morris J. Karpas.

At a meeting of the Section in Public Health, to be held on Tuesday, December 10th, at 8.15 p. m., Dr. Richard C. Cabot, of Boston, will read a paper on the Opportunities of a District Dispensary System.

The Section in Otolaryngology will meet on Friday evening, December 13th, and will discuss the question of the Radical Operation on the Mastoid. All members of the section are invited to participate in the discussion.

The regular December meeting of the Section in Pediatrics will be omitted, and the next meeting of the section will be before the Academy of Medicine, on January 2, 1908.

Personal.—Dr. Frank Woodbury, of Philadelphia, has been elected chairman of the Committee on Lunacy of the State Board of Charities.

Dr. B. D. Henry, of Endicott, Wash., is registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

Dr. H. E. Kirscher, of Oil City, Pa., has been elected superintendent of the Des Moines, Ia., sanitarium for the treatment of tuberculosis.

Dr. Charles Gentsch, of Cleveland, delivered an address at a meeting of the Loyal Legion, held in Cincinnati on December 4th, on Instantaneous Rigor Mortis.

Dr. Albert Warren Ferris, of New York, has been appointed president of the State Commission in Lunacy, to succeed Dr. Charles W. Pilgrim, who has resigned.

Dr. Julius Grinker, of Chicago, has been appointed consulting neurologist to the Cook County Hospital for the Insane.

Dr. S. Weir Mitchell's new historical novel, entitled *The Red City*, will be the fiction serial of *The Century* in 1908.

Professor Theodore W. Richards, of Harvard University, has been elected to foreign membership in the Royal Swedish Academy of Science.

Dr. William Richard Dear has resigned his position as house surgeon of the Emergency Hospital, Washington, D. C. He will be succeeded by Dr. William B. Carr.

Society Meetings for the Coming Week:

MONDAY, December 9th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Society of Medical Jurisprudence, New York; New York Ophthalmological Society; Corning, N. Y., Medical Association; Waterbury, Conn., Medical Association.

TUESDAY, December 10th.—New York Academy of Medicine (Section in Public Health); Medical Society of the County of Schenectady, N. Y.; Medical Society of the County of Rensselaer, N. Y.; Buffalo Academy of Medicine (Section in Medicine); Practitioners' Club of Jersey City, N. J.

WEDNESDAY, December 11th.—New York Pathological Society; New York Surgical Society; Medical Society of the Borough of the Bronx; Alumni Association of the City (Charity) Hospital, New York (annual); Brooklyn Medical and Pharmaceutical Association; Medical Society of the County of Richmond, N. Y.

THURSDAY, December 12th.—New York Academy of Medicine (Section in Pediatrics); Brooklyn Pathological Society; Blackwell Medical Society of Rochester, N. Y.; Jenkins Medical Association, Yonkers, N. Y.

FRIDAY, December 13th.—New York Academy of Medicine (Section in Otolaryngology); New York Society of Dermatology and Genitourinary Surgery; Eastern Medical Society of the City of New York (annual); Saratoga Springs, N. Y., Medical Society.

SATURDAY, December 14th.—Therapeutic Club, New York.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

November 28, 1907.

1. Anterior Poliomyelitis in the Adult, with Illustrative Cases, By G. L. WALTON.
2. Diagnosis of Gastric Cancer, By RICHARD F. CHASE.
3. A Portable Traction and Retentive Apparatus for Use in Fracture of and Operations on the Lower Extremity, By ROBERT SOUTTER.
4. A Brace for Postural Curvature of the Spine, By ROBERT SOUTTER.

1. **Anterior Poliomyelitis in the Adult.**—Walton remarks that acute or subacute poliomyelitis in young adults is not rare. The real seat of the infection is apt to be obscured by temporary symptoms pointing to the meninges and nerve sheaths. The implication of the meninges is probably independent, not an extension from the substance of the cord. The onset of paralysis is more retarded in adults than in infants, and the extension of paralysis from one group to the other is less immediate. No extension of paralysis is to be expected after fever has subsided. Prolonged rest of the affected muscles is desirable, as well as early orthopaedic measures.

3. **A Portable Traction and Retentive Apparatus for Use in Fracture of and Operations on the Lower Extremity.**—Soutter describes his apparatus. It is so arranged that traction can be applied or let up instantly, and during traction the leg manipulated or moved in any position. The shoulders, the spine, the pelvis, and the legs are held in position for any length of time, and the apparatus cannot be upset during forcible movement or while a plaster of Paris bandage is applied from the axillæ to the ankles. It is fastened to an ordinary operating table or to a broad or narrow wooden table. By removing the cross steels and placing a small stand, made for the purpose, between the pelvic and shoulder pieces, the apparatus may be used for certain forms of simple jackets in curvature of the spine or in Pott's disease. It can be carried in a dress suit case, and considering the strength and power of the machine it is not heavy. In fractures of the femur, absence of shortening depends probably more than anything else on the length obtained at the first application of apparatus and maintained afterwards by pull and splint. During the wiring of old fractures of the neck of the femur, in congenital hip manipulation for traction and maintaining position after subtrochanteric osteotomy, for osteotomy in deformities from badly united fractures, and in some other instances, this apparatus is useful. The article is illustrated.

4. **A Brace for Postural Curvature of the Spine.**—Soutter says that his apparatus consists of a curved pad for pressure on the chest bone behind and laterally, and another on the opposite pelvis above the trochanter, the two connected by peculiarly curved steels, one anterior, one posterior. They do not rest on the body to make pressure. The anterior steel is disconnected from the hip pad by a self-retaining catch. The pelvic pad has an arm jointed at the hip which extends down to the thigh band. This arm stands out from the thigh when the thigh band is loose. By the shape of the body steels the leverage is transferred so as to

throw the chest forward as well as laterally. This brace will not take the place of complicated braces and jackets. It will be found efficient for certain postural cases when it is undesirable to weaken the muscles by cumbersome and more extensive apparatus. It does not show through the clothing, remains in place, and is adapted for active cases with postural lateral deformities.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

November 30, 1907.

1. Opsonins in Normal and Pathological Sera, By NATHANIEL BOWDITCH POTTER.
2. Acute Unilateral Ascending Paralysis, By CARL D. CAMP.
3. Symptom Complex of a Series of Intestinal Cases, with Pathological Findings, By THOMAS D. PARKE.
4. The Cytology of Gonorrhœal Discharges, By ROBERT W. TAYLOR.
5. Plastic Surgery of the Pelvic Structures, By HENRY O. MARCY.
6. Buried Sutures and Ligatures. Their Material and Proper Use, By WALTER B. CHASE.
7. Stokes-Adams' Disease (Heart Block), By WILLIAM HOUSE.

1. **Further Observations on Opsonins in Normal and Pathological Sera.**—Potter observes that Wright's method of estimating the opsonic indices in bacterial infections is hardly accurate enough to compensate for the amount of time involved in its application. There is a general parallelism, however, between the opsonic indices and the clinical course of most cases, so that these determinations should be made when the results of inoculation cannot be controlled by the ordinary clinical methods of observation, when there are several organisms present, and when the patient does not improve under the usual method of inoculation. Its variations depend on difference in normal sera, so that even with counts averaged from two, three, or more, supposedly normal, sera, it is not possible to prevent variations of 10 to 30 per cent.; differences depending on the source of the leucocytes; and differences depending on counting different areas of a slide. The leucocytes from patients, the subjects of bacterial infection, do not always agree in phagocytic activity with those from supposedly normal individuals. During recovery from some infections their phagocytic activity surpasses the leucocytes of supposedly normal individuals, and during convalescence their phagocytic activity falls to or below that of the normal leucocytes. The inoculation of dead cultures of homologous or heterologous bacteria is helpful or curative in many local infections. Some cases of septicæmia recover without inoculation, so that we must be guarded in attributing the cure of such cases solely or partly to bacterial inoculations. Some general and some local infections are too severe to be helped by such inoculations. Some very chronic and obstinate local infections may be helped by inoculations, but it is probable that their response can be easily exhausted by too large, and perhaps by too frequent, doses, and it is very doubtful if such advanced cases can be completely cured by inoculation.

2. **Acute Unilateral Ascending Paralysis.**—Camp reports such a case. An interesting observation which was noted in the course of the routine neurological examination of the patient was the difference in the effect produced by tapping the

patellar tendon of each side. On the left side, the paralyzed side, after the paralysis had become a flaccid one, tapping the patellar tendon caused no knee jerk, but did cause a contraction of the abductor of the thigh on the opposite side. Applying the general theory of the reflex action of this observation, it is evident that the sensory part of the reflex arc, says the author, remained intact or the impulse could not have reached the opposite side of the spinal cord. As the loss of knee jerk indicated a lesion in some part of the reflex arc it must have been in the motor neuron on the left side or in its sensoriomotor synapse. Tapping the right patellar tendon (the nonparalyzed side) gave a normal knee jerk, showing the integrity of the reflex arc on that side, but produced no abductor reflex on the other side, a result which might have been anticipated if the foregoing conclusion is correct. This dissociation of the homolateral from the contralateral reflex was present in another case which clinically resembled the one reported in this paper, except that the symptoms were descending.

3. Symptom Complex of a Series of Intestinal Cases, with Pathological Findings.—Parke states that during the years from 1903 to 1906 a number of cases came under observation in Birmingham, Ala., which till that time had not been encountered and a description of which could not be found in the literature. The symptoms that marked the cases were rapid abdominal breathing (air hunger), fast pulse, cessation of bowel movement, enlargement of liver, lowered temperature, restlessness, and expiring moan. As a rule, the attack was preceded by mucous or bloody-mucous action with slight temperature for a few days, then the super-vention of the typical type of breathing. Tympany was marked in some of the cases. Vomiting had existed in a good proportion. In only one case of the series had there been any loose bowel action without purgatives. The temperature became sub-normal at some time after the attack began in most of the cases. In some it rose high at some period. The two things that were found in every case, save one mild one that did not show enlargement, were the type of breathing and the enlargement of the liver. The rapidity of enlargement was a phenomenon that excited interest. In twelve hours a liver not palpable below the ribs would be distinctly felt and, in forty hours, in some cases be two inches below. The urine was normal in quantity in all the cases, save one, in which vomiting was so persistent as to preclude absorption of water. Albumin in small quantity was found, in two cases, in urine taken from bladder post mortem. In the other cases it was not obtained. Jaundice was absent in all the cases. The cases occurred in various sections of Birmingham and in the suburbs and in families which provided their children hygienic surroundings. The post mortem findings of organs, other than liver and mucosa of intestine, were negligible. The intestinal mucosa in some of the examined cases showed hyperæmia, in others very little or no appreciable hyperæmia. The liver was enlarged to greater or less extent in every one and ~~all~~ all examined showed fatty degeneration. In some of the specimens there were fields in

which no normal cells could be seen and very few nuclei. In others there were areas of fatty degeneration in the fields. In every one the fatty degeneration existed. The gallbladder in every case contained a dark green, ropy bile. This same dark green material passed in the actions when the bowels were moved by purgatives during the course of the typical symptoms. The author is unable to state the ætiological factor. It would seem reasonable to conclude that a toxine was generated in the intestinal tract which produced the fatty degeneration of the liver. How the air hunger was produced, whether directly by the toxines breaking down the natural barrier afforded by the healthy liver and thus entering the circulation, or whether indirectly by secondary products, is a matter for speculation. If it was the Shiga bacillus that generated the toxine, as might be suggested from the mucous or bloody mucous actions commonly preceding the onset of symptoms, then the natural inquiry would arise, why does not the Shiga bacillus generally cause these cases, for we are constantly encountering the severest types of ileocolitis in our spring and summer seasons? The author feels certain that such cases have not been confined to Birmingham locality, but that they have been occurring elsewhere in the south. The treatment pursued was eliminative. Hypodermoclysis was used in some of the cases. Camphor was given by mouth, where the stomach was not revolting too much. Alcohol was not given, as it seemed the liver already had burdens enough to carry. Food was withdrawn, and the patients recovering were kept on water till the symptoms seemed to warrant a return to food.

4. The Cytology of Gonorrhœal Discharges.—Taylor, of New York, describes in thirty-one photomicrographs these discharges. He states that within the past five or six years considerable attention has been directed to the study of the finer structural details, in other words, the cytology of the elements of the discharge of urethritis. This line of study, as well as the methods employed, is practically an application of the recent advances in the morphology of the blood. It is somewhat difficult to see what particular purpose this work subserves, for it has not helped us in understanding the nature of the process nor has it given any aid from a prognostic standpoint. And after reviewing the subject and supplementing it with some personal observations he comes to the conclusion that any clinical aid or therapeutical guidance from this whole line of work, although sustained by a large volume of literature, is of very doubtful value. It is not susceptible of practical application. The author reports 28 such cases of ordinary gonorrhœa, 5 cases of vulvovaginitis in children, and 2 cases of gonorrhœal ophthalmia, he thinks that cover the field sufficiently. Considerable time has been expended on the relative advantages of various staining mixtures, the methods of fixing the smears, etc., which merely involves the consideration of rather immaterial details. He has found Wright's method of staining blood smears the most practical, since it is very convenient and distinguishes the various cellular elements in the discharges and exhibits perfectly their structural details.

MEDICAL RECORD.

November 30, 1907.

1. Infantile Spastic Paralysis and Its Treatment,
By E. MURHEAD LITTLE.
2. Test of the String Cutting Method for Impermeable
Œsophageal Strictures, By ROBERT ABBE.
3. Open Air Treatment of Pneumonia: My Twenty-nine
Years' Experience, By STEPHEN HARNSEBERGER.
4. Gastric Exfoliation as a Feature in the Production of
Acute Gastric Ulcer, By ANTHONY BASSLER.
5. The Diagnosis of Kidney Diseases, with Special Reference
to the Significance of Slight Albuminuria,
By EDGAR BALLENGER.
6. A Case of Unilateral Third Nerve Paralysis,
By J. JAY KAISER.

2. **Test of the String Cutting Method for Impermeable Œsophageal Strictures.**—Abbe reminds us that Albert, Billroth, von Bergmann, Maydl, and others have demonstrated that an œsophageal stricture which permits no bougie to enter from above will almost invariably permit it from below, because, by reason of the long persisting pressure of food in the œsophagus trying to pass down, the canal becomes basin shaped, while on the distant side the œsophagus is funnel shaped—and thus a small bougie is naturally guided upwards through the stricture. Once having passed a fine bougie upward, the safe dilatation by Billroth's method is often accomplished. This consists in drawing a strong thread from the stomach to the mouth by the preceding guide, to which it has been tied. Then to the lower end are fastened in succession conical bougies whose tips are capped by a metal point into which the string is tied. From the smallest to larger and larger ones, these are thus safely drawn up, with no danger of perforating the very tender wall of the œsophagus. This danger is by no means small—if no guiding string is used—and results in disastrous mediastinal abscess. A few such strictures can be cured by dilatation alone—persisted in for life—but a majority are so dense and tight that, like urethral strictures, they are best cured by first cutting and then maintaining the opening. The author describes his first operation with this method, which he performed upon a young woman. Under ether he opened the stomach and stitched it to the abdominal wall, so that he could slip two fingers into it without soiling the peritoneal cavity. On pressing his fingers against the upper wall of the stomach from within, he was impressed, as he has been on many other occasions, with his inability to immediately locate the œsophageal opening. This is extremely interesting from a physiological point of view. We ordinarily think of the stomach as pictured in anatomy, showing a funnel shaped expansion of the œsophagus where it joins the stomach wall. It has never been the author's experience to find this condition in the living stomach. As the finger passes back and forth over its upper interior aspect one feels an even surface more like the interior of any dome shaped cavity. This surface is maintained by the circular sphincteric muscle layers, and it is not until a moment's pressure of the finger at the right place causes them to yield that it slips upward into the œsophagus. Once having yielded, the opening remains for the finger to find easily during the rest of the operation. Guided by the index finger a long filiform whalebone bougie was passed from the stomach to the mouth, though impassable from above downward. To the end of this a string was tied and

pulled up through the œsophagus. To its lower end a Billroth dilating bougie was tied, which was drawn up until it engaged the stricture. As it would not pass through, it was withdrawn temporarily, an extra string drawn up, and again the bougie pulled tightly into the stricture. By pulling the second string back and forth, while the wedgelike end of the bougie was tightly crowded into the stricture, the bougie rapidly passed up. Larger ones were quickly substituted, and under their stretching the stricture quickly melted away before the string friction. With almost no bleeding, the largest bougie passed entirely from stomach to mouth. A few days after operation the patient was permitted soups and semisolid food. Two weeks later the gastric fistula was easily closed, from which moment the patient rapidly gained weight. The largest bougie was passed down every few days, then once a week, and monthly during the latter half year. Since then, once a year, the œsophagus has been tested, and there has never been the least recurrence of stricture. The author observes in conclusion that most of the obstructive cicatricial œsophageal strictures can be dilated from above and should be so treated; those which are only permeable by a fine bougie offer great chance of serious perforation of the wall of the tube during dilatation where much force is needed to push it through; such as admit a probe of some size can be safely cut from above by the string cutting œsophagotomy; very tight or impermeable ones can always be safely, quickly and permanently cured by gastrostomy, followed by the string cutting. The method should never be applied to œsophageal strictures resulting from pressure of mediastinal tumors, aortic aneurysm, spasmodic strictures, or malignant stenosis. For these no better relief can be found than a permanent gastric fistula, which can now be made free from leakage by any one of several methods. The author reports a second case, that of a child; the patient is in perfect health and can eat everything three and a half years after operation.

4. **Gastric Exfoliation as a Feature in the Production of Acute Gastric Ulcer.**—Bassler reports such a case and deduces from it that the hyperchlorhydria, from which the patient suffered more or less for years, caused an exfoliation of the cellular elements of the gastric mucosa. This exfoliating continued, and, like small traumas from food or stomach tubes, was not serious as long as the nutrition of the stomach was sufficient to repair the slight abrasion. But when, as a result of a severe hemorrhage, the system was impoverished and devitalized, the resistance of the basal membrane and submucosa was lowered and the acidity continuing an ulcer ensued on some exfoliated area.

5. **The Diagnosis of Kidney Diseases, with Special Reference to the Significance of Slight Albuminuria.**—Ballenger states that in doubtful cases no positive opinion should be expressed until many specimens of urine have been examined, for it is the persistence of renal albumin and casts that of more serious import than is their occasional presence in considerably larger quantities. The twenty-four hour specimen should be measured and a comparison made between the amount ordinarily passed and when an excess of water is being passed. The

specific gravity is of much importance if the amount of fluids ingested is considered. In addition, the condition of the heart, bloodvessels, arterial tension, diet, intestinal canal, habits, and past history should receive due attention. Many patients with orthostatic albuminuria of renal origin will go for years without any evidence of nephritis, but our prognosis must not be made from the urine alone, but from the entire picture. Success in discriminating between the insignificant forms of albuminuria and those indicating renal disease depends more upon eliminating nuclealbumin and extrarenal albumin and albumose than in any further refinement in our chemical examinations.

BRITISH MEDICAL JOURNAL.

November 16, 1907.

1. The Pathology of the Living, By B. G. A. MOYNIHAN.
 2. The Saccular Theory of Hernia, By R. W. MURRAY.
 3. Preliminary Note on a Simple Operation for Uncomplicated Oblique Inguinal Hernia in Young Adults, By G. L. CHIENE.
 4. The Morbid Anatomy and Pathology of Infantile and Encysted Hernia, With a Note on Accident of Taxis, By R. H. RUSSELL.
 5. The Use of Filigrees of Silver Wire in the Cure of Herniæ Usually Considered Inoperable, By L. MCGAVIN.
- (Seventy-fifth Annual Meeting of the British Medical Association—Section of Pathology.)
6. The Estimation of Fat in Faces, By I. W. HALL.
 7. Some Motile Elements Seen in Certain Cerebrospinal Fluids, By F. C. ERE.
 8. On Peritheliomata and Endotheliomata and Their Position in Oncology, By P. G. E. BAYOU.
 9. A Sporozoon in Aural Polypi, By J. M. BEATTIE.
 10. Mycosis Fungoides: Its Relationship to Infection and to Malignant New Growth, By F. G. BUSHNELL and A. W. WILLIAMS.
 11. Pericardial Calcification, By J. J. S. LUCAS.
 12. Experimental Chemotherapy in Trypanosome Infections, By C. H. BROWNING.
 13. Discussion on Phagocytosis, By G. DEAN, T. HOUSTON, and others.

2, 4, and 5.—**Hernia.**—Murray holds that the theory that in every case of hernia, whether inguinal, abdominal, or femoral, there is a preformed congenital sac, is so strong and so convincing, that it should be accepted by the entire medical profession.—Russell holds that infantile hernia stands in close relation to the forms known as interstitial and properitoneal hernia and *hernia inguinotesticularis* in the following way: All four varieties depend on sacculatation of some portion of the processus vaginalis, the sacculatation being obviously due to developmental implication of the process in the musculature of the abdominal wall. For the production of infantile hernia it is only essential that the part of the processus vaginalis implicated shall be the tunica vaginalis testis, and not the funicular portion, and usually the testis descends completely. In the other three forms of hernia, the part of the processus vaginalis implicated will be the funicular as distinguished from the testicular portion of the processus vaginalis, and the character of the hernia will be unaffected by the behavior of the testis as regards its descent or nondescent into the scrotum.—McGavin recommends the use of filigrees of silver wire in cases of hernia usually considered inoperable. The filigrees are woven on pins set in a board so as to mark out the desired size and outline; they are then sterilized in ether, followed by

boiling soda solution, and set directly into the wound, the tissues being stripped up sufficiently for their reception. Among the cases suitable for treatment by this method are: 1. Those of repeated recurrence after "radical cures." 2. Those of such dimensions that the probability of firm union of the deeper tissues is open to grave doubt. 3. Those in which there is some chronic condition present tending to the constantly repeated increase of abdominal tension, such as chronic bronchitis, asthma, constipation, urethral stricture, etc. 4. Those in which the hernia is the direct result of loss of some portion of the abdominal wall, in consequence of operation or accident. 5. Those of hernia in patients beyond the age when we can hope for a cure.

13. **Phagocytosis.**—Houston and Rankin have studied the opsonic and agglutinative power of blood serum in cerebrospinal meningitis, and have reached the following conclusions: 1. The opsonic method is of great value in the diagnosis of suspected cases of cerebrospinal meningitis. 2. The method described by the writers is a most satisfactory way of testing the agglutinative reaction of cases of cerebrospinal meningitis. 3. The opsonic power of normal serum for the meningococcus is extremely low. 4. The meningococcus may lose its power of reaction by prolonged growth on artificial media. 5. The cerebrospinal fluid has in all cases investigated a much lower opsonic and agglutinative power than the blood serum from the same case. 6. In convalescent cases the typical reaction of the serum disappears very quickly. 7. The serum of cerebrospinal cases, when exposed to heat or kept for some time, loses its opsonic power but retains its agglutinative power. 8. This method should prove of value in estimating the potency of any proposed therapeutic serum for this disease. 9. The true epidemic cases of cerebrospinal fever are always due to a meningococcus having the same opsonic and agglutinative reactions. 10. The coccus of posterior basic meningitis is probably a Gramnegative coccus, and differs from the true meningococcus in its opsonic and agglutinative reactions.—Buxton has studied the absorption of bacilli and other bodies from the peritoneal cavity, and finds that the omentum plays the chief part in the protection of the peritonæum against bacterial invasion, being able to intercept the bacteria to a great extent mechanically on account of its position and structure, and also physiologically on account of its lymphoid properties. The importance of this interception is obvious when it is considered that those bacteria which reach the diaphragm are almost instantaneously absorbed and carried via the lymphatics into the circulation. This is the only path by which absorption into the system can take place.

LANCET

November 16, 1907.

1. The Future of Electricity in Medicine, By W. D. BENTLEY.
2. An Analysis of 274 Additional Cases of Removal of Goitre by Operation, By J. BERRY.
3. Comparative Researches on the Tryptic Strength of Different Trypsin Preparations and on Their Action on the Human Body, By P. F. HALL.
4. The Treatment of Bacterial Infections by Vaccines, By G. T. WESTERN.

5. A Second Case of Aneurysm of the Right Subclavian Artery Treated by Ligature of the Axillary and Carotid Arteries, with Resulting Cure of the Aneurysm, By H. G. BARLING.
6. The Significance of a Hitherto Undescribed Wave in the Jugular Pulse, By A. G. GIBSON.
7. Diverticulum of the Bladder in a Femoral Hernia, without Sac; Operation, By J. HUTCHINSON, JR.
8. A Foreign Body in the Left Bronchus of a Child Expelled Through a Tracheotomy Wound on the Fifteenth Day after Inhalation, By H. S. CLOGG.
9. On the Occasional Necessity of Drainage of the Uterus in Puerperal Infection, By A. A. WARDEN.
10. A Case of Cirrhosis of the Liver in which Cure of the Ascites Followed an Operation for the Relief of Strangulated Umbilical Hernia, By J. CLAY.

2. **Operations for Goitre.**—Berry's paper is based on a series of 274 operative cases of goitre. Of the patients 236 were women or girls, and thirty-two men or boys. The ages varied from twelve years to seventy-three years. Most of the cases occurred in country districts, which is ascribed to the impurity of the drinking water. The great majority of cases of goitre require no operation at all; most cases of parenchymatous goitre are better treated by internal remedies. The most common reason for operation is dyspnoea, after which come deformity or discomfort. With few exceptions dyspnoea, which will not yield to milder measures, is the only reason which should lead to operation. The dyspnoea of innocent goitre is always caused by pressure on the trachea. It has little or nothing to do with irritation of the recurrent nerves. It is possible by consideration of the nature, shape, and position of the goitre, to predict the position and shape of the compressed trachea. Thus a unilateral goitre presses the trachea to the opposite side and flattens it obliquely on the side of the tumor. As a rule, it is only in the case of young people and encapsulated tumors that operation should be undertaken for deformity alone. In such cases the operation is nearly devoid of risk. Dysphagia is rarely a prominent symptom of innocent goitre, though its early occurrence is a valuable indication of malignancy. Minor degrees of dysphonia, or even aphonia, occasionally occur. Hemorrhage into thyroid cysts is extremely common. No cases of genuine exophthalmic goitre were treated by removal. The risk of operation in true Graves's disease is very serious, and the ultimate benefits are by no means certain or lasting. On the other hand, operation in incomplete cases (*formes frustes*) yields excellent results. The writer concludes that operations for innocent goitre yield admirable results and afford as a rule complete relief from all symptoms. The operation is, however, a delicate one, and should not be undertaken lightly or without due attention to important details. Special attention should be paid to anesthesia and aësis, to the careful arrest of all hemorrhage (especially venous), to the recurrent nerve, and to drainage for a short time. In most operations it is best not to remove that portion of the goitre that lies next to the œsophagus, recurrent nerve, and side of the trachea. The patient should be encouraged to be up and about within a very few days of the operation.

3. **Action of Trypsin.**—Hald, in connection with the trypsin treatment of malignant growths, has studied the strength of various trypsin prepara-

tions and their physiological action. All the preparations produced some redness and swelling around the point of injection, and also generally moderate pain. Some of the preparations caused severe radiating pain, and in one instance there was pricking paræsthesia of the arm. In all cases the reaction decreased rather quickly. There were never any abscesses or macroscopic signs of the tissue around the injections, which were always made into normal subcutaneous tissue of the back or mamma. The constitutional action appeared in the form of headache, nausea, general indisposition, weariness, thirst, and a rise of temperature to between 38° and 39° C. The headache, nausea, and thirst supervened as a rule about three hours after the injection, and were often accompanied by a sensation of cold. Albuminuria was observed only once. Owing to the small number of cases treated, the writer abstains from pronouncing any decided opinion as to the usefulness of the engymic treatment of malignant disease. Still, his results have not given him a favorable opinion of the method.

4. **Treatment of Lupus by Vaccines.**—Western, after discussing the history and theory of the treatment of bacterial infections by vaccines, gives the results in a number of cases of lupus. In 75 per cent. of the cases the opsonic index was below 0.95. The patients showing much ulceration do better than the patients with dry lupus, because the lesions are continually flushed with blood fluid by the discharges. In the "dry" cases, even though the centibacterial bodies in the blood are increased, yet it is difficult to insure that they will reach the local focus in sufficient quantities. The difficulty to be met is to procure a sufficient determination of blood to the part, and this is best done by the application of the Finsen light. In cases of ulcerated lupus, progress may be hastened by fomentations or hot sand bags. It is common in ulcerative lupus to have a secondary staphylococcus infection; in such cases the introduction of a corresponding vaccine does much towards diminishing the discharge.

7. **Hernia of the Bladder.**—Hutchinson reports a case of diverticulum of the bladder in a femoral hernia. He summarizes his conclusions as follows: 1. Hernia of a small portion of bladder is not infrequently met with through the femoral or inguinal ring, especially the former, and especially in elderly subjects. 2. There is considerable risk of incising such a pouch of the bladder, and in some cases it is almost impossible to avoid this. 3. In a case where the surgeon suspects the condition during operation the diagnosis may be confirmed by injecting water into the bladder through a catheter. 4. If the vesical pouch has been incised it should be carefully sutured and drainage provided, for a catheter should not be retained, but the patient should be given urotropin for several days. 5. The formation of a prevesical hernia is probably accounted for by the previous occurrence of an external hernia of the bladder.

9. **Drainage of the Uterus.**—Warden calls attention to the occasional necessity of drainage of the uterus in puerperal infection due to retention of lochia and unrelieved by curetage and intra-uterine douching. He lays stress on the following

1. Let the physician assure himself of the free flow of the lochia in the days immediately following the confinement. Confidence in the assurance of the nurse on this point may afterwards be followed by regret. 2. Drainage of the uterus, being simple, painless, and free from danger, should be practised early in certain cases.

LA PRESSE MEDICALE.

November 2, 1907.

1. Pathogeny of Recurring Epididymitis. Resection of the Vas Deferens as a Means of Prevention, By P. BAZY.
2. Some Special Points in Regard to the Cutaneous Reaction of Tuberculin, By JULES LEMAIRE.
3. How Aspirin Should Be Administered, By ALFRED MARTINET.
4. Leucolysis and the X Rays, By R. ROMME.

1. **Pathogeny of Recurring Epididymitis.**—Bazy considers that recurring attacks of epididymitis are due to the revivification of foci of infection previously, and recommends in selected cases to remove the vas deferens as a means of putting a stop to the recurrent attacks of inflammation. Such a resection would suppress the function of reproduction if applied to a healthy vas, but when the vasa have been previously diseased that disease should be blamed for preventing the expulsion, and perhaps the formation, of spermatozoa.

2. **Some Points in Regard to the Cutaneous Reaction of Tuberculin.**—Lemaire asserts: 1. When, after a positive cutaneous or oculoreaction, tuberculin is injected subcutaneously, following a thermic reaction, one may see a more or less intense revivification of the cutaneous or oculoreaction. 2. When a second cutaneous reaction is practised after a subcutaneous injection of tuberculin following a thermic reaction, this second differs from the first in the rapidity of its appearance, the augmentation of its extent and intensity, and the rapidity of its evolution. 3. Contrary to Vallee's observation, Lemaire has seen positive cutaneous reactions appear very clearly in patients who have received at the same time with the scarification two decimilligrammes of tuberculin by injection following thermic reaction. 4. The temperature was taken every three hours for twenty-four in thirty patients. In two cases there was an elevation, associated with diarrhoea and vomiting. 5. The author has seen diminution of the intensity and of the duration of a second cutaneous reaction as compared with the first, and an intense primary oculoreaction prove negative on the second attempt. 6. Two patients who did not respond to the tuberculin test of Calmette gave a positive oculoreaction with the mother solution of the Pasteur Institute of Paris. A drop of each of these solutions contains half a milligramme of tuberculin, hence the tuberculin from the Pasteur Institute seems to be more active than the tuberculin test of Calmette.

3. **How Aspirin Should Be Administered.**—Martinet says that the initial dose of aspirin should be small and the dose gradually increased until the tolerance of the patient, which may be very great, has been determined; that it may be well to give it with a hot, antisudorific infusion, such as sage tea, and that it should be associated with a correcting cardiac tonic, such as caffeine.

November 6, 1907.

The Question of Syphilis at the Fourteenth Congress on Hygiene and Demography, By C. LEVADITI.

Syphilis.—Levaditi gives a resumé of the consideration of this subject at the Congress on Hygiene and Demography held at Berlin, September 23d to 29th. The subject was considered under three heads, its aetiology and the part taken therein by the *Treponema pallidum*, the diagnosis by means of serum with the question of certainty of this procedure, and prophylaxis of the disease, particularly with reference to the efficacy of calomel ointment and atoxyl.

November 6, 1907.

1. The Defensive Reactions on the Part of the Organism against Infections, By PROFESSOR ROGER.
2. Mercurial Pills, By ALFRED MARTINET.
3. The Problem of Cancer, By R. ROMME.

1. **Defensive Reactions to Infections.**—Roger, after a discussion of phagocytosis and the theory of the opsonins, says that the works of Wright, Denys, and Bordet confirm him in the ancient conception of immunity and of the resistance of the organism to infection.

2. **Mercurial Pills.**—Martinet speaks of the advantages of the administration of mercury in the form of pills, the principles on which such pill should be compounded, and then gives various formulæ suggested by Dupuytren, Ricord, Danlos, and others.

3. **The Problem of Cancer.**—Romme criticises the microbic theory of cancer recently advanced by Letulle and says that the search for the specific agent of cancer makes one a little forgetful of the pathological anatomy. He discusses theories ancient and modern, and cannot agree with the doctrine of a specific epithelial parasitism as the cause of cancer.

November 13, 1907.

1. The Heart of the Goitrous, By LEON BERNARD and ALEXANDER CAWADIAS.
2. The Phosphoric Ion, By C. SCHMITT.

1. **The Heart of the Goitrous.**—Bernard and Cawadias object to Minnich's classification of the clinical forms presented by the hearts of the goitrous into the pneumatic and the thyreopathic as being very schematic, not in agreement with the facts, and as prejudging the pathogenic question. They prefer to classify them clinically into the benign, the medium, and the serious. In the benign form the heart is hypertrophic; but little, if any, functional trouble is present. In the medium form palpitation is added to the hypertrophy as the result of slight efforts, and there may be hyperhidrosis, dermatographism, and trembling which resembles that met with in exophthalmic goitre. In the serious form all these symptoms are present in increased severity, signs of compression are present, the voice is hoarse, the patient easily becomes out of breath, and is quite subject to bronchial affections. They conclude that two factors may take part in the pathogeny of the goitrous heart, first, the disturbance of the function of the thyroid gland, which is in a state of hyperactivity, and, second, in certain cases, the mechanical troubles which arise from the stenosis of the trachea by the swollen thyroid. This pathogeny establishes the bond between the syndrome of the goitrous heart and that of exophthalmic goitre, which the clinician should distinguish.

LA SEMAINE MEDICALE

November 6, 1907.

1. Freund's Operation in Pulmonary Emphysema.
By F. LEJARS.
2. A Third Cardiac Bruit.

1. **Freund's Operation.**—Lejars calls attention to the fact that it is still too early to state what results may be produced by the operation on the cartilage of the first rib in pulmonary emphysema, as the operations the results of which are to be considered were performed in 1906 or 1907, although the connection between certain pulmonary diseases and primary anomalies of the costal cartilages formed the subject of papers by Freund in 1858 and 1859; he then presents criticisms of the results reported as obtained.

November 13, 1907.

1. Acute Uræmia and Spinal Polynucleosis.
By M. A. CHAUFFARD.
2. Are the Tendon Reflexes Constant or Variable in Healthy Subjects?
3. The Professional Type of Physician and Medical Education.

1. **Acute Uræmia and Spinal Polynucleosis.**—Chauffard contributes to the discussion of the question whether there exists a uræmic meningitis or not a case in which he observed symptoms of meningitis and found a spinal polynucleosis. He concludes that the spinal polynucleosis may have been a transient condition, a simple expression of intense and paroxysmal congestion of the nervous centres, and that if there is not, properly speaking, a uræmic meningitis, our knowledge is as yet incomplete in regard to the state of the meninges during the course of acute or chronic uræmia.

BERLINER KLINISCHE WOCHENSCHRIFT

November 4, 1907.

1. Spontaneous Mixed Tumors in the Mouse.
By P. FÜRCH and H. ADELUNG.
2. Hernia Cruralis Pectinea sive Cloquetii.
By DEGE.
3. An Unusual Form of Osteomalacia.
By G. JOACHIMSTHAL.
4. Concerning the Epidemic of Relapsing Fever in Kiew.
By M. RABINOWITSCH.
5. Concerning the Distinction of the Transudates from Exudates by Means of a Test with Greatly Diluted Acetic Acid (Rivalta's test).
By W. JANOWSKI.
6. Concerning Joint Affections from the Standpoint of Diseases of the Sexual Organs (Concluded).
By B. BOSSI.
7. A Little Noticed, Early Symptom of Ileus.
By C. A. EWALD.
8. The Results Thus Far Obtained from Deposits for Infant Milk.
By SALO.

1. **Spontaneous Mixed Tumors in the Mouse.**—Ehrlich and Apollant report a case of carcinoma sarcomatodes, and a case of spindle celled sarcoma, each met with in a white mouse.

2. **Hernia Cruralis Pectinea.**—Dege says that, although pectineal hernia was first recognized on the living body and accurately described by Callisen in 1777, and again by Cloquet in 1814, the number of recorded cases is still small, and various points in regard to it are still unsettled. He has therefore collated the literature on the subject and presents very full descriptions of each case, beginning with Callisen's.

3. **An Unusual Form of Osteomalacia.**—Joachimsthal reports a case of late rickets in which the disease first appeared in the twelfth year, and in the course of the next five years produced such softening of the bones that the patient was no longer

able to stand. Radiographs of the wrist joint and of the pelvis and thigh are given. After several fruitless therapeutical attempts the patient was put upon small doses of phosphorus, and improvement was obtained.

4. **The Epidemic of Relapsing Fever in Kiew.**—Rabinowitsch gives a statistical account of the outbreak and then considers its ætiology. The chief factor in its production was, in his opinion, the bad hygienic condition of the city.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT.

November 5, 1907.

1. Pyocyanase as a Means of Prophylaxis and Cure in Certain Infectious Diseases.
By EMMERICH.
2. Influenza Sepsis and Experimental Septicæmia from Influenza Bacilli.
By SAATHOFF.
3. Hypertrophy of Langerhan's Islands in the Pancreas Produced Experimentally with Glycosuria from Phloridizin.
By LAZARUS.
4. Experimental Contributions to the Question of the Artificial Feeding of Infants.
By MORO.
5. The Determination of the Viscosity of the Blood.
By HESS.
6. The Danger of Drowning and the Art of Swimming.
By KUEHNENLOFF.
7. Contribution to the Treatment of Chronic Empyema of the Antrum of Highmore.
By FREY.
8. Concerning Orthotic Albuminuria in Nephritis.
By ENGEL.
9. The Genesis of Albuminuria.
By SCHMIDT.
10. The Late Operation in Appendicitis.
By MEUSSEL.
11. Multiple Sclerosis or Cerebrospinal Syphilis.
By KUCKRO.
12. Protracted Period of Incubation in Vaccinia.
By SIMON.
13. The Prevention of Myopia.
By BERGER.
14. Pain and Blood Pressure.
By BEUTTENMÜLLER.
15. Reply to Beuttenmüller's Paper.
By CURSCHMANN.

1. **Pyocyanase in the Treatment of Infectious Diseases.**—Emmerich commences with diphtheria and gives the experimental basis for the treatment of this disease with pyocyanase, a bacteriolytic enzyme produced in pyocyanous cultures, and then gives the method by which it is applied. The theoretical grounds which indicated its use were the destructive action upon the diphtheria bacilli in the membrane and in the mucous membrane, its ability to arrest the development of such bacilli as were not killed and prevent their increase, its trypsin like effect in the dissolution of the membrane, its destructive and resistant action toward the *Streptococcus pyogenes* and *Staphylococcus pyogenes aureus*, and a specific curative action supporting the restoration of the mucous membrane. The clinical results produced are given as disappearance of the fœtor from the mouth in a short time, the temperature was reduced to, or nearly to, normal, the general condition improved, and the pseudomembranous or fibrinous coating of the fauces disappeared fairly quickly.

2. **Influenza Sepsis.**—Saathoff reports a case in which a man, twenty-five years of age, died of a septic disease, the ætiology of which could not be determined during life in spite of repeated examinations of the blood. Serious general symptoms were followed by bronchopneumonia, signs of meningitis, and finally by a hemorrhagic exanthema. Autopsy revealed verrucose endocarditis, an enormous swelling of the spleen, hemorrhagic meningitis and encephalitis. A pure culture of the influenza bacillus was obtained from the blood of the spleen though not from the blood of the heart, and thus injected into animals produced septicæmia.

5. **Viscosity of the Blood.**—Hess concludes from his experiments that: 1. The values are on an average 16 per cent. lower at a temperature of 37° C. than at one of 17° C., medium temperature of a room. 2. The curves agree so that the values obtained at the temperature of the room form a very accurate measure for the relations to be obtained at 37° C. 3. The influence of the temperature is relatively so slight that variations of only a few degrees, such as take place in a sick room, have no disturbing influence.

7. **Chronic Empyema of the Antrum.**—Frey reports a number of cases in which a radical operation had been performed in which the antrum had been laid open and all diseased tissue extirpated. It is not a radical operation in the sense that it obliterates the cavity.

8. **Orthotic Albuminuria.**—Engel thinks that youthful nephritics who present the phenomenon of orthotic albuminuria have a more favorable prognosis than young nephritics who do not present this symptom.

10. **Appendicitis.**—Meusel states that between January 1, 1906 and July 1, 1907, he operated in fifty-two cases of appendicitis. Eight were what he called conservative, thirteen were either interval or early operations. All of these patients recovered. Thirty-one were late operations. Among these patients there were four deaths, one from alcoholic bronchopneumonia, two from abscess of the liver and pyæmia, and one, operated upon in extremis, died shortly after the operation.

11. **Multiple Sclerosis or Cerebrospinal Syphilis.**—Kuckro reports the case of a man, thirty years of age, who had eight years before had a clinically observed and treated syphilis and developed acute paretic and coordinate disturbances of both limbs with atony of the bladder. The symptom complex was spastic ataxic paresis of the limbs, increase of Babinski's reflex, absence of epigastric reflex, normal pupillary action, hemihyæsthesia dextra with disturbances of coordination of the right hand, right hypogæusia, hyposmia, and hypacusis, temporal pallor of the papillæ, a central color scotoma on the right side, a sector shaped scotoma on the left. Mixed treatment and rest produced an improvement nearly to normal in a few days, though a slight weariness would make evident the spastic ataxic paresis. There was no increase of albumin in the cerebrospinal fluid, no lymphocytosis, no gross psychical symptoms, and no traces of hysteria. He questions whether this was a case of multiple sclerosis, or one of cerebrospinal syphilis.

12. **Protracted Period of Incubation in Vaccinia.**—Simon reports a case in which the period of incubation was thirteen days instead of the usual three. The subject was a child less than a year old.

ARCHIVES OF PÆDIATRICS.

November, 1907.

1. Anorexia Nervosa in Children. By F. FORCHHEIMER.
2. Congenital Stenosis of the Duodenum; Report of Case, By H. L. K. SHAW and L. K. BALDAUF.
3. The Report of a Case of Amyloid Disease, By H. C. CARPENTER.
4. Maternal Impressions with Report of a Case, By J. T. RUGH.
5. Indications for and the Technique of Paracentesis of the Liver. By J. McCOY.
6. Hemorrhagic Typhoid Fever. Report of Two Cases in Children. By W. W. WOODWARD.

1. **Anorexia Nervosa in Children.**—Forchheimer states that this term refers to a condition which occurs in neuropathic boys and girls, accompanied by loss of weight, and sometimes terminating fatally, though no organic lesion may be found. It is a neurosis or a psychosis, and the anorexia may be so complete that the patient takes no food at all or restricts himself to certain articles of diet. The term does not refer to conditions observed in spoiled children, for with them there is no loss in weight, nor does it refer to the anorexia of anæmia, the gastrointestinal diseases, scrofulosis or tuberculois. Four cases are narrated, one of which resulted fatally. The author thinks that all cases can be cured, especially if the patient can be removed from home surroundings and moral influences exercised to induce him to take suitable articles of food.

2. **Congenital Stenosis of the Duodenum.**—Shaw and Baldauf recognized this rare condition clinically in a new born infant who died without surgical interference, on the thirteenth day. The autopsy revealed this condition, the stricture being five centimetres below the papilla of Vater. Causes for this condition which have been suggested are intrauterine peritonitis of syphilitic or tuberculous origin, volvulus, enteritis, intussusception, pressure of new growths, amniotic bands, and various other influences. These hypotheses do not account for all cases and it is suggested that a comprehensive hypothesis should rest on an embryonic basis. It is known that in the youngest embryos the lumen of the intestine is visible, but that it subsequently disappears on account of a proliferation of epithelial cells. These in turn are usually absorbed and the lumen reappears. Failure of absorption over a certain area would account for stenosis in that location.

4. **Maternal Impressions.**—Rugh observes that the influence of maternal impressions during pregnancy upon the developing embryo has always been a matter of dispute. The difficulty has always been to establish relationship between the alleged cause and the observed effect. The great objection anatomically which is constantly urged is the absence of nerve structure in the placenta. This objection may be overcome if the statement of a recent French investigator is verified that by a new process of staining nerve fibres have been demonstrated in the placenta. Many instances are narrated and many authors quoted in support of the writer's contention that in some cases at least the impressions of the mother do influence the development of the child.

6. **Hæmorrhagic Typhoid Fever.**—Woodward thinks hæmorrhage from the bowel in typhoid fever is especially to be dreaded on account of its frequency, its inadequate treatment, and its dire results. Epistaxis is also one of the classical symptoms, but is not believed to occur in more than 31 per cent. of typhoid cases. Hæmorrhage may also occur from the stomach, tonsil, and ear. Hæmorrhage is occasionally an accompaniment of the hæmorrhagic diathesis, and is more frequent, when of this type, in childhood and adolescence than in adult life. The hæmorrhagic tendency is usually observed in cases which otherwise run a mild course, and its presence makes the prognosis much less favorable and demands the most thoughtful consideration. It has been observed at the height of the disease, toward the end, and in relapses.

Proceedings of Societies.

MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Meeting of November 18, 1907.

The President, Dr. T. E. SATTERTHWAIT, in the Chair.

Memorials of Deceased Fellows.—Reports of the committees on the death of Dr. Richard H. Derby and that of Dr. Francis H. Markoe were presented by the respective chairmen. They were as follows:

On the death of Dr. Richard H. Derby:

Whereas, Death has removed an honored member from our midst, be it

Resolved, That the heartfelt sympathy of the fellows of this association be extended to the bereaved family, and that a copy of this minute be sent to them; also

Resolved, That a copy of these resolutions be sent to the *Medical Record* and the *New York Medical Journal*.

C. COLE BRADLEY.

(Signed) R. O. BORN.

W. B. MARPLE, Committee.

On the death of Dr. Francis H. Markoe:

To the enumeration of the many honors and distinctions so freely given to and so richly deserved by Dr. Markoe, one would wish to add a more personal note; to speak of the charm of his personality, of the gentleness and kindliness of his nature, of his high ideals and standards. To his assistants and pupils he was ever an example of the enthusiastic and untiring worker, of the seeker after truth, of the kindly adviser. To his patients he gave, with his rare technical skill and wise counsel, an unselfish devotion and a most helpful sympathy. Most impressive were the last weeks of Dr. Markoe's life. From many men we may learn how to live, but few teach us how to die. This preeminently Dr. Markoe did. In his example of patience and fortitude in suffering, and of the separableness of the spirit from the body, of the soul half from the mortal half, he rendered to each and to all of us the highest service.

FRANCIS P. KINNULTE.

(Signed) CHARLES T. POORE.

FRANK HARTLEY, Committee.

Oversecretion of Gastric Mucus and Its Treatment.

A communication on this subject was presented by Dr. LUDWIG KAST. Two notable facts, he said, had been brought to light by recent experimental investigations: 1. That the secretion of gastric mucus was readily increased by various influences, such as psychic impressions, stimulation of the vagus, alcohol and certain foods, while these had little or any effect on the acidity. For this and other reasons it was now believed that the condition hitherto known as hyperchlorhydria did not really exist, and that high acidity of the stomach contents meant simply a form of supersecretion or a disturbance of the mucus. 2. The examination of the stomach had been shown to be regulated mainly by a reflex arising from the duodenum. When the stomach contents, which had an acid reaction, were poured into the duodenum, the pylorus closed and

remained closed until the acid medium in the duodenum was neutralized by alkaline secretions. After this the pylorus opened and permitted other parts of the stomach contents to enter the duodenum.

Under normal conditions there existed a balance between the acidity in the stomach and the alkalinity in the duodenum, and this balance assured the normal course of gastric digestion. A number of experimental and clinical observations had convinced the author that in cases of so called hyperchlorhydria and supersecretion the source of trouble was often not the mucous membrane of the stomach, but the duodenum and its glands. Holding this view, he had endeavored to arrive at some therapeutic conclusions, and he desired now to present a preliminary report showing favorable results with glycerin in the treatment of these cases. Among the physiological effects of glycerin were a depression of the gastric secretion, with a consequent reduction of the acidity of the stomach contents, and an augmentation of the flow of bile and pancreatic secretion; and these two actions, he believed, were therefore capable of restoring a disturbed balance between gastric acidity and duodenal alkalinity. Several cases of excessive gastric secretion which had not been benefited by the usual treatment with antacids, belladonna, silver nitrate, etc., had responded promptly to the use of this agent. He was accustomed to give one teaspoonful (gradually increased to twice this quantity) of glycerin in thirty ounces of water, three times a day, shortly before meals, and while giving directions as to diet, he employed no other drug during the treatment. The material thus far collected was not large enough to justify any definite conclusions, but as he had never observed any untoward effect from the use of glycerin, he had thought it advisable to call attention to this treatment at the present time, in the hope that the observations of others might the sooner help to decide as to the value of the duodenal treatment of supersecretion.

Gallstone Disease from a Surgical Point of View.—Dr. FORBES HAWKES read this paper (to be published).

Diseases of the Liver Amenable to Surgical Treatment.—Dr. CLARENCE A. McWILLIAMS read this paper (see *Journal*, pp. 1053 et seq.).

The Medical Treatment of Gallstone Disease.

—Dr. REYNOLD WEBB WILCOX spoke on this subject. For a long time, he said, Durand's mixture, consisting of ether and oil of turpentine, had been used under the belief that it dissolved gallstones. The same was true of olive oil. Yet, when we considered that in from 6 to 10 per cent. of all cadavers examined gallstones were found, it could readily be seen that absence of colic should not be interpreted as necessarily indicating that the individual had been cured of gallstones. He would go further than Dr. Hawkes and assert that the treatment of gallstones was surgical, first, last and always, while the treatment of gallstone disease was purely medical, and had nothing to do with surgery. Gallstones were chiefly of two varieties, those of the gallbladder, composed of cholesterol, and those of the liver, composed of bilirubin and calcium salts.

That stones were formed in the liver had been shown in a number of ways, but the most conclusive proof of this was afforded by a series of x ray demonstrations by Dr. Carl Beck. In the formation of these stones the important ætiological factor was an infection. This infection was not a constant one, but might be of various character, and in the treatment of gallstone disease the problem we had to deal with was to remove all conditions conducive to infection of every kind. The course of the infection might be either an ascending one, from the intestinal canal, or a descending one, from the portal system. In general, it might be said that chronic venous congestion was the great underlying cause of the gallstone disease, and while stagnation of bile *per se* did not favor gallstone formation, yet, since this favored infection, it led indirectly to such formation. In the treatment he had obtained the best results from a combination of acid sodium oleate with salicylic acid, phenolphthalein, and menthol, given in pill form. His own formula for these pills was not the only one, as analogous formulæ had been prepared by Baumeister and Davis. Attention should be paid to the diet, but, while it was important that the patient should have frequent meals, the diet need not be an extremely restricted one. Having given a diet table which he had found of service, Dr. Wilcox spoke in conclusion of the necessity of guarding against or overcoming congestion and inflammation of the portal system. In carrying this out, massage, exercise, etc., were useful.

Surgical Technique in Diseases of the Biliary Passages.—This subject was presented in a paper by Dr. JOHN F. ERDMANN (to be published).

Dr. WILLIAM H. THOMPSON said he did not know of any diagnostic problem which, on the whole, it was easier to settle than a case of gallstones. Not only were the clinical symptoms of an attack markedly distinctive, but the physical examination gave results more distinctive than those presented by a calculus passing along the ureter. The cystic duct presented a definite point which could be pressed with the index finger, and this was just as distinctive as the McBurney point. Furthermore, by placing the patient in a chair in a relaxed position, and standing behind him, the examiner could pass his hand under the gallbladder. When the trouble was in the common duct the point of localized pain was about two inches above that when the cystic duct was involved. If the attacks had been at all frequent, there would always be signs of localized gastritis also. The speaker said he wished to protest strongly against the name of gallstones. The so called gallstones were not stones at all, but simply concretions which were particularly soluble in normal bile. As secreted, this fluid had a specific gravity of only 1.010, but after it had entered the gallbladder it became more concentrated as absorption went on and showed a specific gravity of 1.030, or even 1.040. Cases of gallstone disease were exceedingly numerous, and, as a rule, surgical interference was not called for in them, but when the gallbladder became distended with calculi and leucocytosis was present he always urged an immediate operation. For a long time he was accustomed to give his patients two

ounces of olive oil at night, and, in addition, ten grains each of sodium benzoate and sodium salicylate after each meal and again at night. More recently he had substituted the succinate of sodium, though still keeping up the oil. The aim of the treatment was to cause a free flow of normal bile.

Dr. A. ERNEST GALLANT spoke of the liability of a displaced kidney dragging upon the duct to be mistaken for some form of gallstone disease. Treves had reported three cases of this kind in which he had operated, and a number of other surgeons had had similar experiences. This condition was not at all uncommon, and he himself had met with ten cases. The diagnosis was easy if the patient was placed in such a posture that the pressure from the kidney was removed. Where jaundice was present, he had seen this symptom disappear when the kidney was retained in place by proper support, and as soon as this support was removed the jaundice would come back again. By keeping the kidney properly supported these patients could be completely relieved.

Dr. R. W. WESTBROOK said that he must take issue with Dr. Wilcox, as he could not understand the difference between gallstones and gallstone disease. In the majority of cases of operation the disease, as well as the stones, was removed. There was no recurrence of the attacks, and therefore he thought it could be said with truth that the disease itself had been cured. He did not think that stones were formed in the liver ducts nearly as frequently as Dr. Wilcox would have us believe, and, notwithstanding the x ray pictures mentioned, it seemed to him that the immense number of cases of gallstones subjected to operation, with no recurrence, which had been reported by Mayo and others, afforded conclusive evidence that the condition was cured by an operation. Gallstones and gallstone disease were primarily surgical. There were, unfortunately, many incomplete operations, stones being left, but in cases in which the operation was complete, and followed by proper drainage, recurrence did not take place. He was not convinced that prolin was of service, nor did he believe that there was any medicine capable of dissolving gallstones.

Dr. ACHILLES ROSE said that there were two factors in the causation of gallstones—infection and stagnation. Stagnation was absolutely essential, and one great cause of this was relaxation of the abdominal muscles. It should be remembered that these muscles controlled not only the circulation of the blood throughout the abdomen, but also that of the other fluids in the abdominal organs. Hence it was that by the muscular relaxation stagnation of the bile was brought about. He then mentioned the case of a lady, sixty years of age, who had been the subject of gallstone disease, and was now in perfect health. Some time ago she was treated successfully by means of abdominal strapping. It was found, however, that when the strapping was left off for a time the trouble always returned, and she now came to Dr. Rose regularly every two or three months to have the strapping renewed.

Dr. WILLIAM VAN VALZAH HAYES said that his success with sodium succinate had been so gratifying that he now considered it his sheet anchor in

gallstone disease. Sometimes, however, he employed sodium salicylate, and he also believed probolin to be of distinct value.

Dr. R. E. VAN GIESEN said it was not at all uncommon for persons to have gallstone trouble at one period, and then, although without being operated upon, not to have it again during all their lives. He recalled one such instance in which the patient had gallstones thirty-five years ago, and never had had any recurrence afterward. The operation was a very serious one, and he thought it should never be performed unless two conditions were present, namely, infection and impaction.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of November 2, 1907.

The President, Dr. JAMES TYSON, in the Chair.

Sarcoma of a Retroperitoneal Undescended Testis Strangulated by a Twist.—Dr. ROBERT G. LECONTE read this paper, reporting the case of an

Italian, twenty-eight years of age, who had been ill for three days with symptoms resembling diffuse peritonitis of appendicular origin. An incision through the lower part of the right rectus gave exit to some bloody, cloudy fluid, and an ovoid tumor, blue-black in color, immediately presented. It was attached by a pedicle two inches long to the retroperitoneal structures, the pedicle being twisted by two half turns. The diagnosis was revised to ectopic testicle strangulated by a twist. Pathological examination of the tumor showed it to be malignant, and the diagnosis was large round celled sarcoma, probably of an undescended testicle. No trace of the left testicle could be found, and the possibility of the two testicles being fused into one was suggested. The author had found but two similar cases in the literature. Two conditions present were considered: Strangulation and malignant degeneration. It was stated that in all recorded cases of operation for torsion of the cord, a deformity or some delay in development or some abnormal condition about the testicle had been found. Torsion of the cord, therefore, never occurred in the normal condition of the testicle. Overgrowth or lengthening of the cord seemed to be the predisposing cause in strangulation of the testis. The author believed that it was impossible to get accurate statistics upon the frequency of undescended testicle, because the condition might exist at birth, and yet the testicle descend to its normal position by the end of the first year or before puberty, and there was no particular period for which statistics could be given that would hold true for life. For this reason it would be impossible to contrast the percentage of malignant changes in the undescended testicle with those in the normal. There were, however, certain microscopical differences between an undescended testicle and a normal one which seemed to render the misplaced organ more liable to malignant change. The author believed that when malignancy in such a testis was present it was due more to these histological differences than to injury.

Dr. WILLIAM L. ROOMAN had operated in two such cases within the past two weeks. He was distinctly of the impression that retained testes were particularly prone to undergo malignant change.

The Liver in Antiquity. Mr. MORRIS JARROW, Jr. (by invitation), presented this paper, stating that

medicine was an offshoot of religion and that the first teachers of mankind were the priests, who were at the same time the judges and the physicians. Complementary to the function of the priest in removing ills, there also devolved upon him the privilege or obligation of divining the future, a common method of which was through the inspection of the liver of sacrificial animals. The theory underlying the method was the belief that the liver was the seat of the soul of the animal. Since life was the gift of the gods, the liver of the animal was the divine organ *par excellence*. The deity, in accepting the sacrificial animal, assimilated, as it were, his own being with the life of the animal; hence the conclusion was drawn that if one correctly read the signs on a liver of a sacrificial animal one could enter, as it were, into the mind of the god to whom the animal was offered and with whom the deity had assimilated himself.

Starting from such a theory, the priests developed an elaborate system of interpretation of the signs to be observed on the liver. This system rested (1) upon the association of ideas and (2) upon the association of sound, i. e., a supposed connection between the names given to certain marks on the liver and a second meaning associated in a more or less fanciful manner with the sound in question. In later days, among the Romans and the Greeks, the prevailing theory placed the seat of the soul in the heart, and therefore to the inspection of the liver was added the observation of signs on the heart of the sacrificial animal and occasionally also of signs on the lungs. The author stated that it was the position accorded the liver of being the seat of all intellectual functions and emotions that had led to the beginning of the study of animal and later of human anatomy.

Perforation of the Gallbladder During Typhoid Fever; Recovery After Cholecystectomy.—Dr. ASTLEY P. C. ASHHURST reported this case, that of a patient in the service of Dr. G. G. Davis at the Episcopal Hospital. An operation was done on the forty-second day of typhoid fever, four hours after the occurrence of perforation. A large perforation of the gallbladder was found, with local suppurative peritonitis; the gallbladder was removed and the patient recovered. Dr. Ashhurst had collected in all accounts of twenty-one operations done for lesions of the gallbladder during the course of typhoid fever. He did not include cases where the operation was not done until after recovery from the disease. Among the twenty-one operations there were eight recoveries and thirteen deaths. In four of the fatal cases the operation was abandoned before the gallbladder lesion was found. The symptoms presented by the patients divided themselves into two groups: First there were those in which there was a gradual onset of symptoms in the gallbladder region, frequently accompanied by a palpable mass. An operation in this stage disclosed cholecystitis, empyema of the gallbladder, or localized peritonitis, without perforation. In the second class of cases, after the above mentioned train of symptoms, there were suddenly added the symptoms of perforation, followed, when an immediate operation was not undertaken by a secondary rise of temperature, a period of the usual tenderness over the whole abdomen, and an increasing distension of the intestines. A correct diagnosis had been made in

ten out of the twenty-one cases reported. In nine cases the diagnosis was intestinal perforation. In one case the only diagnosis was peritonitis, and in one case no details were reported. Dr. Ashhurst found that among 2,864 patients with typhoid fever, treated at the Episcopal Hospital during the last three years, there had been eighteen cases complicated by cholecystitis (about 0.62 per cent. of the whole number of cases). Only two of these cases were considered severe enough for the question of operation to be entertained, and it appeared a mere coincidence that these two should both have been observed during the present year, within a few weeks of each other.

Dr. J. ALISON SCOTT referred to the difficulty in diagnosis of perforated gallbladder in typhoid fever; in a very large number of cases of typhoid fever he had seen no case in which he had been satisfied as to this condition.

Pulsating Exophthalmia.—Dr. G. E. DE SCHWEINITZ and Dr. T. B. HOLLOWAY, after briefly referring to the literature of this subject and to the 313 cases of the affection which had been recorded in various tabulations, stated that the object of their communication was: (1) To analyze those cases not previously recorded in the tabulations already referred to, namely, sixty-nine in number; (2) to elaborate and compare the therapeutic measures, surgical and others, which had been employed in the treatment of these cases; and (3) to endeavor to arrive from these analyses at that surgical procedure which seemed likely to prove of the greatest advantage in controlling the symptoms.

The communication discussed the causes, age, sex, and symptoms, general and visual, of patients with pulsating exophthalmia. Basing their conclusions upon the eleven autopsies in their series, as well as upon the thirty-nine other autopsies which had been elsewhere tabulated, the authors agreed with Keller that strictly the term pulsating exophthalmia should be limited to that disease in which a communication of the internal carotid with the cavernous sinus had been demonstrated or was reasonably certain, in so far as the intracranial cases were concerned, but that aneurysm of the internal carotid, aneurysm of the ophthalmic artery, and some tumors might cause symptoms which were exactly analogous to those furnished by typical pulsating exophthalmia, and must therefore be considered among the aetiological factors.

The treatment was divided into: (1) Ligation of the larger vessels of the neck; (2) operations upon the orbit; (3) compression of the common carotid; (4) direct compression of the venous swelling of the eyelid and angle of the orbit; (5) gelatin injections; (6) the administration of certain drugs and rest in the recumbent posture.

The essayists analyzed 150 ligations of the common carotid for the relief of pulsating exophthalmia, with a cure or improvement in 59.8 per cent., failure in 24.3 per cent., and death in 10.5 per cent. The orbital operation of ligation of the distended superior ophthalmic vein, originally suggested by [unclear] and perfected since that date by a [unclear], had been found to be invariably successful, as had also other orbital operations, notably one recently reported by Lewis, with ligation

of the ophthalmic artery for the relief of an aneurysm of the vessel.

While the tables showed that compression of the common carotid was occasionally followed by cure, as compared with operative procedures, it was of indifferent value except as a preliminary to ligature, under which circumstances it might lessen the subsequent heart strain by partially establishing a collateral circulation.

The following conclusions were reached: 1. In the presence of true pulsating exophthalmia surgical procedures should take precedence, and time was probably lost by an attempt to cure the lesion by the administration of drugs, although an injection of serum gelatin might be considered if the presence of an aneurysm of the ophthalmic artery was known to exist. 2. Of the ligations of the neck arteries, the best results were apt to follow ligature of the common carotid, as the contention that ligature of the external and internal carotid was the preferable procedure was not borne out by statistics. 3. If there was failure to relieve or cure the symptoms by ligature of one carotid, before the second carotid is tied the orbital operation of dissecting out and tying the distended veins should be tried. 4. In the presence of a distinct venous swelling in the orbit, with evident distention of the angular or superior ophthalmic vein, the authors agreed with Gifford that the operation of choice should be isolation, ligature, and resection of this venous channel, inasmuch as thus far, although the operations were few in number, they had been uniformly successful, while ligature of the common carotid, although having to its credit the cure of a large percentage of cases, had to its discredit a mortality of 10.5 per cent. and a failure of 24.3 per cent.

Dr. JOHN B. ROBERTS thought, from what had been shown by the paper and in view of the progress in asepsis, that it might be well to delay operations upon the larger arteries of the neck until the deep part of the orbit had been explored.

Dr. GEORGE C. HARLAN referred to the recovery of a patient under the use of intermittent compression.

Dr. DE SCHWEINITZ said that, with certain exceptions, it would seem to be an entire waste of time to employ any procedure except a surgical one.

Book Notices.

Grundriss und Atlas der speziellen Chirurgie. Von Dr. GEORG SULTAN. 1. Teil. München: J. F. Lehmann, 1907. Pp. xv-459. (Price, \$4.)

The atlas and manual of general surgery, published by J. F. Lehmann, of Munich, which appeared in 1906, is now supplemented by a manual on special surgery in two volumes, the first of which is before us. It is, like the thirty-five other books of this collection of compendia, written in as condensed a form as possible, without curtailing the text too much. All the manuals of this series appear in a very handy form, not like our large, cumbersome textbooks bound in one volume. The form and shape of these German books is decidedly preferable.

This volume on special surgery deals with the

surgery of the skull, the brain, the face, the nose, the maxilla, the mouth, the tongue, the fauces, the tonsils, the ears, the parotid gland, the throat, the thyroid gland, the larynx, the trachea, the œsophagus, the thorax, the mediastinum, the lungs, the pleura, the heart, and the spinal column and cord. The book is well illustrated, the illustrations are carefully executed, and it will certainly be appreciated by the general practitioner, to whom it will be a guide for diagnosis and for the performance of minor surgical operations, and by the specialist as a short and condensed manual.

A Textbook on the Practice of Gynecology, for Practitioners and Students. By WILLIAM EASTERLY ASHTON, M. D., LL. D., Professor of Gynecology in the Medico-chirurgical College, etc. Third Edition, Revised and Enlarged. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 1,097.

The fact that only a year elapsed between the appearance of the first and that of this third edition of Dr. Ashton's work shows that it has commended itself to the profession. The present revision seems to have been quite thorough, and it is to be expected that the book will long retain its popularity.

Plasma und Zelle. Erste Abteilung. Allgemeine Anatomie der lebendigen Masse. Bearbeitet von Prof. Dr. MARTIN HEIDENHAIN in Tübingen. Erste Lieferung: Die Grundlagen der mikroskopischen Anatomie, die Kerne, die Centren und die Granulalehre. Mit 276 teilweise farbiger Abbildungen im Text. Jena: Gustav Fischer, 1907. (Price, 20 marks.)

This book is the first part of the eighth volume of the *Handbuch der Anatomie des Menschen*, projected by Professor Karl von Bardeleben, of Jena, the first part of which large work in eight volumes appeared, if we are not mistaken, in 1894. Professor Heidenhain, of Tübingen, the author of the eighth volume, treats in 501 pages of the nuclei, the centres, and the granula doctrine of the cell material. The second part, the author remarks in his introduction, will deal with the contractile and nervous substance of the cell, the amoeboid plasma, etc., while in the third part he is going to speak about the cell proper and its division. It can be seen, therefore, that his work is planned on a very large scale.

This part possesses no index or general synopsis, but the four divisions are arranged according to an analogous system, each provided with a synopsis and bibliography. Part I contains the bases of microscopical anatomy (pages 1 to 104, with a bibliography of six pages), subdivided into an introduction and an historical review of the doctrine of cell and protoplasm up to the sixties of the nineteenth century, and from there until our time.

Part II treats of the nuclei, with an introduction: the living state; preservation; coloring; the chemistry of the nucleus (pages 111 to 211, with three pages of bibliography). Part III is devoted to the centres, with an introduction, nomenclature, and technique; centriole, cytocentre or microcentre, centrosome and sphere, the morphology of the centres, flagella and cilia in connection with the centres, the identity and the development of the centres; the relation of the centres to mitosis, the division of the microcentres and centrosomes, and the physiology of the centres (pp. 215 to 318, with eight pages of bibliography).

Part IV deals with the granular doctrine. After the introduction there are considered the lymphatic granule, pigment bodies, mitochondria, granular fat synthesis, vital granular coloration, and the theory of the smallest bodies, the plasome, or protomerite, theory (pp. 327 to 501, with five pages of bibliography).

The book represents the present status of our knowledge and of the theories of plasma and cell. But what will it be to-morrow? We are taught that the red blood corpuscles have no nuclei. Is that really the true condition? The book gives a very interesting review of the development of our animal cell theory, which was really first proved by Schwann, in 1839, in his celebrated *Mikroskopische Untersuchungen über die Uebereinstimmung in der Struktur und dem Wachsthum der Thiere und Pflanzen*, while the botanical cell theory had been fully accepted before Schleiden's *Beiträge zur Phytogenesis* appeared, in 1838. How different are our present day views! How many men have studied and worked; and still our progress has not been so great; while the doctrine seemed quite simple fifty years ago, it has now become so intricate that opinions are divided and school is opposed to school.

The work is written with German thoroughness and well illustrated, and, while going too much into detail to appeal to the general reader, will certainly be appreciated by the specialist.

Faschenbuch der Therapie mit besonderer Berücksichtigung der Therapie an dem Berliner; Wiener u. a. deutschen Kliniken. Herausgegeben von Dr. M. T. SCHNIRER, Redakteur der *Klinisch-therapeutischen Wochenschrift*. Vierte vermehrte und verbesserte Ausgabe. Würzburg: A. Stuber, 1908. Pp. 387. (Price, 2 m.)

We have nothing quite like this book in English. The nearest approach to it is the valuable compendium of Martindale, entitled *The Extra Pharmacopæia*. Schnirer's handbook is arranged differently, the first 150 pages being arranged alphabetically, according to diseases, the appropriate treatment being given under each disease, and here is where the book should prove of the greatest use to practising physicians. Following the name of the disease is a brief summary of symptoms, and then the treatment is indicated generally, formulas for the remedy being given in prescription form. Pages 152 and 255 inclusive are taken up with descriptions of the drugs and chemicals in common use, their physical appearance, therapeutic properties, doses, and methods of administration being tersely and succinctly described. There is a page on food stuffs and nutrients for infants and invalids and another on poisons and their antidotes. We notice that under carbolic acid no mention is made of the use of alcohol as an antidote, the preference being given to saccharated lime. The author has succeeded in assembling within the compass of a conveniently sized book, such as fits easily into the coat pocket, an astonishing amount of varied information on subjects of immediate interest to practitioners. The book comes with a list of books and sanatoria. It is especially rich in formulas, and we do not know of any similar work that is better adapted to the needs of the busy physician in active practice.

University of California Publications. Pathology On Fermentation. By ALONZO ENGLEBERT TAYLOR. Berkeley: The University Press, 1907. Pp. 341. (Price, \$2.)

Dr. M. Herzstein, of San Francisco, in 1904 established a lectureship in the University of California devoted to the exposition of scientific subjects fundamental to medicine. This series of lectures was delivered in 1904-1905, but has been delayed in publication by reason of the San Francisco disaster. It deals with the consideration of the subject of fermentation from the two points of view of general chemistry and chemical biology, and, in addition, includes a review of the special literature of the topics, as well as a series of researches on various aspects of the subject. The author has limited his discussions to those forms of fermentation that are of importance to the animal economy, and further restricted the scope to those concerning which we have data, sufficient in quantity and trustworthy in quality, to enable the investigator to rest his conclusions on a solid objective foundation.

Fermentations are here considered as accelerations of existing reactions. In every vital reaction there are driving forces and forces resistant to the carrying out of the reaction. Catalysts are related only to the passive end of the reaction, and catalytic activity is limited to that which will lower the passive resistance and thus hasten the reaction velocity. The author defines catalytic acceleration as a succession of intermediate reactions limited within a homogeneous system.

Cells induce fermentations only through the agency of chemical substances elaborated by them, and all ferment action obeys the general laws of chemical kinetics; and the author devotes considerable space to the general proof, or, rather, the statement of the problems involved.

A detailed consideration of the topics taken up is beyond the purposes of this general review. The technical considerations are of the most intricate and detailed character, making this volume perhaps the most classical of its kind. It will greatly interest the specialist and the workers in biological chemistry, but is too highly technical for the general practitioner.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Mosquito Life. The Habits and Life Cycles of the Known Mosquitoes of the United States; Methods for Their Control; and Keys for Easy Identification of the Species in Their Various Stages. An Account Based on the Investigations of the Late James William Dupree, M. D., Surgeon General of Louisiana, and upon Original Observations by the Writer. By Evelyn Groesbeck Mitchell, A. B., M. S. Illustrated. New York: G. P. Putnam's Sons, 1907. Pp. 281.

The Thirteenth Greatest of Centuries. By James J. Walsh, M. D., Ph. D., LL. D., Acting Dean and Professor of the History of Medicine and of Nervous Diseases, Fordham University School of Medicine, etc. With Illustrations. New York: Catholic Summer School Press, 1907. Pp. 436. (Price, \$2.50.)

The Treatment of Fractures. With Notes upon a Few Common Dislocations. By Charles Locke Senn, M. D., Surgeon to the Massachusetts General Hospital; Lecturer on Surgery in the Harvard University Medical School. Sixth Edition, Thoroughly Revised and Enlarged. With 856 Illustrations. Philadelphia and London: W. B. Saunders Company, 1907. Pp. 628.

Syphilis in its Medical, Medicolegal, and Sociological Aspects. By A. Ravogli, M. D., Professor of Dermatology and Syphilology in the Medical College of Ohio, Medical Department of Cincinnati University, etc. New York:

Ophthalmia Neonatorum. With Especial Reference to its Causation and Prevention. (The Middlesex Prize Essay of the British Medical Association, 1907.) By Sydney Stephenson, M. B., C. M., Ophthalmic Surgeon to Queen Charlotte's Hospital, London, etc. London: George Pulman & Sons, Limited, 1907. Pp. 258.

Miscellany.

Plague Work in California.—The following report is issued from San Francisco, under the date of November 8 (*Public Health Reports*, November 22): "The disease seems to be on the decrease, and it is believed that the cases now being reported represent all that are occurring in San Francisco. The district commanders and their men are becoming more familiar with their work and better coordination of their work is being secured. They have learned more about the rat and his habits, and are thus better able to trap and poison rats. Last week 13,000 rats were trapped and found dead from poison. Of the 4,500 examined microscopically, seven were infected with the plague bacillus. But this number does not express the entire number killed, as many have died in the sewers and other inaccessible places; in fact the sewer men state that they have never before seen so many dead rats in the sewers. The poisons used have included plaster of Paris flour, phosphorus paste, and arsenic pastes. Feeding experiments conducted in some of the districts seem to prove that these pastes kill the rat in from six to seven hours. The scheme of organization includes a general headquarters and twelve districts. At the general headquarters the executive work is conducted, including the preparation and issuance of orders, the receipt and transmission of reports of cases, the collection and tabulation of statistics, the routine work relating to accounts and expenditures, and the answering and filing of correspondence. A laboratory is also maintained for the verification of plague cases both human and rodent, and the prosecution of research work bearing upon the subject in hand.

"Each district in which plague has occurred is in charge of a service officer, who has a headquarters centrally and conveniently located. These offices have telephonic connection, and a clerk for the tabulation of reports, the filing of the card index of the sanitary survey, and the preparation of reports for the general headquarters. The personnel of the districts includes sanitary and assistant sanitary inspectors and a corps of men proportionate to the size of the district and the amount of work to be done therein. The men are employed in placing traps and poisons, in closing rat holes and rat runs, in burning rat food, and destroying rat harboring places. A central commissary has been established from which poisons, traps, and other supplies are issued to the districts on proper requisition." Weekly meetings of the district commanders are held for the discussion of the work in hand and the best measures to be adopted. This mutual interchange of ideas has been productive of much good. A bounty of 10 cents each has been offered for rats. Besides killing off large numbers of these pests this serves to bring home to the people the necessity of ridding their premises of rodents. An inspection of the dead is maintained, two special medical inspectors

being employed for the purpose, and no dead body is permitted to be removed by an undertaker until the inspector has viewed it and given his consent. The sick are being treated in a rat proof compound located on the grounds of the old City and County Hospital. A plague camp with ample accommodations for fifty patients has been established at Army and DeHara streets, and is now ready for occupancy. Practically all cases are removed to the hospital. When they are kept at their homes a strict quarantine is maintained. The State Board of Health has appointed a bacteriologist and two medical inspectors exclusively for plague work. The same general line of work is being carried on in Oakland as in San Francisco. The city officials there have given full cooperation and are pushing the campaign vigorously, under the immediate supervision of passed Assistant Surgeon J. D. Long. The county supervisors have made an appropriation for the inspection of the sick and dead within their borders. Alameda has not yet cooperated in the work. Efforts have, however, been made at Alameda at rat extermination, a total of three rat-catchers, with a promise of the fourth, being employed for the purpose. Every opportunity has been offered the health officials of Alameda to inspect the work in San Francisco, that they may fully acquaint themselves with modern methods of combating plague. An active campaign was instituted last week at South San Francisco, San Mateo county, under the direction of the health officer. Passed Assistant Surgeon W. C. Rucker was detailed to confer with the supervisors of San Mateo county with regard to the work. One of the objects of the campaign in the State has been to draw public attention to the desirability of prompt recognition of plague and the application of preventive measures. The results have been gratifying. Many inquiries have been received and answered by letter and by the distribution of literature bearing upon the subject. Several medical societies in the State have included a plague symposium in their programmes and have requested addresses from service officers. Several requests have been received from lay organizations. These have been complied with in every instance and it is believed that much good has resulted therefrom. This method of procedure should result in the discovery and eradication of any latent foci possibly existing in the smaller and more isolated towns."

Similar work is being done in Los Angeles, Cal., and Seattle, Wash.

Official News.

Public Health and Marine Hospital Service
Health Reports:

The following names of children and the birth dates and places were given to the Surgeon General, United States Public Health and Marine Hospital Service, through the Bureau of Census:

Indiana—Evanston	Nov. 20-16	5
Illinois—Belleville	Nov. 20-16	5
Illinois—Chicago	Nov. 17-23	2
Illinois—Chicago	Nov. 13-19	4
Illinois—Rockford	Oct. 13-19	2
Illinois—Sherman	Oct. 28-29	5
Iowa—Spokane	Nov. 15-21	1
Indiana—Ellettsville	Nov. 28-29	2
Iowa—Ottumwa	Nov. 17-23	2
Kansas—Kansas City	Nov. 17-23	2
Louisiana—New Orleans	Nov. 10-16	1
Michigan—Grand Rapids	Nov. 20-16	2
Minnesota—Winona	Nov. 20-16	2
Nebraska—Lincoln	Nov. 13-19	2
New York—Bartlett	Oct. 13-19	2
New York—New York	Nov. 20-16	2
North Dakota—Roseau	Nov. 20-16	2
—Devils Lake	Nov. 20-16	2
North Dakota—Fargo	Oct. 13-19	Present
North Dakota—Fargo	Nov. 20-16	Present
Ohio—Greenman	Nov. 20-16	2
Tennessee—Nashville	Nov. 20-16	2
Utah—Salt Lake City	Oct. 13-19	1
Washington—Spokane	Nov. 10-16	7
Washington—Tacoma	Nov. 20-16	2
Wisconsin—La Crosse	Nov. 20-16	1
Wisconsin—Milwaukee	Nov. 13-19	2

Smallpox. — Foreign.

Africa - Algiers...	Oct. 13-19	1
British South Africa—Cape Town...	Oct. 13-19	1
British South Africa—East London...	Oct. 13-19	1
Madagascar—Vienna...	Oct. 20-26	30
Paraná—Paris...	Oct. 28-29	1
Paraná—Pernambuco...	Sept. 1-15	1
Paraná—Rio de Janeiro...	Sept. 20-Oct. 20	30
China—Hongkong...	Oct. 7-20	14
China—Shanghai...	Oct. 7-20	6
Cases foreign, deaths native.		
Egypt—General...	Sept. 27-30	700
France—Paris...	Sept. 27-30	700
India—Calcutta...	Sept. 20-Oct. 5	15
India—M. P. ...	Oct. 1-15	1
Italy—Genoa...	Oct. 25-31	8
Italy—Cagliari...	Oct. 25-31	8
Italy—Genoa...	Sept. 1-2	1
Japan—Kobe...	Oct. 13-26	11
Malta—Valletta...	Oct. 13-26	11
M. N. Agency—Canton...	Nov. 1-15	1
Portugal—Lisbon...	Oct. 28-Nov. 1	2
Russia—Odessa...	Oct. 2-20	1
Romania—Bucharest...	Oct. 2-20	1
Russia—St. Petersburg...	Oct. 2-20	1
Russia—Warsaw...	Oct. 15-16	1
Spain—Almorá...	Oct. 1-3	1
Spain—Barcelona...	Oct. 1-3	1
Switzerland—Zürich...	Oct. 28-Nov. 1	1
Turkey in Asia—Bath...	Sept. 30-Oct. 12	Present

China—Tientsin...	Oct. 5
India—Calcutta...	Sept. 29-Oct. 5
India—Madras	Oct. 12-18
India—Rangoon	Oct. 12-18
Japan—Kobe	Oct. 12-18
Japan—Yokohama	Oct. 12-18
Russia—General	Oct. 12-18

[illegible]

On S. S. Mareeba.

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the week ending November 27, 1907:

- BURKHALTER, J. T., Passed Assistant Surgeon. Detailed as a member of a Revenue Cutter Retiring Board at Baltimore, Md., December 2, 1907.
- HALLETT, E. B., Acting Assistant Surgeon. Granted leave of absence for three days from November 27, 1907.
- KERR, J. W., Assistant Surgeon General. Detailed to attend the conference of the National Legislative Council and the Committee on Medical Legislation of the American Public Health Association, Chicago, Ill., December 10-13, 1907.
- LINLEY, W. J., Acting Assistant Surgeon. Granted leave of absence for thirty days from December 2, 1907.
- ONUF, B., Acting Assistant Surgeon. Granted leave of absence for one day, October 16, 1907, under paragraph 210, Service Regulations.
- STEARNS, H. H., Acting Assistant Surgeon. Granted leave of absence for one day, October 16, 1907, under paragraph 210, Service Regulations.
- STONER, J. B., Surgeon. Granted leave of absence for twenty days from November 24, 1907.
- SWEET, E. A., Assistant Surgeon. Relieved from duty at Fort Stanton, New Mexico, and directed to proceed to San Diego, Cal., and assume charge of the Service at that port.
- WASDIN, E., Surgeon. Granted leave of absence for twenty-one days from December 20, 1907.
- WETMORE, W. O., Acting Assistant Surgeon. Granted leave of absence for one day, October 16, 1907, under paragraph 210, Service Regulations.
- WILLIAMS, L. L., Surgeon. Detailed as a member of a Revenue Cutter Retiring Board at Baltimore, Md., December 2, 1907.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending November 30, 1907:

- BUCHER, W. H., Surgeon. Detached from the Naval Hospital, Boston, Mass., and ordered to report to the Surgeon General, Navy Department, Washington, D. C., for special temporary duty, and thence to the Naval Hospital, New Fort Lyon, Colo.
- TAYLOR, E. C., Passed Assistant Surgeon. Detached from the Naval Hospital, New York, N. Y., and ordered to the Naval Hospital, New Fort Lyon, Colo.
- THOMAS, G. G., Acting Assistant Surgeon. Appointed an acting assistant surgeon, from November 20, 1907.
- WEBB, U. R., Passed Assistant Surgeon. Ordered to command the Naval Hospital, San Juan, P. R.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending November 30, 1907:

- BLANCHARD, R. M., Captain and Assistant Surgeon. Upon arrival at San Francisco, Cal., will proceed to Fort Wingate, N. M., for station.
- BROWN, H. L., First Lieutenant and Assistant Surgeon. Granted ten days' leave of absence.
- FIELD, P. C., First Lieutenant and Assistant Surgeon. Appointed a member of a board of officers to meet at Rock Island Arsenal, Rock Island, Ill., December 9th, for the examination of officers of the Ordnance Department, for promotion.
- KILBOURNE, E. D., Captain and Assistant Surgeon. Granted two months' leave of absence.
- MUNSON, E. L., Major and Surgeon. Appointed a member of a board of officers to meet at Rock Island Arsenal, Rock Island, Ill., December 9th, for the examination of officers of the Ordnance Department, for promotion.
- TORNEY, G. H., Lieutenant Colonel and Deputy Surgeon General. Having completed the duty for which he was ordered to Washington, D. C., will return to his proper station.
- WIMMER, H. A., Captain and Assistant Surgeon. Granted

WOODRUFF, C. E., Major and Surgeon. Upon the discontinuance of Camp Captain John Smith, Jamestown Exposition, Va., about December 1, 1907, ordered to accompany the 23d Infantry to Madison Barracks, N. Y. Upon completion of this duty will proceed to station at Plattsburg Barracks, N. Y.

Births, Marriages, and Deaths.**Married.**

- BROWN-WHERRY.—In Norfolk, Va., on Saturday, November 23d, Dr. Mark A. Brown and Miss Alice G. Wherry.
- GERSDORFF-LAWRENCE.—In Brookline, Mass., on Thursday, November 21st, Mr. George B. de Gersdorff and Miss Isabel Lawrence, daughter of Dr. Robert M. Lawrence.
- HUBBARD-BILLINGTON.—In Jersey City, N. J., on Tuesday, November 26th, Dr. Harry V. Hubbard, of New York, and Miss Viola M. Billington.
- MARSHALL-CARPENTER.—In Brooklyn, N. Y., on Thursday, November 21st, Dr. Samuel Andrew Marshall and Miss Anna Therese Carpenter.
- MITTENDORF-MAHANY.—In New York, on Wednesday, November 27th, Dr. Alfred Derby Mitterdorf and Miss Ella Mahany.

Died.

- APPEL.—In Oakland, Cal., on Saturday, November 23d, Mrs. Kate Godfrey Appel, wife of Dr. Daniel M. Appel, United States Army.
- ARNOLD.—In Jacksonville, Fla., on Friday, November 22d, Dr. Edmund Samuel Foster Arnold, aged eighty-seven years.
- BACHELOR.—In Oxford, Mich., on Tuesday, November 26th, Dr. W. J. Bachelor, aged fifty-eight years.
- BLAKE.—In Tampa, Fla., on Friday, November 29th, Dr. F. M. Blake, aged fifty-five years.
- BORLAND.—In Los Angeles, Cal., on Thursday, November 21st, Dr. Matthew W. Borland, aged seventy-four years.
- BOWEN.—In East Greenwich, R. I., on Sunday, November 24th, Dr. William Shaw Bowen, aged sixty-five years.
- BOYD.—In Chicago, on Wednesday, November 20th, Dr. Samuel J. Boyd, aged forty-six years.
- CASEY.—In Rochester, N. Y., on Monday, November 18th, Dr. James W. Casey, aged seventy-two years.
- DRAPER.—In Wilmington, Del., on Sunday, November 24th, Dr. James H. Draper, aged seventy-two years.
- GATCHELL.—In Lancaster, Pa., on Saturday, November 16th, Dr. J. C. Gatchell.
- GATES.—In Cincinnati, Ohio, on Wednesday, November 27th, Dr. Edward S. Gates.
- HALEY.—In St. Louis, Mo., on Wednesday, November 20th, Dr. Rueluff D. Haley, aged seventy-five years.
- JULIAN.—In Pleasant Valley, N. Y., on Sunday, November 24th, Dr. John M. Julian, aged fifty-three years.
- McLAUGHLIN.—In Philadelphia, on Sunday, November 24th, Dr. John McLaughlin, aged fifty-six years.
- MORRIS.—In Vassar, Mich., on Wednesday, November 27th, Dr. Richard Morris, aged sixty years.
- MURRAY.—In Washington, D. C., on Thursday, November 21st, Dr. Hugh Thompson Murray, aged sixty years.
- NORFOLK.—In Plainfield, N. J., on Monday, November 25th, Dr. Walter John Norfolk, aged fifty-nine years.
- OBENDORFER.—In New York, on Sunday, December 1st, Dr. J. P. Obendorfer.
- O'NEIL.—In Elmira, N. Y., on Thursday, November 21st, Dr. William J. O'Neil, aged thirty-three years.
- RUSSELL.—In Brooklyn, N. Y., on Tuesday, November 26th, Dr. William G. Russell, aged fifty-nine years.
- SCHMITT.—In New York, on Tuesday, November 26th, Dr. John Adams Schmitt, aged sixty-eight years.
- SHELDON.—In St. Louis, Mo., on Monday, November 25th, Dr. George H. Sheldon.
- SHRADY.—In New York, on Saturday, November 30th, Dr. George Frederick Shraday, aged seventy years.
- SMALL.—In Saginaw, Mich., on Saturday, November 23d, Dr. Sidney I. Small, aged sixty-five years.
- STANTON.—In Syracuse, N. Y., on Thursday, November 21st, Dr. Richard Jackson Stanton, aged fifty years.
- WILDES.—In New York, on Thursday, November 28th, Dr. Thomas Wildes, aged sixty-eight years.
- ZIEGLER.—In Reading, Pa., on Saturday, November 23d, Dr. P. M. Ziegler, aged seventy-four years.

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Original Communications.

THE FAVORABLE INFLUENCE OF OCCUPATION IN CERTAIN NERVOUS DISORDERS.*

By CHARLES E. ATWOOD, B. S., M. D.,
New York.

Assistant in Neurology and Psychiatry, Vanderbilt Clinic, Columbia University; Former First Assistant Physician, Bloomingdale.

It has been well recognized, since the time and writings of Pinel, that some of the psychoses and psychoneuroses, even with an obsessive and delusional element, are more or less amenable to psychotherapeutics. The fact is well demonstrated in the recent writings of Dubois, and suggested in the "psychoanalytic methods" of Freud, Bleuler, and Jung, "the suppression and substitution" method of Janet, and the so called "organic method" of Sollier. In certain conditions, however, such as those of mental deficiency, to use an extreme example, manual training is a *sine qua non*. Most of the psychoses and many nervous disorders, especially the psychoneuroses, are often benefited by both persuasion and suggestion, i. e., a simple form of psychotherapeutics, and by some variety of occupation or diversion.

Occupations and diversions may be indulged in by the patient either in an active or a passive way. As a rule, active methods are the more valuable, though passive participation only may at first be available. All kinds of occupation tend to postpone or to prevent the terminal mental weakness which occurs in the dementing psychoses; and they also lessen the severity of symptoms in unfavorable terminal states when such states do supervene. All kinds of physical exercises, best performed in the open air and to only slight fatigue, not only increase the number and size of muscle cells, and stimulate the functions of respiration, circulation, and nutrition, but such exercises also assist in the elimination of the toxic products of metabolism and to develop and reeducate the motor brain centres and promote the flow of blood to parts adjacent to these centres.

For some years several so called hygienic institutes have been treating neurasthenia, psychasthenia, insomnia, mild depressions, and conditions induced by drug habit, alcohol, etc., largely by means of exercises, regulated and adapted chiefly from the athlete's point of view, together with diet and eliminative measures; and it is found, in certain cases, that this treatment, although unfortunately not always regulated by a physician, is frequently more successful than the famous "rest cure." Not being restricted ethically, as physicians are, these places obtain a great deal of advertising and do a thriving business. In the letter head of such an institute

recently made famous by the treatment of a member of the cabinet, occurs this homely advice: "Men consume too much food and too little pure air; they take too much medicine and too little exercise." This doctrine medical men have preached from time immemorial; but laymen have been slow to adopt it; and it is of course of great importance. Some of our neurasthenics may be doing too much resting and the masseur getting most of the exercise!

The very best practical results in the treatment of epilepsy are obtained in colonies where occupations, schools, diversions, and amusements are combined with scientific care and medication. The character and variety of avocation in these colonies are adapted to the various wants and necessities of the patients and correspond as nearly as possible to those occupations which the epileptics themselves would choose in their natural home life, but which they are unable to obtain, as a rule, under ordinary conditions, owing to the nature of their malady. These colonies are thus, in every sense of the word, little villages, inhabited by epileptics who carry on the various avocations of village life and who have also the additional advantage of skilled hospital treatment and appropriate teaching.

It is wonderful to note, in epileptics who have colony privileges, how the settled despondency, so constantly seen in patients afflicted with this dread disease, soon gives way to a buoyant appearance and the light of hope. This feeling of hope and renewed interest in life may in itself have some effect on the frequency and character of attacks in idiopathic cases; and, in any event, it puts the patient in a more favorable condition to resist the disease, and makes him a more useful citizen and more contented with life. Outdoor forms of work are found most suitable to epileptics; and cases in which the epileptic habit has not become too confirmed are the most apt to recover, though all are benefited by colony treatment.

In the various nervous disorders in which occupation is found useful it is always highly desirable to fit the occupation to the individual case. This fact is also well brought out by a study of its applicability in various abnormal mental conditions, in private practice and in sanatoria, and especially in the larger insane hospitals. Patients who may be found able to accomplish only the simplest forms of manual labor at the start, because of their mental state, often become gradually able to do work requiring increasing complexity of method or skill. In this way the power of attention is reclaimed and perhaps to a limited extent sense perception is rendered acute. Association of ideas, in some of these patients, may aid in the selection of proper occupation, if we inquire into the past life of the individual, and here admit the many varied associations

*Read at the New York Academy of Medicine, December 1, 1907.

which might be painful or harmful, such as those which would recall the period of inception of the mental malady; and we would also, naturally, not prescribe added work where rest only is indicated.

Nearly all public asylums have considerable tracts of land and provide healthful outdoor employment with farmer, gardener and florist, for carefully selected male patients; while certain women patients may be benefited by assisting in laundry, kitchen, and household affairs. In some large public institutions farm and garden work is supplemented by labor in numerous shops where a variety of articles are manufactured requiring a moderate degree of skill. In many private hospitals, however, one of the obstacles to be overcome in therapeutical employment of patients, strange to say, is the antagonism of relatives to such employment. When diversions are considered, however, both patients and relatives appreciate the many varieties obtainable in hospitals and sanatoria. One of the most important ameliorating diversions is music.

The effects of music on both the sane and insane depend more on the kind of instrument or instruments employed than on the variety of the musical production. Strings and horns have a soothing effect; more stirring effects are obtainable from wooden wind instruments; more enlivening yet from brass; and the most agitating and thrilling of all from drums and the upper octave instruments, such as the piccolo.¹

I first saw these effects exemplified, in my own experience, nearly twenty years ago, in a series of experiments at the Utica State Hospital, made at the request of Dr. Blumer, then superintendent of that institution. A string orchestra, when playing lively dance music, caused some increase in pulse and blood pressure and an awakening of attention among the depressed, and increased motility among the excitable. Strings playing plaintive music deepened emotional states. A brass band playing any kind of music produced manifold effects; the same being true of a fife and drum corps. Other instruments tried were the organ, handorgan, bagpipes, etc.

Music seems to influence chiefly, from the mental side, the imagination, the emotions, the memory, the will and trains of thought. The character of the music to be employed in various mental states would naturally suggest itself from what I have outlined. Enlivening music would, for example, be employed in depressed states. Such instruments as strings and horns, especially playing soft or plaintive music, would be positively harmful in depressed conditions, but are useful in some manic cases, etc.

It has been noted lately in experiments on the effects of music on breathing, made in the psychology laboratory of Wellesley College, that in the normal individual, listening to organ music, major or minor, loud or soft, shortens the respiratory pause and makes the breathing faster and shallower. These effects were thought to be due to nonemotional mental "application."

As regards the participation of the patient in the rendition of music, this seems to be a different

matter. The ability to appreciate melody is probably a natural quality of the mind, and continues active in the insane, in all cases, proportionately to the amount of deterioration present. But the ability of perfect rendition and, of course, of composition, requires the clearness and conciseness of perception, judgment, and other faculties which belong only to the normal mind. When considerable ability of musical rendition is retained in the insane, therefore, it is found in cases in which the faculties have not materially deteriorated or are not grossly distracted or perverted by delusion or hallucination.

In hospital practice I found it useful to subdivide the concert orchestra, for ward purposes, using certain combinations for certain cases, depending on effects desired, as previously described. Patients should also be allowed freedom of movement during concerts. Palliative effects at least are nearly always obtainable.

In matters of amusement, diversion, and occupation, in disordered mental states, it is found necessary to have variety. The same diversion cannot, as a rule, be long used with the same patients. If physical training is utilized, various methods are employed; music may be used to accompany the exercises, and the music and instruments may be varied. In larger hospitals, if games are provided, either for indoors or out of doors, tournaments, with prizes for the successful, stimulate interest. Base ball games interest the entire household and cause diverting conversation. The same is true, in these hospitals, respecting pool and billiard and bowling matches; and the benefits of patients' dances have been a matter of common observation and comment for years.

Rhythmic exercises, such as bicycle riding on level ground, are useful in states of partial exhaustion and in the spasmodic neuroses. Golf is frequently prescribed in many nervous disorders as a form of exercise, the dosage of which is easily regulated.

Calisthenic drills to increase the attention are apt to be too exhausting for mental cases unless sufficient reaction time is permitted, or the teacher accompany his commands with a performance of the same movements himself, thus permitting imitation which is not accompanied by nearly as much mental exhaustion as the close and prolonged fixation of the attention demanded by following rapid commands only.

Duplicate whist I have found of immense value in many mental cases of long standing in which there is not much deterioration, e. g., cases of paranoia. It controls the attention for considerable periods, to the exclusion of annoying delusions and hallucinations.

Many hospitals are provided with pedagogic schools, the object of which is the awakening and re-education of dormant energies by actual participation in study or discussion. Spelling and mental arithmetic; geography of countries and places of special current newspaper mention; reciting or reading aloud—all have their value. The school-room affords change of environment, and its exercises also assist by substitution in breaking up the continuity of morbid ideas and mischievous acts. I watched the results of pedagogic teaching of the in-

¹Recent experiments with the galvanometer at Zürich and elsewhere, in registering emotional reactions, suggest the possibility of gauging accurately the exact degree of emotional effect of various kinds of music and from various instruments, or the general psychological effect of music.

sane for many years at Bloomingdale. Let me briefly illustrate them for one year only: A young Spaniard with dementia præcox of five years' duration learned English in the school and during the process improved so much as to obtain his discharge and later a clerkship in town, which he retained for a considerable time. A college student with the paranoid type of dementia præcox brightened perceptibly by the associations of the school. At first he was disturbing to the class, but later became attentive and interested. A patient with chronic depression was apparently happy during school hours only, and relapsed into deep depression on returning to the ward. A case of long duration, thought to be one of terminal dementia, at first obstinate and apparently unable and unwilling to partake of the fruits of knowledge, later read aloud and occasionally asked questions on topics under discussion. An imbecile read and drew maps and had his stock of facts slowly augmented. Three patients with the depressed type of manic depressed insanity, who rarely spoke on other occasions, read aloud and wrote on the blackboard during school hours. Two paranoiac medical patients and a former teacher, also a paranoiac but not a medical man, construed Latin for their less proficient brethren and occasionally introduced a vein of humor into the "exercises." One of the latter patients could not be induced to talk or to assist others while he was in the ward. Another man of chronic manic type was noisy and incoherent outside the school room, well behaved and nearly coherent while in it. Cases of acute excitement were not found suitable for the school; nearly all other cases tried were benefited in some way; but much depends in these schools on the enthusiasm and intelligence of the teacher and proper supervision on the part of the physician.

In the treatment of neurasthenia with more or less mental involvement Grohmann, of Zürich, and Hall, in this country, have recently advocated work, under competent teachers, at certain handicrafts. Hall advocates especially clay modeling, weaving, and basket making. Other handicrafts taught in the treatment of neurasthenics are cabinet making, wood carving, silver smithing, jewelry enameling, and copper working. Such treatment may be preceded by a week or ten days of the rest cure, after which the work is gradually initiated. The surroundings should be healthful and agreeable. The results are apparently a quicker restoration to health and self-confidence.

The principles of treatment of some of the psychoses and neuroses carried out in hospitals and sanatoria, which the writer has briefly and imperfectly sketched, are adaptable to cases in private practice. It is not suggested that such treatment supersede the usual treatment by baths, diet, medicines, suggestion, persuasion, etc., but to be associated with or used subsequent to such rational procedure. The principles of training and exercise inaugurated in the New York city public schools by Dr. Gulick and others are excellent and may be studied. Methods of treatment modestly and ethically carried on, under medical supervision in certain city gymnasiums are very suggestive and useful. The calisthenic methods of Sargent, Emerson,

son, and other teachers are easily adapted to individual cases.

Personally, I have found that many of my patients in private practice are benefited by taking up some fad, in which they not infrequently become enthusiastically interested. Especially is this the case in mild depressions, neurasthenia, etc., when the patients live much by themselves, with few or no close friends.

In conclusion it may be said that in the treatment, especially of mental affections, by occupation or diversion it becomes necessary, first, to study well the individual, considering in addition to his physical condition and form of disorder, also his past life and natural characteristics, his age, muscle power, endurance, previous habit, etc. Second, to utilize manual labor partly for its fatiguing effects and its beneficial effects on metabolism; skilled labor to develop attention and limit the tendency to mind wandering and to restore confidence; music, art, and literature chiefly for the sake of altering the emotions and morbid trend of thought and providing safe fields for the imagination. Third, all occupations should be associated as much as possible with some pleasurable object and a temporary change of environment. Fourth, greater than slight mental and physical fatigue should be avoided. Fifth, variety is necessary, and simple forms of exercises may later be graded into those requiring some complex activity.

14 EAST SIXTIETH STREET.

THE OPERATIONS FOR THE ARTIFICIAL MATURATION OF THE IMMATURE SENILE CATARACT.*

By THOMAS R. POOLEY, M. D.,
New York.

The object of this paper will be to present as succinctly as possible the various methods of operating in immature senile cataract to secure their maturation, to give, from the writer's standpoint the comparative merits and demerits of the same, also to bring out such discussion thereon from the members of the section as shall tend to give the present attitude of those present, which may prove of practical value in determining the status of the operation, as well as the methods which they prefer.

This can be best accomplished by first enumerating the different operations practised, and then the dangers and complications liable to follow each one of them. But first, I shall mention the forms of cataract in which the operation is contraindicated. These are: Slowly sclerosing lenses, with few striae, posterior polar cataract, and slowly forming cataract in myopic eyes, as well as all those cases where there is any indication of luxation of the lens, as shown by tremulousness of the iris. Before any of these procedures are undertaken, how-

*In the discussion of this paper at the Association for the Study of the Eye and Ear, held at New York, N. Y., on December 12, 1907, the following resolutions were adopted: "Resolved, That the operations for the maturation of the immature senile cataract are not to be recommended, except in the most exceptional cases, and that the best method of treatment is by medical means." Resolved, That the operations for the maturation of the immature senile cataract are not to be recommended, except in the most exceptional cases, and that the best method of treatment is by medical means.

*Read before the Section on Ophthalmology, New York Academy of Medicine, October 2, 1907.

ever, we should be sure that the tension is normal and the pupil dilatable.

The methods which have been described, I will enumerate here as follows: 1, Simple dissection of the anterior capsule; 2, dissection combined with iridectomy (Mooren); 3, dissection and external massage; 4, iridectomy and external massage (Förster); 5, iridectomy and internal massage (Bettman and Born); 6, simple paracentesis, with internal massage (Pooley, White); 7, simple paracentesis, with direct massage; 8, Jocqs's injection by the Pravaz's syringe of fluid beneath the anterior capsule; and finally, 9, a method recently practised by the president of this section, which is in effect a modification of Mooren's, and of which he is to present a detailed account.

It would prolong this paper beyond the limits of the time allotted to me, and prove of no practical value to describe too minutely the technique of each operation, especially as all this may be inferred from the definition given in the list, and which is fairly familiar to all.

Simple dissection of the anterior capsule—which Knapp considers the most efficient of them all—falls short by ripening only the anterior cortex so that considerable portions of the posterior cortex are apt to be left behind. Others do not share in this opinion, but consider this method the most dangerous of them all on account of the inflammatory changes which may follow too rapid swelling of the lens and by reason of increase of tension. Iritis, and even panophthalmitis, have followed the operation. The opening in the capsule may be either too small or too large; in the one instance, it may become plugged by cortex which has been squeezed out of the capsular wound and subsequently closes. In the other, as stated, glaucoma or inflammatory reaction is threatened. These same objections hold good in Nos. 2 and 3 of the list.

Regarding the fourth method, Förster's operation is perhaps to be preferred, on the whole, to any other procedure. But to those who prefer the simple extraction, the iridectomy would be a serious objection. Some fibres of the iris are likely to be pressed between the lens and cornea, and thus cause iritis. Mittendorf has recorded the loss of an eye. The epithelial coat of the cornea may be rubbed off. Förster, himself, has called attention to injury of the cornea and iris and dislocation of the lens. It may be well to add here that the latter danger should be included in all operations for artificial ripening.

The operation of direct massage could be done with or without iridectomy. So far as I know, Dr. Born, of this city, was the first to propose and practise this method, which he did after the accomplishment of the iridectomy, by making massage directly on the lens capsule with the knee of a squint hook.

To Dr. Bettman, of Cincinnati, is attributed the priority of this operation, as he published an account of the method, which, however, is somewhat different from that of Dr. Born's, and will be described more in detail later. By many, this is considered the best method, as it avoids the danger of injury to the cornea and iris. It would seem,

however, that the danger of dislocating the lens is greater. The operation of indirect massage without iridectomy, so far as the writer knows, was first described by himself in the *Medical Record*, December 26, 1885, as a modification of Förster's method of artificially ripening cataract. Before him, Candon, in an article on the artificial maturation of cataract, *Revue générale d'ophtalmologie*, 1883, says at the conclusion of his paper, that maturation of cataract, when we intend to extract without iridectomy, may be done by making paracentesis of the cornea, letting the aqueous humor escape, when the lens would fall forward upon the cornea, after which the lens could be triturated from without. He does not state, however, that he had ever done this operation himself. Therefore, I think I may justly claim for myself the priority of the method.

My method was based upon the fact, well known to those who have used cocaine in operations upon the eye, that the aqueous humor escapes very slowly after puncture or incision of the anterior chamber, which led me to consider, whether its use would not enable us to perform the operation suggested by Förster, without iridectomy. The obstacle against such a procedure, without iridectomy, is obvious. The pupil will contract, and both the lens and iris will fall forward against the cornea. Thus, the iris will be injured unless the pupil is kept widely dilated during the next step of the operation, which consists in rubbing the cornea over the exposed surface of the lens.

The operation thus suggested to me, was performed upon a rabbit's eye by first rendering the lens partially opaque, and then by a second operation, maturing it. In the publication referred to, which may be here omitted, the operation is given in detail. Suffice it to say that the writer has since performed it upon patients, with varying success, in cases of immature cataract.

In Bettman's operation (the fifth in the list), the technique of which differs somewhat from that of Born's—the cornea is opened by a keratome, iridectomy made, then by passing an aluminum spatula into the anterior chamber under the iris, and gentle massage is made directly on the anterior capsule of the lens.

Jocqs's method is new, and has not been sufficiently tested to permit an opinion of its value.

If, now, we take into consideration the uncertainty of obtaining success in bringing about a complete opacity of the lens by the methods which I have enumerated—the probable thickening of the capsule which may result therefrom, thus rendering the success of the subsequent extraction less favorable in securing good vision, together with the dangers and complications which may ensue, and still further, that a great many operators are no longer possessed of the fear, which they so long entertained—of operating upon immature cataracts—we shall feel like falling in with the wise conclusion made by Knapp, when he says, "many operators, the present writer included, prefer the risks of removing an immature cataract to any ripening operation."

A NEW PROCEDURE AND INSTRUMENT FOR THE ARTIFICIAL MATURATION OF CATARACT.

By J. H. CLAIBORNE, M. D.,
New York.

The preceding paper of Dr. Pooley has set forth in part, if not in whole, the various methods which up to this date have been used to ripen cataracts artificially. The only method which he has mentioned which bears upon the one I shall now describe is the procedure of Mooren described in his paper entitled, *Die operative Behandlung der natürlich und der künstlich gereiften Staarformen*, published in Wiesbaden, 1894. He gives an account of his method on page 14. The following is a free translation:

"About eighteen to twenty-one days after an iridectomy has been done, the second step of the operation is undertaken. This consists in a widening of the iris coloboma by the use of a solution of atropine. The lens capsule is then opened about three quarters of its diameter with a discission needle. The iris should not be touched with the needle, in order not to cause iritis. In opening the capsule care should be taken that the lens substance is not injured, so that the subsequent swelling of the lens may not be uneven, and bands may not be formed between the iris and the lens. The less the lens is touched in opening the capsule, the more even and the more perfect will be the transformation in a cataractous opacity. The whole idea of the operation is to bring the aqueous humor into contact with the lens substance, and so produce a rapid formation of the cataract."

It will be observed, then, from the foregoing, that Mooren's procedure consisted (1) in an iridectomy; (2) subsequent dilation of the coloboma with atropine; (3) a discission of the lens capsule with the discission needle at the end of eighteen to twenty-one days, and (4) extraction of the lens later. The exact time at which he extracts the lens is not stated. Subsequently he used Graefe's cataract knife to cut the capsule, instead of the discission needle, and also combined Förster's trituration method with this procedure. He states that sometimes in children the cataract has ripened in three or four days, and usually in ten days in grown people.

His first attempts to ripen a cataract were made in the second year of his practice, and were done by discission with the needle, with a very small opening in the capsule. In his first attempts he did not do an iridectomy, and he states that as soon as he commenced to do an iridectomy the safety and certainty of his operations began. He performed at least as many as 220 operations successfully, and continued to ripen cataracts by his first and second methods for many years before his death. Mooren has therefore already demonstrated that the immature senile cataract can be successfully ripened, and subsequent extraction performed with good results. Notwithstanding his excellent results, and the long continuance of his methods, few surgeons have followed him and the procedure has practically fallen into innocuous desuetude. Mooren refers in particular to one case which it seems to me is of great interest. He operated upon a German colleague of his, Dr. Küster by name, who had a high grade of myopia and a posterior polar cataract which was about the size of and occupied the center of the pupil. Thus an-

nnoyed him so that he was unable to attend to his duties, and Mooren ripened and operated on both of his cataracts with success. As Mooren remarks, Dr. Küster not only rejoiced in the excellent sight which he had, but particularly in the fact that his near sightedness had been removed with the cataracts. Mooren does not state definitely whether he employed iridectomy in the operation upon Dr. Küster or not—in short whether he operated by the first method or by the second. From the context it would appear that he operated without iridectomy.

The procedure which I bring before you to-night is similar in many respects to that of Mooren, but differs from it radically in other respects. I have employed my procedure upon one case only, and I present the patient and also the instrument with which the operation was done. Several times in my career I have attempted to artificially ripen cataracts, and have employed the method by which an iridectomy is done; the anterior capsule is stroked with a smooth instrument, or pressure made upon the capsule with a smooth instrument through the cornea.

In all these cases the effect has been practically nil, and I fancy the majority of surgeons have had similar results with those methods. In one case I even gently scratched the anterior capsule with a cystotome; so far as ripening the cataract was concerned the result was negative, but when the eye healed, a streak could be plainly seen on the anterior capsule where the scratch had been made. After this case, it occurred to me that if an instrument was constructed by which a number of very fine incisions could be made with cambric needle points upon the capsule, the aqueous humor could be brought in contact with the lens substance without a protrusion of the latter through the capsule. Thus, an irregular swelling of the lens might be avoided, and the cataract ripened in a reasonable length of time.

In pursuance of that idea I had an instrument made based upon the principle of the agricultural harrow. The instrument was constructed somewhat like a lance shaped keratome, and had on its under surface five very sharp needle points—one at the apex of the blade, and the others arranged two on either side in a straight line. It will be understood, therefore, that in drawing this instrument across the face of the capsule three streaks would be cut in the capsule, the points in the rear finishing and complementing the work of the anterior ones. I determined to put this instrument into use in a case which was waiting for operation.

I had already done a successful simple extraction upon the right eye of a man of sixty years, with a resulting vision of 20 to 40, and a round pupil. He was a machine engineer, and found that he could not employ his eyes in looking at his steam gauge, on account of the difference in vision of the two eyes; hence he requested that I should operate on the other eye at once. The vision of his left eye was "finger" at two or six feet, and there was a very small central sclerotic opacity, with a few specks of partially opaque lens substance in the periphery which could be detected best by oblique illumination and transillumination. By the indirect method, the fundus of the eye could be clearly seen, the optic disc incidentally had a large physiological cupping. With the exception, therefore, of



the central sclerosed opacity, which was very small, the lens was practically clear. Although the vision was greatly reduced, I did not feel that I had a right to attempt to extract the lens in the presence of so much clear lens substance, and I proposed to him the operation of artificial maturation. He accepted, and the procedure was employed in the presence of Dr. E. B. Coburn and the house surgeon of the New Amsterdam Eye and Ear Hospital, Dr. Gaudineer. A broad iridectomy was done, the lance shaped keratome being introduced about 1 millimetre behind the sclerocorneal margin and shoved in up to the hilt. As soon as the coloboma had parted the harrow was introduced. The point of the harrow was laid at a right angle to the curve of the sclera and the corneal lip of the wound slightly lifted, in order that the needle point might not catch in the scleral lip. Hugging the posterior surface of the cornea, the blade was pushed into the anterior chamber until it was exhausted, and the corneal lip impinged upon the shank of the handle. It was found then that the blade was too short to scratch the lens over its central part. Nevertheless, it was determined to achieve as much as possible under the circumstances. The points were now pressed down upon the anterior capsule and drawn upward toward the wound, until the shoulders of the blade commenced to emerge, when the procedure was repeated. The instrument was now withdrawn by tilting the handle upward and raising slightly the corneal wound, in order to avoid striking the scleral lip with the needle points. One of them, possibly the forward one, caught slightly in the scleral lip.

At the time of the operation the pupil was perfectly black to the observation of the naked eye. This was observed by my two colleagues also. I discussed the question of using atropine at once, but concluded, for fear of a glaucomatous reaction, not to do so. The eye was banded and the patient put to bed. For the first twenty-four hours there was a general throbbing of the head and of the eye operated on, but it was relieved by a hypodermatic injection of morphine. From that time to the dismissal of the patient from the hospital, about the ninth day, there was no pain. A severe catarrhal conjunctivitis developed in both eyes six hours after the operation, and both eyes were closely stuck together with matter. The lids having been thoroughly washed out with a salt solution, a bandage was renewed until the following day. The eye was opened again twenty-four hours after the operation. The wound was found closed, there was a mild iritis with slight posterior synechia on both pillars of the coloboma, and the conjunctival condition was about the same as before. The bandage was now removed, atropine being instilled every two hours, along with repeated flushings of the conjunctival cul-de-sac with normal salt solution. The lens was found to be opaque, almost completely; just below at the bottom of the pupil, however, it appeared to be slightly translucent; by candle light the patient could count the fingers only at one foot. The anterior chamber was deep, and there was no reason to suspect the existence of glaucoma.

On the ninth day, as stated, the patient left the hospital, the eye almost perfectly white, the pupil dilated, with slight posterior synechia. The anterior chamber was still deep, and I would have operated for extraction then and there if there had not still been a mild conjunctivitis, with slight sticking of the lids in the morning. The patient went to his home and continued his treatment of atropine and mild applications of salt water. On the fourth night after his dismissal from the hospital he was awakened by a pain in his eye. In the morning it became worse, and I saw him about 11 o'clock. There was a slight pinkness of the eyeball, and the pupil was considerably contracted. Nevertheless, the cornea was clear; likewise, the iris. I diagnosed mild iritis, and instilled atropine several times within an hour. The pain was at once relieved, but the pinkness remained. The patient was now sent to the hospital, atropine was used every two hours, and leeches were applied to the temple. The iritis apparently disappeared completely, although the eye remained slightly pink. The coloboma was wide, and the patient was again dismissed from the hospital. Two days afterward he again had a slight conjunctival discharge, which was relieved under treatment in forty-eight hours. Three days afterward I extracted the cataract, the conjunctival cul-de-sac appearing to be practically normal. The extraction was done sixteen days after the maturation, the vision at

that time being reduced to "movements of the hand." Just before the iritis developed the lens swelled somewhat irregularly, so that the anterior chamber to the outer side was rendered very shallow, and the iris was attached almost at the apex of the swelling. The anterior chamber on the nasal side, however, was deep. Using a small Graefe knife, I made a small corneal section just past the iris, and thrusting my knife through a swollen area on the lens completed my section in a normal manner, making it entirely a corneal one. As soon as the section was finished the lens delivered itself on account of a slight pressure made by the patient with his eyelids. The nucleus of the lens was large and mushy, and some of the substance was gelatinous and almost liquid. The anterior chamber was washed out thoroughly with a sterile salt solution, the coloboma was smoothed down with a spatula, atropine was instilled, and both eyes were banded.

The patient was comfortable until night time, when he complained of a throbbing in his eye. A hypodermatic injection of morphine was given by the house surgeon, and he was relieved until the following morning. Although he had no definite pain at that time, he complained of a slight moisture of his eyelids, and I concluded to remove the bandage and inspect the wound, in view of his preceding infection. I was surprised to find that there was an even more severe infection of the conjunctiva than after the first operation. Fortunately again, the wound had completely closed; the anterior chamber was deep, the eye was quite red, and there was a mild iritis. From this time on the bandage was kept off on account of the discomfort which the pressure seemed to give the patient, and in order to cleanse and drain the conjunctival cul-de-sac. The iritis continued in a mild way for two weeks while he was in the hospital, but the patient suffered practically no pain. Atropine was used three or four times a day, and the sterile salt solution continued.

The pupil presented an interesting state of affairs. Cortical substance of rather dense nature remained in the lower and inner portion of the pupil, while the upper part was perfectly black. The patient could see very clearly and in a few days was able to tell the time on a watch. There has never been any reason to suspect the existence of glaucomatous tension, although atropine was used lavishly from the very beginning.

The result in this case is not necessary to prove that artificial maturation of senile cataract can be successfully performed; as Mooren has demonstrated, it has been done through a long period of years and in several hundred instances.

Mooren states that the cases in which this procedure is to be employed should be selected, and that those should be avoided in which there is arteriosclerosis, for it is well known that such cases are more apt to be attacked by glaucoma than others. Outside of this class of cases, it appears to me that there are none that may not be handled in this manner. I believe that the fear of post-operative glaucoma is exaggerated, for it will be seen that when an iridectomy has been done the remedy for glaucoma is already on the field before the condition arises, and it is not unreasonable to say that it will occur only in rare cases. It will be seen, then, that the procedure which I suggest differs in several respects from Mooren's. It is simpler, and in all likelihood will occupy much less time from incipency to completion. Mooren's operation is divided into four parts, whereas my procedure has but two parts, to wit, (1) iridectomy coupled with simultaneous dissection with a lance shaped harrow, and (2) extraction at the propitious time.

I would suggest, however, the use of atropine several hours before the first procedure, in order that the iris may be dilated at the time of operation and a larger coloboma be made. In addition to this, the iris will then be already retracted to the

periphery, and the central part of the capsule which is lacerated by the harrow will be separated from the edges of the coloboma at once.

I have had a second instrument made which seems to me to completely fill the requirements. The blade is 9 mm. long and .3 mm. wide. The nose of the instrument is slightly blunt, and on the under surface there are six cambric needle points, one at the apex, two on each side in a series, and one in the centre between the two lateral series. These points are so sharp that they can readily lacerate the capsule by the gentlest pressure, and are not sufficiently long to enter deeply into the lens substance and cause it to protrude through the lacerated area. The blade should be pushed in until the nose just touches the border of the sphincter below. Since the anterior needle point is 1 mm. from the apex, the danger of wounding the iris does not exist when the instrument is in skillful hands. I think it is wise to repeat the act of laceration twice, and more or less in the same planes, drawing the instrument up toward the wound until the shoulders of the blade commence to emerge. The purpose should be to lacerate the capsule in a gentle way from the lowest possible point to the periphery.

As stated, the operation of maturation has apparently fallen into almost universal disuse, but there is really no reason for this, since there are numerous cases in which economic conditions demand the relief from slow growing, lenticular opacity. It is the common custom among a number of surgeons to operate when the vision has fallen but slightly from the normal, but it is reasonable to assume that large quantities of cortical substance are left behind after such operations, the process of recovery is slow, and the optical results are not so satisfactory as when the cataracts are ripe at operation. The recovery of this patient shown here to-night has been materially retarded by the unhappy surgical infection of his conjunctiva at the time of operation. It is difficult for me to explain the first infection, particularly of both conjunctivæ, since the asepsis was of the most rigorous and painstaking character. I feel confident that the cataract could have been extracted under more favorable conditions within a week or ten days after the primary operation. The whole procedure, therefore, might have been accomplished within a week or ten days, and the patient fitted with glasses between three weeks and a month. The difference between the procedures of Mooren and myself justifies, I think, the statement that my method is a new procedure. The instrument which I present is entirely new.

The ease and the rapidity with which the senile cataract in the case detailed has ripened was so marked that the idea has occurred to me to suggest the employment of the same procedure in the surgical treatment of high myopia.

The methods of Mooren and Finkla consist in converting the normal lens or the highly myopic eye into a cataractous one by dissection through a dilated pupil. The procedure which I herewith suggest consists then in the performance of an iridectomy and the simultaneous dissection of the capsule by my instrument, after the pupil has been previously dilated with atropine—in short, the procedure which I have just described for the artificial maturation or immature senile cataract.

Mooren, in his brochure entitled *Die medicinische und operative Behandlung kursorischer Störungen*, Wiesbaden, 1897, has described his method of dissection on page 69. After the pupil has been dilated with atropine three or four drops of a sterilized solution of cocaine are instilled into the eye.

The first step, the opening of the capsule, is done with a Graefe knife in such a way that the capsule is split throughout its entire extent (*Ausdehnung*), with the knife held as nearly vertical as possible. The superficial incision into the lens he gave up after two and a half years, for he twice found that the lens moved under the pressure of the knife and the procedure had to be repeated. In order to avoid this he subsequently held the knife as vertical as possible and at the same time thrust it further into the lens so that it was incised to three quarters of its thickness. Care should be taken that the aqueous flows off when the knife is withdrawn. Subsequent trituration is done with the finger or a wad of wet boric cotton over the lid.

From this it will be seen that Mooren did not employ iridectomy in his procedure. If he ever employed it he did so when he operated upon Dr. Küster for artificial maturation of his cataracts, at which time he incidentally relieved the high graded myopia. I repeat it is not clear from the context whether he employed iridectomy or not on that occasion. If so, it was done as an element in the cataract extraction and not in the surgical treatment of the myopia.

As far as I am aware, therefore, the suggestion that iridectomy be coupled with dissection in the surgical treatment of myopia has not been heretofore made.

The advantages of this method are obvious and may be summed up in this way:

- (1) Greater ease in lacerating the capsule.
- (2) Greater area of laceration.
- (3) The less likelihood of iritic complications and the less extensive if they do occur.
- (4) The presence of a coloboma to forestall the occurrence of glaucoma or its relief in case it does occur.
- (5) The less likelihood of postoperative glaucoma.
- (6) Simplification of the final extraction.

23 WEST THIRTY-SIXTH STREET.

THE THIRD ANATOMICAL PROOF OF THE VALUE OF THE PARADOXICAL REFLEX

BY ALFRED GORDON, M. D.,

Philadelphia,

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In two previous communications (*American Journal of Medical Sciences*, August, 1907) material proofs were given by me of the importance of an early recognition of the paradoxical reflex. It was shown that the latter was the only sign, besides an increased patellar tendon reflex, upon which the question of irritation of the motor area or tract was decided. Surgical intervention in both cases was determined from the presence of this sign. Subsequent events demonstrated the exactness of the conclusions drawn by me from the clinical symp-

toms. They have also shown that my former clinical deductions (*Journal of Nervous and Mental Disease*, 1906), made prior to the publication of the two anatomoclinical cases, were equally correct.

Presently I have the pleasure to bring forward new material data on the subject. Here, again, the findings on the operating table, similar to those of the first two cases, corresponded to the seat of the paralytic reflex.

The patient, J. K., aged seventy-four, was admitted on October 7, 1907, to the detention wards of the Philadelphia Hospital with a history of a fall while in an intoxicated condition. On admission he complained of severe headache, and was irritable. His temperature was 99° F. There was no bleeding from the mouth, nose, or ears. The left eye presented a subconjunctival ecchymosis. The left pupil was smaller than the right, the ocular movements were normal. The pulse was rapid and irregular.

Examination showed exaggerated knee jerks on both sides, no Babinski sign, no ankle clonus, no Oppenheim reflex, but a distinct paradoxical reflex on both sides, more marked on the left than on the right. There was no palsy of the arms or legs. The face was somewhat deviated to the right; the left nasolabial fold was smooth, and the tongue protruded to the left. It was evidently a central facial palsy, as the orbicularis palpebrarum and the musculus frontalis were not involved.

Two days after admission convulsive movements appeared in the left side of the face, lips, and left platysma. These attacks gradually increased in severity and number, so that at the end of the fifth day they occurred every fifteen minutes. Soon the left arm and leg began to participate in the convulsions, and at the same time these two limbs grew weaker.

A daily examination for reflexes showed the same condition as before, namely, increased patellar tendon reflex and the paradoxical phenomenon, but none of other abnormal reflexes.

On the eighth day an operation was decided upon. The right motor area was trephined in its lower portion; four ounces of a dark clotted blood, also a small amount of softened cerebral tissue, were removed.

In the evening of the same day I re-examined the patient and found the paradoxical reflex completely absent, but instead of it the Babinski sign made its appearance.

Comment.

This case is identical with the first two anatomoclinical cases inasmuch as the presence of the paradoxical reflex pointed to an irritation of the motor area. The anatomical verification of the correctness of the clinical observation makes the present case a valuable addition to the literature of the subject.

I wish also to emphasize in this case my old contention concerning the antagonism existing between Babinski's and the paradoxical reflexes. Only an irritation of the motor cortex produced the paradoxical reflex, but when the clot was removed, and, with it, parted disintegrated cerebral tissue—otherwise speaking, when a destruction of the motor area took place—Babinski's phenomenon made its appearance.

1430 PINE STREET.

RESULTS OF THE WORK ACCOMPLISHED BY THE SOCIETY OF SANITARY AND MORAL PROPHYLAXIS*

BY PRINCE A. MORROW, M. D.,
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In expressing my appreciation of the honor of having been chosen to preside over the deliberations of this society during another Presidential term, the occasion would seem appropriate to re-

view the results of the work accomplished during the past two years, to allude to some of the difficulties encountered, and to indicate what the signs of promise are for the ultimate success of this movement.

Our brief experience has shown that the field of work opening up before us is larger, more important, and more difficult than at first appeared. While the primary and specific object of this society's organization was the prevention or limitation of a class of diseases which have their chief source in the social evil, it was recognized by those who inaugurated this movement that it was not simply a problem of preventive medicine with which we had to deal, but in its broader aspects a social problem complicated with factors which enter into the most intimate relations of our social life. If these complicating factors render the work more difficult, they give to the results a higher and larger value.

The value of this work is not to be measured alone by material results in diminishing the sum of venereal morbidity and mortality. If carried to a successful issue, it will represent an improvement in the moral as well as the physical health of the people. The education of young men in sexual hygiene and the inculcation of clean living as the surest basis of health and character tends to make of them not only healthier men, but safer husbands, sounder fathers, and better citizens.

And here I may refer to the fact that some of our confrères object to the moral feature of this society's program on the ground of the incongruity of mixing morals with medicine. They assert that "physicians have nothing to do with the morals of their patients." "Every man makes his own morality," etc.

It is unfortunate, perhaps, that the qualificative "immoral" has been applied to this class of diseases, since they number among their victims thousands of virtuous wives and innocent children. But the term "immorality" has been accepted and sanctioned by usage as the synonym of sexual debauch, and we cannot disassociate the immoral act and the pathological consequence. There can be no rational scheme of prophylaxis of social diseases devised which ignores the moral issues involved. We cannot, if we would, eliminate this element. Hygiene and morality are interwoven in every phase of this problem of prevention.

So far as I am justified in stating the attitude of our society, we look at this problem of prevention chiefly from the standpoint of health or physical morality. Recognizing that the irregular exercise of the sex function, whether it is termed "incontinence" or "immorality," is the most prolific cause of venereal diseases, we recommend premarital continence as the safest and only sure preservative against infection. Recognizing that the most powerful predisposing cause of licentiousness in men is the physiological fallacy of the "sexual necessity," we repudiate this counterfeit presentment of physiological truth. As I have said before, the teaching of continence does not imply a Pharisaical assumption of superior virtue, but is simply an impersonal interpretation of the physiological laws of man nature as developed by science and confirmed by human experience. If the hygienic precepts formu-

*Address before the American Society of Sanitary and Moral Prophylaxis, October 10, 1907.

lated by this society conduce to moral living, if the moral grows out of the scientific, so much the better for the interests of morality. If the ethical teaching, which comes more properly within the province of the clergy, and which appeals to the conscience and impresses the duty of clean living with the force of a moral obligation, tends to correction of the immorality which is the cause of these diseases, so much the better for the interests of preventive medicine.

Before proceeding to a detailed account of the work done by this society, it may be well to refer briefly to the need of this work and its practicability.

In the light of our present knowledge respecting the significance of social diseases as a danger to the public health, it would scarcely seem necessary to expatiate upon the importance of this neglected field of preventive medicine. It was precisely because this field has always been neglected by those officially charged with the care of the health of the people, and because it was abundantly evident that this neglect would continue unless an initiative were made by an independent organization, that this movement was inaugurated.

But even at the present day there is manifest a disposition on the part of certain members of the laity, and even of the medical profession, to belittle the importance of this movement and discredit its value. They declare that our statements of the extensive prevalence of these diseases and their significance as a danger to the public health involve gross exaggerations. It is asserted that syphilis is no greater danger to the health of the community than smallpox or measles, and that gonorrhœa, even in its severest form, is no more serious in its effects than inflammatory rheumatism.

A distinguished clergyman, at one of our recent meetings, declared that doctors were inclined to magnify the prevalence and dangers of these diseases, that in his own large parish he saw but little of them, and that he did not believe they existed to any great extent.

Such lamentable ignorance on the part of the laity is most deplorable, and on the part of the medical profession entirely inexcusable. Its existence only serves to emphasize the necessity of the campaign of education inaugurated by this society.

All progressive physicians must recognize that these diseases are almost universally prevalent, ramifying through every rank and order of society, and that viewed in their triple significance, as a danger to the public health, a peril to the family, and a menace to the vitality and physical progress of the race, they are more harmful to humanity than all acute infectious diseases combined.

Is this work worth the while from the point of view of its practicability? While the medical profession generally recognize the importance and value of the work undertaken by this society, many are skeptical of its success, and declare our efforts are foredoomed to failure. This pessimistic attitude is based chiefly upon the conviction that the powerful sensual impulse which prompts men to sexuality cannot be restrained by any considerations of health and morality or of consequences to themselves or others. Physicians see so much of the weaker side of human nature—the tendency to

selfindulgence, they are disposed to believe that where the interests of health are arrayed against the appetites and passions the former will be disregarded. One prominent physician doubtless voices the opinion of many in declaring with a brutal frankness that the only way to prevent sexual vice is universal castration of the masculine portion of humanity. This utter despair of the value of education and moral influences in the regulation and control of human conduct cannot be too strongly deprecated.

The work of this society has thus far been conducted chiefly along educational lines, with three definite objects in view:

1. The general dissemination of knowledge among the public respecting the extent of these diseases and their dangers to the individual and to society.

2. The education of the rising generation in a knowledge of the laws of life and sex, and the dangers which come from the unnatural or irregular exercise of the sex function.

3. General enlightenment of the public as to the communicative modes of these diseases, direct and indirect, and especially the terrible consequences to the innocent members of society from infections introduced into marriage.

It will be seen that this educational policy embraces two radical measures, "publicity" and "sex instruction." It is evident that publicity applied to this class of diseases means a complete reversal of our traditional policy of silence and secrecy. Sex instruction represents an innovation upon our established educational system. Exposure of infections in married life contemplates a revelation of evils that both social sentiment and professional ethics have always united to cover up and conceal.

It is not surprising that measures so radical and revolutionary in their nature should not meet with ready popular acceptance, nor that the policy of the movement should encounter a strong hostility on the part of public sentiment, and yet experience in dealing with communicable diseases spread in the ordinary relations of social life shows that they cannot be corrected without the cooperation of the public, and the essential condition of an enlightened cooperation is knowledge of their dangers and modes of spread.

The work of enlightenment has been rendered especially difficult by the fact that all the educational machinery of our social life is organized upon a basis of silence as to the existence of these diseases. The newspaper, press, and other channels of communication with the public are barred against their mention even.

The difficulties in the way of sex instruction—the most important part of our educational program and the saving hope of the situation—arise from the traditional deep seated conviction on the part of parents that such instruction is improper, shameful, even dangerous. Here we find a complicity of silence on the part of parents and scholastic instructors. The ideal of a good education in the conception of most parents is one which ignores the sexual organization of the individual. Unfortunately, ignorance of sex and sex instruction are not necessary alternatives. It is a question between the education in the home and the school, or the education in the

streets and quackish literature. All experience shows that the knowledge of sex denied children by their natural instructors is obtained from others, often vicious and disreputable sources.

In order to clear away certain misconceptions which evidently exist on the part of the laity and even a large element of the medical profession as to the sex instruction advocated by this society, I may be permitted to quote from a recent address of my own:

"Our educational programme proposes to take account of the sexual organization of the individual, the origin, and facts of life and sex which are now regarded as forbidden subjects.

This education should be begun early, before sensuality is awakened and the curiosity of the youth in regard to the mysteries of life and sex takes on a dangerous turn. Upon this foundation should be built, later, instruction in the physiology and hygiene of sex, which should include the true purpose of the sex function, its essential dignity, and further, that its impulses should be educated, controlled, and directed in a proper channel. Later, he should be taught the dangers, both physical and moral, which come from the irregular exercise of the sex function. The high purpose of this education is to teach young men how to live according to the laws of a healthy nature by letting them know what those laws are. It aims to promote clean living by cultivating a right attitude of mind toward the passions and appetites; its essential object is to promote continence as the surest prophylactic against venereal infection.

Sound knowledge never does harm; it is knowing things wrong that does the mischief. A celebrated Grecian philosopher has said the most useful piece of learning for the uses of life is to unlearn all that is untrue. This applies with especial force to the existing knowledge of young men of the present generation in sex matters.

It is important that the young man, who has had no sex instruction except what he has picked up from ignorant or vicious sources should unlearn the untruth, "that the sex function is given solely for sensual pleasure"; he should unlearn that "the exercise of this function is essential to his health and that he has a natural right to indulge his sexual impulse as he pleases"; he should unlearn all these physiological fallacies upon which the sexual necessity and the conventional standard of morality are based, and especially should he unlearn the ethical heresy that one half of humanity has imperious duties which the other half may repudiate or disclaim."

In filling this glaring hiatus in parental and scholastic instruction it is not intended to ride rough shod over conventional propriety or break down the barriers erected by good taste, discretion and a sense of the fitness of things. It is not proposed that these matters should be the subject of discussion in the family circle or given to mixed classes in schools and other social groups.

I have contended that it is the function of the medical profession to urge the value of this instruction and supply the requisite knowledge, leaving it to teachers who command the opportunities to work out the problem of specific methods.

In advocating premarital continence and early marriage to our sons as the surest preservative against disease what shall be said of the protection of our daughters, who too often find in this relation, sanctioned by church and state as honorable and virtuous, not a safeguard but a snare? And here we come to the saddest and darkest chapter in the chronicle of the "great black plague." Statistics show that the majority of men who marry have contracted disease, and that many are the bearers of contagion to the women they marry. We witness the effects in the women who suffer ill-health, sterility, mutilation of their bodies, and per-

manent invalidism. Society's only solicitude is that they suffer in ignorance. In addition, many of them are compelled to suffer the sight of their babies blinded at birth, children aborted or born with the mark of death upon them, or, if they survive, condemned to carry in their frail bodies the stigmata of degeneration and disease which are the heritage of the prostitute. No one can deny that these facts, the saddest facts of human experience, are of common occurrence, and they will continue so long as society shuts its eyes to the existence of this danger to the family, and from a false sense of prudery or fastidious nicety refuses to be enlightened.

In the correction of this class of evils we may reasonably expect the largest measure of benefit from the educational work of this society. It is scarcely conceivable that men of conscience and character would knowingly wreck the health and lives of their wives and children. It is the object of this society to make a knowledge of these facts so widespread, so universal, that no man, whatever his degree of intelligence or station in life, when confronted with the consequences of his criminal negligence, can truthfully say, "I did not know," when this miserable plea of ignorance shall be wiped out from the vocabulary of excuses for these crimes against pure women.

We come now to a more detailed consideration of this work and its results, and first, as to the growth of this movement:

This movement for the prevention and limitation of the spread of social diseases was inaugurated in this country by the organization in New York City of the American Society of Sanitary and Moral Prophylaxis, in February, 1905. Since then branch societies or societies with similar aims and purposes have been formed in Philadelphia, Baltimore, Detroit, Chicago, Milwaukee, Indianapolis, and Jacksonville, while others are being projected or are in process of formation in other cities and States. The movement is steadily growing in numbers, influence, and strength. From the twenty members enrolled at the first meeting, the number has increased to nearly four hundred, and this without any active effort having been made to secure new members. Since the organization of this society twelve regular meetings, including the present, have been held in this hall. Papers have been presented dealing with various phases of this problem of preventive medicine, chiefly in its educational aspects. These papers and the discussions thereon by prominent members of the laity and the medical profession have served to clarify the situation—to reconcile, in many instances, opposing views—and have materially aided in shaping the policy of the movement toward the employment of measures which are immediate and available, and which promise to be efficient in limiting the evil we wish to prevent.

The papers and discussions of many of these meetings appear in the first volume of the society's *Transactions*, issued some months ago.

Three educational pamphlets have been issued by the society: Pamphlet No. 1, entitled *The Young Man's Problem*; Pamphlet No. 2, *On Instruction in the Physiology and Hygiene of Sex for Teachers*, and Pamphlet No. 3, *On the Relations of Social Dis-*

cases and Marriage, designed to create a public sentiment in favor of the work through exposure of the infections of the innocent members of society.

Several thousand copies of these pamphlets have been called for—the small price in excess of the actual cost of publication charged for them being devoted to the publication of additional literature.

The educational work of this society has been extended in other directions. During the past year over twenty-five lectures have been given under the auspices of this society, the majority of them upon request, in schools, colleges, settlements, the Young Men's Christian Associations, and so forth. More definite details of this work, its usefulness, and the possibilities of its expansion in these and other directions, will be given in the other papers on this evening's programme.

In connection with the exposure of the glaring defects in the organization of the hospital and dispensary system for the treatment of venereal patients in this city, and the recommendation of enlarged provisions for the treatment of this class of cases, the Committee on Treatment is engaged in preparing printed slips to be handed to each patient, setting forth the dangers of these diseases, both to himself and others, their modes of communication, the importance of a complete cure, etc. The only legislative intervention thus far recommended by the committee on legislation has been the suppression of quack advertisements in the newspaper press. This measure, which passed the assembly, failed in the senate.

The following outline of the work of the Philadelphia society, which was founded March 26, 1906, has been furnished by its secretary: On March 28, 1906, a public meeting was held in conjunction with the Philadelphia County Medical Society, and about one hundred members enrolled. During 1906 to 1907 four public meetings have been held for the discussion of the prevalence and the means of prevention of social disease. About eight hundred members have been enrolled in the Pennsylvania society, and are actively interested in carrying out its aims. Thirty-five thousand circular letters and about the same number of educational leaflets have been issued and distributed among the adults of Philadelphia. It is planned to complete the city directory population in this way. The Hospital Association of Philadelphia has been led to consider the question of providing wards for the treatment of venereal disease, and the oldest and most conservative hospital in the city has consented at an early date to make such provision.

A bill was drafted and approved by the committee on health and sanitation, and favorably reported to the senate of Pennsylvania, requiring of the male a certificate of freedom from disease transmissible to progeny prior to the issuance of a marriage license. This bill was defeated in the senate.

Arrangements have been made for the establishment of a branch of the Pennsylvania society in the city of Pittsburg. A regular meeting of the society is to be held in Pittsburg in October, at which time the branch society will be organized for work along similar lines. Partial arrangements have been made to establish similar societies in other large cities of the State.

Two educational pamphlets are being prepared. One for distribution free among the women of the factory and department store classes, and another for the men.

Over thirty thousand copies of an address delivered to the students of the University of Pennsylvania by a member of the society have been distributed among the college students of the country.

A number of the public and private schools in Philadelphia have provided instruction in physical and moral hygiene at the suggestion of this society, and members of the latter have been requested to and have addressed gatherings of older students, teachers, mothers, and fathers, along the lines of sexual hygiene.

At least two of the newspapers of Philadelphia have opened their columns to reports of the meetings of the society and to advocacy of its aims. The editor of one of the dailies is a member of the society.

The Chicago society was organized in June, 1906, and received from the State of Illinois recognition as a corporation chartered not for profit. The charter directors met in October, 1906, adopted by-laws, elected officers, and appointed committees. Personal letters were sent to some 3,000 men and women; 5,000 copies of a pamphlet entitled *The General Need for Education in Matters of Sex*, comprising a series of articles by ten members of the society, were published; 90,000 copies of a leaflet entitled *Sexual Hygiene, a Circular of Information for Young Men*, have been circulated.

The visible and tangible results of these efforts may be summarized as follows: About 230 active members have been enrolled and about \$1,100 has been received as donations, in addition to annual dues from members.

The pamphlet before mentioned has received many cordial encomiums, and its sale has repaid about one half the cost of its publication, though most of the copies have been distributed gratuitously through our members. The *Circular of Information for Young Men* seems to supply an existing demand, since it has been already sought for distribution by officers of colleges, universities, boys' schools, and Young Men's Christian Associations, now over 225 in number, throughout the country. The territory covered by these institutions extends literally from Maine to California, and from Canada to the Gulf; and the demand continues. The third publication of the society is a leaflet illustrating the disasters wrought through the contamination of brides and their children by venereal diseases.

Through these publications the society has come into relations with various organizations throughout the country engaged in other lines of public instruction. Among these is the Chicago Woman's Club, which arranged a series of addresses to women, especially those employed in the business district, to be delivered on Saturday afternoons during the summer in the Public Library Building. About twenty-five such lectures have been given.

Reports from societies in other cities and States have not been received. Many of them have been (or now) organized to permit a report of material progress.

It should be mentioned to assure that the work

done by these special independent organizations represents the sum total of what has been accomplished by this movement. Whether as a result or a mere coincidence, a new interest in this neglected field of preventive medicine has been developed among the general medical profession. The prophylaxis of venereal diseases has formed the subject of several symposia in national medical associations and State and district societies. Since the organization of this movement more papers upon the various phases of gonorrhea and syphilis, with special relations to their social dangers, have been read in medical societies than in the previous twenty-five years, to say nothing of independent papers in various medical journals.

In addition, there is abundant evidence to believe that the perceptions of hundreds of physicians have been awakened, as never before, to the significance of this class of diseases, and to a sense of the responsibility which this knowledge carries with it. A large number of physicians have written for literature and for suggestions as to the best means, through lectures or otherwise, of instructing young men of their own clientele or of the community in which they live in the physiology and hygiene of sex, and the dangers which come from the irregular exercise of this function. I have before expressed my belief that the personal propagandism of physicians constitutes one of the most invaluable of all agencies for the enlightenment of the public in the hygiene of sex.

Although we have not been able to reach the public to any effective extent—largely owing to the adverse attitude of popular educational agencies which serve for its enlightenment—yet in one way or another the attention of a certain influential element of the public has been aroused to a lively interest in this movement. It may be positively affirmed that this interest is wide, deep seated, and constantly increasing. Not only is there a receptivity on the part of serious minded people to the knowledge we wish to convey, but an intense appreciation of its value as attested by many hundreds of letters from parents, popular educators, heads of schools, colleges, settlements, physical training instructors—letters of inquiry, of commendation, requests for literature, etc., and a significant fact is that this interest is especially manifest on the part of those whose opportunities enable them to see the blindness of an educational system which is organized on a basis of secrecy and silence in all matters pertaining to sex, that most important fact of life. In all this we plainly perceive the handwriting on the wall—the policy of silence has been weighed and found wanting—it is condemned by its results as an utter failure.

It may be inquired what has been accomplished by this society in fulfilling the specific object of its foundation, viz., the prevention or limitation of disease. It is difficult to secure definite data which will serve for the determination of this question. It is, perhaps, premature to expect such data. In an educational movement progress cannot be measured by the results of actual accomplishment. It requires time for the acceptance and practical application of new ideas. It may be confidently stated, however, that indications point unmistakably to one

immediate result of this campaign of education, viz., the limitation of venereal infections in marriage. It is abundantly evident from numerous letters and personal communications with physicians in various parts of the country that a sense of the danger and criminality of marrying with an uncured venereal disease has begun to penetrate the consciousness of the laity, and that more and more, men contemplating matrimony consult their physicians as to their physical fitness for marriage and parentage. The infection of pure women in marriage—the crowning infamy of our social life—I believe to be absolutely preventable and, as I have before said, “if this society can accomplish nothing more than to safeguard marriage from these criminal infections, the fulfillment of this humanitarian mission alone will amply justify its creation.”

And here I may say our experience shows that the most effective way to create a social sentiment in favor of this work, to change the attitude of the public from one of apathetic indifference to active interest, is through exposure of the social dangers of these diseases. Here we can touch the conscience of the public to a realizing sense of the inhumanity involved in denying protection to the innocent and helpless members of society who are powerless to protect themselves.

The chief difficulty encountered in the enlightenment of the public has been the social sentiment which, masquerading under the guise of modesty and propriety, has resolutely refused to recognize the existence of this class of diseases. One conspicuous result of this work has been the breach made in the walls of this conventional prejudice. Physicians no longer bow down before this idol; they have had the courage to bring the discussion of these diseases and their dangers to society, into the open, to expose them to the public, to pronounce their names, and this without shocking the sensibilities of a public audience.

Women—modest, refined, the most womanly of women—are not offended by our plainness of speech; their feeling is not one of outraged modesty, but of indignation, rather of resentment, that matters which so materially concern their health and the health and life of their children have always been concealed from them by the medical profession.

And here I may express the opinion that it is eminently proper and fitting that women should interest themselves in this movement. It is largely a woman's question, for it is upon woman and the children who are a part of her being that the burden of suffering, disease, and death from this social scourge is chiefly laid.

The cooperation of State federations of women's clubs, of the Women's Christian Temperance Union, and other social organizations of women, would give a powerful impetus to the advancement of this movement.

Aside from the difficulties which have arisen from the limitation of the ways and means of reaching the public, another difficulty has been experienced from the lack of material resources necessary to carry on this educative work. We have been unable to utilize many opportunities for the enlargement and extension of this work in various directions from the want of the necessary funds. It is

hoped that this difficulty will disappear with a more general knowledge among public spirited citizens of the value and importance of the work undertaken by this society.

To assure the success of this movement financial backing is not alone necessary. We need the organized support of the entire medical profession and the cooperation of all those influences and agencies which work for social betterment and social progress in the community. The moral force of such a combination cannot be overestimated.

Finally, it requires no exaggerated optimism to believe that the indications furnished by this incomplete review of the growth of this movement and the results accomplished may be interpreted as favorable auguries of its ultimate success. But we should indulge no illusions. The work opening up before this society is laborious, difficult, and must be long continued. It will require active, intelligent, and sustained effort for a generation or more, but the character and magnitude of the interests involved not only emphasize the urgent necessity of the work from a sanitary point of view, but render it imperative as a humanitarian duty.

66 WEST FORTIETH STREET.

THE TECHNIQUE AND DIAGNOSTIC VALUE OF CYSTOSCOPY.*

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AND

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The recent advances that have been made in the perfection of the cystoscope are so great, that cystoscopy is now recognized as the most valuable aid in the diagnosis of disorders of the urinary tract. The cystoscopes in common use include the direct vision cystoscope with an air medium, and the direct and indirect lens cystoscopes with a transparent fluid medium. The use of the direct vision cystoscope with an air medium is limited entirely to the female bladder. The field of vision is small, there is considerable pain occasioned by the heat, and the danger of burning is so great that its use has almost been entirely discredited with. With the direct lens cystoscope and the use of a transparent fluid medium the field of vision is large, clear, and distinct, but the entire surface of the bladder wall cannot be explored. With the indirect cystoscope not only is the field of vision large, clear, and distinct, but every portion of the bladder wall can be brought into view. A familiarity with the use of both instruments is essential to obtain the best results, but for general use the Schlagentweit Altharan modification of the Nitze catheterizing cystoscope will be found most satisfactory. With this instrument the bladder can be thoroughly irrigated,

freed from blood clots, pus, or mucus, as often as necessary without removing the instrument.

The requisites for a cystoscopic examination are, a urethra of sufficient calibre to allow the passage of the instrument (at least 20 French), a clear transparent medium, a sufficient extensibility of the bladder, and a white light. Cystoscopic examinations should be made under aseptic precautions. The hands should be carefully cleaned, the penis washed with bichloride solution, and the anterior urethra irrigated with boric acid solution. The cystoscope, owing to its delicate lens system, will not permit of boiling, and can be satisfactorily sterilized by washing with tincture of green soap and water followed by alcohol and ether, or the shaft and telescope may be immersed in a 5 per cent. solution of formaldehyde and then washed with distilled water. The instrument should be properly tested for light before sterilizing. The patient being placed in the lithotomy position; the legs widely separated and flexed at the knees, the cystoscope is lubricated with a mixture of tragacanth, glycerin, and oxycyanide of mercury as recommended by Casper, and introduced in the same manner as a sound, with the exception that on reaching the deep urethra the shaft must be more depressed to accommodate the straight instrument with a short beak to the curve of the urethra. The ability to easily rotate the instrument, and the almost immediate relief from pain, indicates that the beak of the instrument is within the bladder. General or local anesthesia is not necessary except under few conditions.

The difficulties met with in the passage of the instrument are, a small meatus, a stricture, hypertrophied prostate, and a hypersensitive urethra with spasm of the cut off muscle. A small meatus can easily be enlarged by a meatotomy. A stricture of the urethra, below 20 French, must be suitably treated before attempting cystoscopic examination. The obstruction caused by an enlarged prostate depends entirely upon the type of enlargement. In cases with but moderate intravesical enlargement, the obstruction can be readily overcome by sinking the outer end of the instrument in its passage over the gland; if the prostate is very large cystoscopy is frequently impossible. A hypersensitive urethra may be anesthetized by injecting 5 c.c. to 10 c.c. of a 2 per cent. solution of cocaine or eucaine into the urethra, and retaining it for five minutes. A spasm of the sphincter offers no barrier to the passage of the instrument.

A clear medium is obtained by the use of sterile water, normal salt solution, a solution of boric acid, or of oxycyanide of mercury in 1 to 5000. The latter is antiseptic, nonirritating, and has no effect upon metallic instruments. The bladder should be distended so that it contains 125 to 150 c.c. With this amount, except in very large bladders, the walls are smooth and no folds are present. If too little fluid is used, the walls of the bladder come together and the picture appears dark red; if the amount of fluid is too great the field of vision with the indirect cystoscope is so far from the prism and light that it appears dark and indistinct. With the direct vision cystoscope the bladder should be filled to its capacity. In irritable bladders even a small amount of fluid causes pain, but if no cystitis exists, the pain

*Paper read before the North Branch of the Philadelphia County Medical Society, October 22, 1907.

is relieved by introducing into the neck of the bladder a few c.c. of a 2 per cent. solution of cocaine or eucaine. The minimum amount of fluid for cystoscopic examination is about 50 c.c.

The method of examination to be described is carried out with the indirect cystoscope. The instrument being properly in place, the examination is best made with the operator seated upon a stool of such a height that the eyes are on the same plane as the instrument. The apex of the bladder is first located by the position of the air bubble which appears as a glistening spot, frequently reflecting the image of the light. The bladder wall is explored systematically, by rotating the instrument in its long axis, and moving it forward and backward until the entire bladder wall is inspected. The normal mucous membrane has a grayish yellow color, is smooth and has the lustre characteristic of all mucous membranes. The bloodvessels are clearly defined, ramifying in all directions, but do not anastomose. Depending upon the size and distention of the bloodvessels the color varies in different individuals and in different portions of the bladder from a pale to a darker red. It also varies thus according to the proximity of the lens to the mucous membrane, and the degree of distention of the bladder. At the ureteral orifices several small vessels converge, and upon the vesical trigone they are more numerous and larger, and must not be mistaken for congestion incident upon inflammation. The examination of the base of the bladder is of the most importance. Upon slightly withdrawing the instrument we note that it is divided into two parts by a transverse, pale fold of mucous membrane, devoid of bloodvessels, extending between the openings of the ureters. This fold is known as the interureteral ligament, and divides the base of the bladder into the fundus posteriorly and the trigone anteriorly, the apex of which is formed by the sphincter vesicae. This ligament offers the best guide in locating the openings of the ureters, which are situated at either extremity upon the ureteral prominences. The position, form, and prominence of the orifices vary in different individuals and in the same individual. Their form is usually round, oval, or slit like; their prominence may be marked, as a cone with its apex pointing in different directions or at times they are indiscernible. When this difficulty presents, the interureteral ligament should be followed out to its extremity, where the ureter may be located by observing the ejection of urine, or this failing, the indigo carmine test should be employed. This test depends upon the ejection of a green to blue colored urine, a short time after the subcutaneous injection of $\frac{1}{2}$ c.c. to 4 c.c. of a 4 per cent. solution of indigo carmine. The urine does not flow continuously into the bladder, but is ejected at intervals. The ureteral prominence becomes more marked, the opening suddenly widens, and a distinct wave is observed, after which the orifice returns to its position of rest. The size of the wave depends upon the quantity of fluid and the force of ejection.

If the beak of the instrument is turned upwards and gradually withdrawn a sharply defined curtain like fold will appear in the lower part of the field. This is the edge of the internal vesical sphincter, and can be followed around on either side to a point where it fades into the bladder wall. Directly be-

hind this point the ureteral openings are found. The bladder is observed to move with respiration, and an undulating movement dependent upon its own contractile power is at times present. The pulsation of neighboring arteries sometimes imparts a simultaneous movement.

A change from the normal smoothness of the bladder wall is present where band like elevations are seen running in all directions. They vary in width and prominence, and are more frequently observed in older patients. The picture constitutes the trabeculated bladder, and is dependent upon a hypertrophy of the musculature of the bladder. Where these bands are decided, corresponding neighboring depressions are seen, appearing as dark or black areas, forming diverticulæ. Trabeculated and diverticulated bladders cannot always be regarded as pathological, as they are frequently seen in healthy young individuals, but more often in advanced age. It may be regarded as pathological when hypertrophy of the detrusor muscle results from increased bladder activity, which is the result of obstruction to the outflow of urine.

Having familiarized ourselves with the normal bladder, we now direct our attention to the pathological bladder. It is here that the cystoscope fulfills its most important function. The cystoscopic picture in cystitis is so varied that no two bladders appear alike. This is not surprising when one considers the causes of cystitis, its duration, and the pathological changes. In many cases the cause of the cystitis can be accurately determined, and in all the character and extent of involvement of the bladder wall. Like other instrumental examinations cystoscopy is contraindicated in acute cystitis.

Conditions of hæmaturia and pyuria, the sources of which were formerly difficult to determine, are readily elucidated by a cystoscopic examination. Blood may be observed coming from either ureteral orifice, from the posterior urethra or from an inflammation, ulceration or tumor of the bladder. Likewise pus may have its origin in one or both kidneys, in the posterior urethra, in the bladder, or may be discharged from a sinus communicating with a neighboring abscess cavity. The symptomatology of these conditions is often misleading and cannot be relied upon. At times symptoms point to disease of one kidney or ureter, when the other kidney is found to be the seat of disease. Again, bladder symptoms may predominate and the kidney alone be diseased, or the reverse may be true.

In prostatic hypertrophy where the enlargement is not sufficient to obstruct the passage of the instrument, valuable information may be gained, not only as to the amount and character of protrusion into the bladder, but also as to the presence or absence of complications. This knowledge is of value in determining the choice of operation.

Stone in the bladder can be usually diagnosed by ordinary means of examination, but stones in diverticula or in the mouth of the ureter projecting but slightly into the bladder can best be diagnosed by the cystoscope. In some cases an idea of the size, number, shape, and character of the stones may be determined.

Bladder tumors give us the most beautiful cystoscopic picture. The size, form, and location are plainly seen. The shape of the tumor, whether

sessile or pedunculated, the character of its surface, whether smooth, ulcerated, or villous, is readily determined. These facts taken in conjunction with the history, as to duration and general health, furnish valuable data, from which conclusions may be drawn as to the malignancy or benignancy of the tumor.

Foreign bodies in the bladder are rare. After they have remained for some time, the nature of the object cannot be determined, as it is soon covered with urinary salts. The cystoscope clears up the diagnosis in doubtful cases.

In ulceration of the bladder, particularly tuberculosis, the examination is accompanied with considerable pain and hæmorrhage. The ulceration may be localized and sharply defined forming the solitary ulcer, or it may be general, the entire wall being the seat of multiple ulcerated areas. When ulceration exists at the fundus or upon the upper surface of the bladder, it gives but few symptoms, compared to the pain, frequency of urination, and hæmorrhage which accompanies ulceration of the vesicle trigone.

In all of the foregoing conditions the cystoscope reveals the true condition of the bladder, but it should be remembered that vesicle symptoms may predominate in the clinical picture without there being any disease of the urinary tract. Thus urinary symptoms are often reflex from irritation of adjacent viscera or are incident upon a tumor or displacement of a neighboring organ, or secondary to disturbance of the nerve supply of the bladder. It has been our intention to but briefly call attention to cystoscopy, and therefore no mention has been made of the valuable information obtained from catheterizing the ureters.

Unfortunately many surgeons consider the cystoscope an electrical toy and rely upon their intuition and long experience to diagnose conditions of the urinary tract. Many kidneys removed at the time or subsequent to a vain attempt to locate and remove a ureteral calculus, or death from removal of the only kidney the patient has, could have been spared by a careful cystoscopic examination and ureteral catheterization. In the diagnosis of diseases of the urinary tract, all means of examination should be taken advantage of, and no reliance placed upon one method to the neglect of another. The cystoscopic examination in conjunction with ureteral catheterization are the most valuable adjuncts, as they are accurate, easily performed, and give no more discomfort than other instrumental examinations.

PROFESSIONAL BUILDING.

CORRECTION OF THE DEFORMITY OF POTT'S DISEASE

BY CHARLES WALLACE, M. D.
New York.

When Dr. V. P. Gibney returned this September from his visit to the clinic of Dr. Calot, Berck sur Mer, he brought with him an idea, new to us, concerning the correction of deformity of Pott's disease.

Since then we have been working over this noted

French surgeon's methods and have used them in Dr. Gibney's office and at the Hospital for the Ruptured and Crippled only during the past two months; consequently ours shall be only a preliminary report, with the essentials of application and advantages over previous treatments. We believe we are warranted in making this public statement, because Dr. Calot has shown photographs and radiographs of severe kyphoses which have receded under this admirable treatment.

Of course, when one is dealing with such a destructive process as tuberculosis of the vertebra, it is next to impossible to give a prognosis that there will be no resulting deformity; and when once the protruding spines have become prominent, our best efforts have been aimed rather at holding in check the increasing hump than at reducing it. But we now have something more to strive for, and have already put the "*Calot jacket*" on twenty-four patients at the Hospital for the Ruptured and Crippled with the hope of diminishing or reducing the existing kyphoses—we are therefore discarding the jury mast for the Calot jacket.

We shall briefly describe the application of the *Calot grand appareil*, or the one used when the location of the disease is above the seventh dorsal vertebra. A jersey is fitted smoothly and snugly over the body of the patient, fastened over the shoulders and pinned between the thighs to prevent wrinkling. A linen sling is substituted for the Sayre leather chin straps, which is made in the following manner: Take a strip of linen or webbing sixty-five inches long and two and a half inches wide. Tie the ends together, marking the centre of the folded strip. In either direction from this centre, measure one fourth of the occipitofrontal circumference plus three fifths of an inch, and at these two places pin the two strips firmly together with safety pins. This loop thus formed should be slipped over the head, the pins should be just above each ear, the lower strip being placed under the chin; the other strip will then fit snugly under the occiput. To this occipital band is attached another strip to run vertically upward and to be fastened to the middle of the cross bar, to the ends of which are attached the extremities of the double band first mentioned. A pad of cotton batting, one inch thick, is placed over the front of the chest, extending from the clavicles to the free border of the ribs and from axilla to axilla. With the patient's head comfortably in the sling, the cross bar is now raised by means of a rope and pulley arrangement securely fastened overhead, until his heels are well off the floor and the arms are held at an angle with the body of about forty-five degrees.

The shoulders, neck, chin, occiput, and forehead are well padded. The foregoing attitude being maintained and all pads held in position, the application of the plaster of Paris jacket is the next step.

Dr. Calot's method of applying the plaster of Paris jacket required three or four assistants, and for that reason it is impracticable for us. He uses several basins of plaster of Paris cream, in which the crinoline, already cut into aprons and bands, is immersed and immediately placed on the patient while we substitute the ordinary freshly made plaster of Paris bandages. Thus we make it possible to

accomplish the same thing with the aid of only one assistant, who is required for the purpose of steady-ing the patient.

Four and six inch width bandages are generally used, depending upon the size of the subject. These and a large pail of warm or cold water are placed within easy reach of the operator. The bandages should be thoroughly soaked and each layer should be well rubbed during the process of application, avoiding all wrinkles and constricting bands.

The first bandage is run around the shoulders, anteriorly and posteriorly in the figure eight fashion, and the next circularly around the trunk down to the level of the trochanters. The main points of purchase are the pelvis and shoulders, hence they should be well moulded, especially over the crests and anterior superior spines of the ilia. In working up the bandages circle the body, go over the shoulders as before, around the neck, and the next turns are to encompass the head. The first band is around the suboccipitofrontal circumference, thence around the vortex and then around the supraoccipital circumference. This bandaging is repeated until the jacket is sufficiently thick to hold firmly, reverses being made over apparently weak spots. On completion the patient will be literally boxed in from crown to the trochanters, except the eyes, nose, and arms.

While still in the swing the jacket is rubbed and moulded until the plaster of Paris is set or solidified. Now the rope is slackened, the sling removed from the cross bar, and the patient placed upon a table on his back with a cushion under the neck, to avoid breaking the jacket.

The first trimming is done at the top in the line of the occipitofrontal circumference, cutting the plaster below the lobes of both ears. Remove the pins over the ears and slip out the sling by a gentle nodding or moving of the head.

The lower margin of the jacket is cut according to the amount of freedom to be allowed the thighs. If the child is to walk and sit up, then trim until the thighs can be flexed to a right angle, otherwise allow only forty-five degrees flexion, permitting it to extend over the pubis in front and sacrum behind. Around the shoulders all of the plaster beyond the scapulohumeral articulation is to be cut away and enough from the axilla to allow free motion of the arms. Next cut a triangular fenestrum, sides about three inches long, in front of the chest, through which is to be pulled the chest pad. Take care to rub all edges until rounded, especially those at the top and bottom, in order to prevent excoriations.

The next day the large anterior opening should be cut from the level of the hyoid bone, leaving the chin piece about one and one half inches long, and the open space between the shoulders should equal one half the distance between the scapulohumeral articulations, and the opening should gradually spread out until the lateral boundaries reach the midaxillary lines. The base of the fenestrum should go well below the free border of the ribs, leaving the pelvic band from three to five inches wide. The entire front window finished assumes a pearshape form.

The patient is now turned with face down and a posterior fenestrum is made over the focus of disease, measuring from one to one and one half inches greater in all dimensions than the kyphos. Within

this space the jersey is cut from corner to corner, and the triangular pieces are reverted and glued over the edges of the fenestrum. Square pads of cotton a little larger than the opening are stuffed under the edges of the window until good pressure is obtained, packing it until the cotton is slightly above the level of the jacket. Then put on one or two snug fitting plaster of Paris bandages around the trunk, covering the fenestrum, taking care to rub these well so that they will adhere to the jacket. After they have become hard cut this band out over the ventral fenestrum.

The pressure pads should be removed from the dorsal fenestrum every one or two months and a new one inserted, closing the window as before. Each time it will be found that a greater quantity of padding can be introduced, as the kyphos recedes.

The jacket should be completely removed every four or six months.

The foregoing is a description of a jacket for the treatment of disease above the seventh dorsal vertebra, where severe deformities are more frequently seen. When the disease is confined to lower vertebrae an officer's collar jacket is used; the width of the neck piece in this case extends from the inferior maxilla to the clavicle.

Dr. Calot makes these two points in his conclusion:

1. That the correction of deformity is gradually brought about through many treatments in counter-distinction to forcible correction under anæsthetic, and is accomplished without injury and without risk of inoculation of general tuberculosis.

2. The correction is made entirely by pressure and not by extension.

The advantage of this treatment over all others seems to be:

1. Absolute control of the patient during the treatment, there being nothing that parent or child can tamper with, as is the case with the jury mast.

2. The patients are more comfortable and prefer this to the jury mast treatment.

3. It is mechanically correct because, with shoulders fixed and pelvis fixed, and pressure brought to bear at the kyphos, the point of least resistance, there must be recession.

4. The free respiratory movements also aid in the cure, since with each inspiration the kyphos is pressed against the pad.

5. There is no interference with the normal functions of the heart, lung, and digestive organs.

Liberal reference has been made to Traitement rationnel du mal de Pott, by Dr. F. Calot, in *La Clinique*, 1906.

126 EAST THIRTY-FOURTH STREET.

ECTOPIC GESTATION, DIAGNOSIS, AND INDICATIONS FOR TREATMENT PREVIOUS TO FOURTH MONTH. HISTORIES OF TWENTY-ONE CASES.*

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Ectopic gestation is a pregnancy occurring in the fallopian tube somewhere between the ovary and the uterus. The fertilized ovum may become im-

*Read at a meeting of the Westchester County Medical Society, held at the New York Academy of Medicine, September 17, 1907.

planted primarily in the ovary, which, however, is a rare condition; only a few cases are reported which stand the test for this condition formulated by Spiegelberg. It is almost safe to say that all cases of ectopic gestation are primarily tubal in origin, with the rare exception that I have noted.

The classification usually adopted is interstitial, isthmal, and ampullar; from these primary forms secondary forms are occasionally developed, as tuboabdominal, tuboovarian, intraligamentous ("Williams"). It is largely due to the teachings of Lawson Tait that the pathology of ectopic gestation has been placed upon a scientific basis; he it was who insisted that these pregnancies were primarily tubal in origin and the other forms followed a rupture or abortion of a tubal gestation. Others have added to the accumulated knowledge until the pathology is quite clearly understood. To Lawson Tait belongs the credit also of pointing out the relationship of pelvic hæmatocele to ruptured or aborted tubal gestations.

Ætiology.

The exact causes are not clearly understood. Many theories have been propounded, and much speculation has been indulged in by different writers on the subject, but it seems to be largely a question of mechanical obstruction to the onward passage of the fœtus. These obstacles may be within the tube, as for instance a polypus, or narrowing of the tube at some portion, kinking, or adhesions following a pelvic peritonitis binding it down at some portion. The wall of the tube itself may be diseased, following a desquamative salpingitis. Then there may be obstructions from outside the tube. Kelly, in reviewing the ætiology, says: "We must therefore believe that extrauterine gestation is simply due to some interference with the normal downward passage of the fertilized ovum through the tube. Clinically it has been noted by all observers that it is more likely to occur in those women who have been sterile, or who have not borne children for some years. In nine cases of the series now reported, the age of the youngest child has been noted, and in seven the age of the youngest child varied from four to ten years; on the other hand, it has often occurred in the newly married.

Both tubes may be gravid concurrently, or a tubal may complicate a uterine gestation, as happened in one of the series; or, again, there may be repeated tubal gestations; one of our patients operated upon for ectopic, two years later had a gestation in the remaining tube likewise relieved by operation.

Pathology.

A brief consideration of the chief points in the pathology of extrauterine gestation will well repay the time spent upon it, as it will explain many of the symptoms and the course of the pregnancy.

Changes in the Uterus.—When a pregnancy occurs in a tube, the uterus is always enlarged, both as to its cavity and thickness of the walls, as in an intrauterine gestation, but at a slower rate. At the end of the third month it would be one third the size of a normally impregnated uterus of the same age. After this period the uterus continues to grow, but more slowly, provided the fœtus still lives.

Decidua.—A decidua is invariably formed in the uterus, and this decidua is shed either as a cast

or as debris, at or about the time of a primary rupture of the tube, and this shedding of the decidua is followed by metrorrhagia.

Changes in the Tube.—When a fœtus becomes implanted in a tube, changes occur; the tube becomes turgid and gradually increases in diameter, without corresponding increase in the muscular elements, the walls becoming thinner as the size increases. The turgescence of the tube extends to the fimbriated extremity as well as to the muscular and serous tissues adjacent; this turgescence gradually closes the abdominal ostium, and, if tubal abortion has not occurred in the meantime, hermetically seals it by the end of the eighth week, and after this a rupture of the tube will almost invariably follow. "The condition of the mouth of the tube in some measure influences the subsequent course of the pregnancy—a widely expanded ostium disposes to tubal abortion, but a gravid tube with a patent abdominal ostium is also liable to rupture. A gravid tube with an occluded ostium almost invariably ruptures." (Bland Sutton.)

Tubal Decidua.—Jewett has demonstrated, and it is confirmed by Williams, that there is formed in the tube, at the site of the placental attachment, a decidua vera and serotina, not continuous as in the uterus, but in patches, and the chorionic villi are quickly enabled to penetrate the thin wall of the tube and reach the peritoneal covering of the tube; this accounts for the rupture at the site of the implantation, and also for the opening up of the maternal vessels, with the sudden hæmorrhages beneath the ovum, separating it from its attachments, causing an abortion, or if any obstacle occurs at the fimbriated extremity to the escape of blood the tube yields to the sudden increase of pressure and ruptures.

Tubal Abortion.—So long as the fimbriated extremity remains open the ovum in the tube is in constant danger of being extruded into the abdominal cavity. To this accident the term tubal abortion is applied. The sac is discharged with a copious hæmorrhage into the abdominal cavity through the ostium, and the patient presents the signs of internal hæmorrhage and uterine hæmorrhage subsequent to shedding the decidua. Tubal abortion occurs only during the first two months. In tubal as in uterine abortion it frequently happens that the sac fails to become completely detached, giving rise to repeated hæmorrhages; and this condition is called incomplete abortion. It is much more frequent than the complete form; together the two forms of abortion are the most common termination of tubal gestation.

Rupture.—Failing abortion, the tube ruptures, the only exception being the rare event of a mole lying quiescent in the tube; and it may be either primary or secondary, and intraperitoneal or extraperitoneal. Primary rupture of the tube occurs in the majority of cases between the third and tenth week, rarely after the twelfth. The cause, as stated previously, thinning of the tube wall as the embryo grows and the undue distension of the membranes by hæmorrhage.

Intraperitoneal Rupture.—When the rupture occurs, if intraperitoneal, the peritoneal covering is ruptured, and there is bleeding into the abdominal

cavity; the hæmorrhage may be so great as to cause death in a few hours, or death may ensue from repeated hæmorrhages. If the hæmorrhage is small and not repeated there will be gradual absorption provided there is no infection.

Extraperitoneal Rupture.—As a gravid tube enlarges there is a gradual separation of the two layers of the mesosalpinx, and in a very small proportion of the cases (Kelly has seen it but twice in twenty-three cases, and it has not occurred in the series now reported) the rupture occurs in that portion of the tube between the separated layers of the mesosalpinx. This rupture is usually gradual, and the blood and sac are forced between the layers of the broad ligament; if the separation of the placental attachments was complete the fœtus would cease to live, but as a matter of fact it often happens that with the continued growth there is a wider and wider separation of the layers of the mesosalpinx, attachment of the placental tissue to the layers of the broad ligament, and continued life of the fœtus.

After surviving primary rupture the vicissitudes of the fœtus are not ended; as it grows the gestation sac becomes thinner and thinner, and a secondary rupture is liable to take place at any time with severe hæmorrhage and its death, or the pregnancy may go on to term, and a false labor ensue ending with death of the fœtus, unless relieved by operation.

There are other possibilities, but it is enough to say that after the fourth month the continued life of the fœtus is in constant danger, and the life of the mother is in peril from sudden alarming hæmorrhage or secondary rupture, with the escape of amniotic fluid into the abdominal cavity and peritonitis.

Tubal Mole.—The ovule after fertilization is liable to the same changes, whether it be implanted in the uterus or the tube. In either location a change occasionally occurs, known as a mole. Tubal mole is a fairly frequent occurrence, much more so than uterine mole, owing to the scantier blood supply of a tubal placenta and the tendency to repeated small hæmorrhages, which occur as the tube stretches and dilates. These hæmorrhages account for the irregular flow of blood from the vagina seen in some cases, and which is preceded by pain.

A mole resembles a firm blood clot in color and consistence. On dividing it a cavity is found containing fluid which is sometimes a straw color, sometimes stained from admixture with blood. In other cases the amniotic cavity is obliterated. Examined under the microscope the chorionic villi will be found.

The site of the implantation largely influences the course of the pregnancy; if it is at the inner third of the tube, intraperitoneal rupture with alarming hæmorrhage and the formation of a well developed fœtus would be the likely result; if in the middle third the following termination in the order named as to frequency would be expected: formation of a tubal mole, with intraperitoneal rupture; a well developed fœtus, with intraperitoneal rupture; tubal abortion, or, lastly, extraperitoneal rupture. Implantation at the outer third is more likely to end

in abortion complete or incomplete. If the fimbriated extremity is closed before abortion takes place then rupture into the abdominal cavity takes place.

Symptoms.

These may be divided into two stages, (1) before rupture, and (2) primary rupture or abortion.

First Stage before Rupture. Menstrual History.—A woman hitherto menstruating regularly misses a period, and thinks she is pregnant; later an irregular and more or less continuous flow commences. In other cases the regular period is delayed for a few days, sometimes as long as two weeks, and is then followed by an irregular metrorrhagia; another form is a continued or irregular flowing succeeding a regular period. In every case there is a deviation from the normal menstruation; the cycle is not only changed but the character of the flow also. A careful history will bring out the facts, and considered in conjunction with the other symptoms will put the physician on his guard.

Pain.—The patient first complains of an unusual weight or soreness in the pelvis. As the pregnancy progresses the pain changes in character, becoming acute, sharp, cramp like, and intermittent, and is often so severe that the patient feels faint and is obliged to lie down. The acute pain comes on suddenly and without warning, and when it subsides there is left a soreness in one or the other sides of the pelvis. This sharp pain is the usual cause of sending for a physician, and is caused by a partial separation of the placental tissues, and bleeding; this should not be confounded with the pain occurring at the time of a rupture, which, as will be shown, is followed by more shock. There is often at the time, or following the pain, an increased metrorrhagia.

Examination may show some enlargement of the breasts and other signs of pregnancy, and if present will aid in the diagnosis, and if not present will not in the least negative an ectopic gestation. If the abdominal walls are thin it is sometimes possible to palpate and percuss a mass in one side of the pelvis. In stout patients it is usually impossible to do so. Bimanual examination shows always a uterus more or less enlarged, the cervix is softened and dilated, and a mass will be felt on one side of the uterus, tender on pressure; if the case is seen early before adhesions have formed, it is movable, and in one of the series it was possible to palpate the ovary and the rounded enlargement of the fallopian tube, tender on pressure. In other cases it has only been possible to distinguish a tender mass, or a sense of resistance, tender on pressure.

A presumptive diagnosis of an unruptured ectopic gestation sac can be made on these three points: Menstruation which is changed in some particular from the normal, either delayed and followed by metrorrhagia, or a metrorrhagia coming on some days after the regular flow. Pelvic pain, beginning as a soreness later intermittent, cramp like in character, sudden in its advent, and increasing in severity as the process increases. Examination, swelling of a tube, a mass, or sense of resistance, tenderness on pressure, and the presence probably of a bloody vaginal discharge. If there is no history of a previous endometritis or gonorrhœa the probability

of the diagnosis is strengthened, or if bimanual examination made some time previously had failed to reveal any signs of tubal or ovarian disease.

Primary Rupture or Abortion.—In extrauterine pregnancy, the sac ruptures some time before the twelfth week, and the severity of the symptoms depends upon the seat of the rupture. If the rupture is between the layers of the broad ligament, the symptoms are much less severe than a rupture into the peritoneal cavity, as in the first instance the pressure of the extravasated blood between the layers of the broad ligament tends to check the hæmorrhage, while there is no resistance to stop the flow of blood into the peritoneal cavity. By far the most serious cases are those where the rupture occurs at the inner third of the tube and into the peritoneal cavity; the rupture occurs at a later period and the hæmorrhage is often enormous; death has been known to occur within three or four hours (Case XVI illustrates the point).

At the time of rupture the patient complains of a great pain, and feels as if "something had given way"; this is followed by pallor, faintness, a sighing respiration, lowered temperature, pulse rapid and feeble, in fact the symptoms are those of internal hæmorrhage. These symptoms often followed by a bloody discharge from the vagina.

Examination.—Abdominal examination shows rigidity of abdominal muscles, tenderness on palpation, and if the abdominal walls are thin the presence of a mass in the pelvis, usually in one side. Bimanual examination will reveal a bulging or sense of fullness in the cul de sac, which may be described as a boggy feeling, and a bloody vaginal discharge. The cervix is softened and usually dilated, while the uterus is moderately enlarged. The uterine discharge may contain shreds of decidual tissue. If microscopical examination showed decidual cells and an absence of chorionic villi it would be suggestive of ectopic gestation.

Differential Diagnosis.

Uterine and tubal pregnancy may be concurrent—as in one of our series. The points in the history were these:

The patient had not menstruated for three months and had all the signs of a pregnancy, with these symptoms in addition: For several weeks a slight bloody vaginal discharge from time to time and an intermittent pain in left side extending to thigh and leg, and in the last ten days becoming more severe. Two days before rupture, patient began to have cramps in her abdomen, the morning of operation pain became very severe, and lasted most of the forenoon, abdomen was tender to pressure, over left iliac region a very tender point. Uterus was enlarged about three months, there was bulging of the cul de sac, tenderness on pressure. Operation showed a normal pregnancy and a pregnancy in the left tube ruptured. Normal pregnancy went on to term.

Retroversion of a gravid uterus has been mistaken for an ectopic, and the reverse has been the case—an extrauterine has been diagnosticated as a retroversion of a gravid uterus. These cases are often puzzling, but a careful history and review of all the aspects of the case will help to clear up the diagnosis, and then, if in doubt, examination under an anæsthetic will clear it up. The following case, seen by the writer a few weeks ago, shows the error one may fall into:

See Case VI.—The patient's age was thirty-two years.

She had five living children, three miscarriages, the last one in October last; she menstruated normally in June, but in the middle of July she had some flow lasting for three days, not of normal color. Since then she has been flowing by metrorrhagia; and has had attacks of sharp pain, followed by metrorrhagia; no history of a fetus being discharged. Examination showed the cervix pointing forward, soft, dilated, a mass low down in the pelvis; diagnosis at the time was retroverted gravid uterus, threatened abortion. The symptoms continuing, she was examined a few days later, a sound introduced, which seemed to show a moderately enlarged uterus pushed to the right, and a mass, tender on pressure, to the left of the pelvis. A possible diagnosis of ectopic gestation was then made. Patient was then taken to the hospital, and under ether the diagnosis was cleared up easily, which proved to be a retroverted gravid uterus, incomplete abortion. Treatment consisted in curettage, uterus replaced, and pessary inserted.

Incomplete Abortion.—When the uterine decidua is thrown off at the time of the death of the fetus it is often mistaken for an incomplete abortion. Two patients of the series were curetted before admission to the hospital, and the trouble was not then diagnosticated; a third case was sent to the hospital with a diagnosis of incomplete abortion, and was taken to the operating room without previous pelvic examination, the patient coming to the hospital on the morning of an operating day, when the real nature of her trouble was diagnosticated, but further operation was postponed, as permission had not been obtained to open the abdomen, and she was in no immediate danger. It would seem that a careful history, and careful examination, either before or at the time of a curettage, should enable one to make a correct diagnosis. One of the cases curetted outside of the hospital one month previously came in with a diagnosis of ruptured appendix. She had had a ruptured tubal gestation at the time of her curettage, and the blood clots had become infected and she was thoroughly septic, and died within a few hours of her admission.

Primary rupture into the abdominal cavity with profuse bleeding may be mistaken for perforation of the stomach or duodenum, or axial rotation of the intestine; here the carefully taken history will be of great help in clearing up the diagnosis, as well as the physical signs, bloody discharge from the vagina. Following a perforation of the stomach or duodenum, there is often a gravitation of extravasated fluid to the pelvis, going along the transverse and ascending colon, with abdominal rigidity, sometimes most marked in right iliac region, and free fluid in the pelvis, which may be mistaken for blood. There are often cases which cannot be positively diagnosticated, except that there is some abdominal or pelvic disturbance requiring an exploratory incision, and the ectopic gestation is then revealed; but with expanding experience, more careful history taking, and thorough examinations, few patients will come to operation without a correct diagnosis being made in advance of operation.

The two following cases will show the errors made in diagnosis of this condition:

CASE XXII.—A young married (two years) woman, no children, no miscarriages, complained for several weeks of increasing abdominal intermittent pain; she also had an irregular bloody vaginal discharge. Examination showed point of tenderness of the left iliac region, uterus was slightly enlarged and cervix slightly dilated. In the left of uterus there was a pulsation as compared to other side, tender on pressure. Diagnosis, unruptured ectopic gestation.

Operation.—Left tube was found to be much swollen, congested, and tortuous, fimbriated extremity showed a closed distal end, filled with fluid blood. Right tube was swollen to lesser degree, fimbriated extremity closed by adhesions. Correct diagnosis was confirmed by microscope as hæmatosalpinx.

The points in the other case are these:

The patient was twenty-nine years of age, three children, one of whom was dead, and one miscarriage, last pregnancy five years before. For past year she had had pain in right iliac region at time of menstruation; she thought she was two and a half months pregnant; last regular menstruation was on April 14th; since then a slight, bloody discharge came on at intervals. Some time in April she had had sharp pain in right inguinal region, which came on suddenly, and lasted for two days, followed by soreness, and at various times since then she had had similar attacks of sharp pain. Last attack of pain and bleeding took place about June 20th.

Examination showed a bloody discharge from cervix, which was bilaterally lacerated, cervix was soft, and slightly dilated. Fundus could not be felt. To the right of uterus was felt a fluctuating mass, the size of a large orange, tender on pressure. Diagnosis probably ectopic gestation. Operation was performed on June 25th. The uterus was displaced backward by a large tumor the size of an orange, occupying place of right ovary. Tumor proved to be a dermoid cyst of ovary, containing hair, complete tooth, and fragments of bone. Left ovary was enlarged irregularly, showing marked fibroid changes. Appendix was much congested. Both tubes and ovaries were removed, also the appendix. Patient recovered entirely.

Prognosis.

The death rate of ectopic gestation is 70 per cent. for the mother if surgical intervention is not undertaken—an unpromising outlook. The very nature of the condition removes it from the realms of the internist after a possible diagnosis is made; it then becomes a surgical proposition, and requires surgical intervention promptly. When Lawson Tait did his first operation for ectopic gestation in 1883, he revolutionized the treatment of this condition, and one of the most brilliant chapters in surgical annals has since resulted. He even could not foresee the full progress which would be made, for when writing his classical monograph on Ectopic Gestation in 1889 he said it was highly improbable that there would ever be many diagnoses of ectopic gestation before primary rupture. In 1891 Janvrin removed an unruptured ectopic gestation sac, which was, I believe, the first on record. It is now a common occurrence and steadily becoming more frequent as the methods of diagnosis improve.

The death rate to-day in cases of unruptured ectopic gestation should be less than 5 per cent., possibly 2 or 3 per cent., and the ruptured cases will show a mortality of less than 10 per cent.

I have collected a series of twenty-five cases operated on at St. John's Hospital; reports of twenty-one cases are appended herewith. There have been four other cases, the histories of which were so scantily written I could not present them. Sixteen cases were operated on by Dr. W. H. Sherman, by whose courtesy I am enabled to report them, with one death, and nine cases operated on by the writer, with one death. The whole series of twenty-five cases shows two deaths, a mortality of 8 per cent. Four of the series were unruptured, all patients recovered, and one was an incomplete rupture with recovery. The two deaths in the series were unavoidable. The first patient was thoroughly septic and moribund

when she came to the hospital, and could not have been saved at that time; the correct diagnosis should have been made earlier, or at least a diagnosis made of some condition demanding surgical interference. The other death was due to the stubbornness of the patient; her physician made a correct diagnosis several days before the fatal rupture took place, but she would not listen to his advice, and after rupture she still refused surgical aid for several hours, and not until her life was ebbing away would she consent to operation. If I had the operation to do again, it would be performed much more expeditiously, and less time spent in washing out the blood clots, and more attention paid to replacing with saline solution the blood lost by the spurring vessel, and possibly the result would be different.

Treatment.

The treatment hinges largely upon an early positive or presumptive diagnosis. A large majority of the patients had consulted a physician previous to rupture, and with due consideration of a carefully taken history and a thorough examination, and when in doubt a consultation, and then if in doubt examination under anesthesia would clear up the diagnosis. When the diagnosis is made before rupture, operation without delay is advised by all authorities, and the chances of complete recovery should be 97 per cent. or better. If the patient is seen at time of primary rupture, immediate operation is called for if the hæmorrhage is severe and continuing, as evidenced by increasing pallor, thirst, and gasping respiration. If the hæmorrhage shows signs of abating, it is better surgery to wait until the patient recovers from the shock of the rupture, and then operate, in the meanwhile having the patient in readiness for immediate operation if fresh bleeding should take place. When the patient is seen some time after primary rupture, and there is a chance that the fetus is living, if it is prior to the fourth month, operation and removal of the fetus and gestation sac is by all means the proper course to pursue. The dangers to the mother from sudden hæmorrhage, or secondary rupture into the abdominal cavity followed by infection and peritonitis, are so great as not to warrant delay. The danger of sudden death of the fetus from separation of the placenta by hæmorrhage or rupture of the membranes is so great that few cases could go on to term. Of the ectopic gestations which have gone on to term few have survived more than a few days or weeks, and Bland Sutton says: "A fetus, the product of a tubal gestation, is a very unsatisfactory individual; it rarely survives longer than a few days or weeks, and is likely to be ill formed, having hydrocephalus, club foot, or spina bifida."

Of the operation itself little may be said. All of our patients were operated upon by the abdominal route, although in certain selected cases the vaginal route may be preferred; my preference is for the abdominal operation, as all the parts can be seen, a clean cut operation done, and, if necessary, drained by the vagina. Before rupture the operation is simply tying off and removing a tube, after rupture ligating the bleeding point, and always removing the tube, and the ovary, if necessary, and cleaning away the blood clots. Most of the cases

have been closed without draining and have had primary union.

CASE I.—Ruptured ectopic gestation. Operation by Dr. W. H. S.

Patient O. B., age thirty years, married. One child, age six years, difficult labor. Since then irregular menstruation three to four weeks apart, of small amount, no pain. Patient was treated one and one half years ago for endometritis, when she had pain at discharge from uterus at that time. Patient was admitted February 8, 1898. Menstruation began latter part of January with attacks of severe abdominal pain in the left side, each attack lasted about one hour, then pain subsided. About two weeks before operation patient had had severe and prolonged attacks of pain, becoming more frequent; finally she was never free from pain. Suddenly before admission she had an attack of excruciating pain. Under anæsthesia diagnosis of ectopic gestation was made. Operation was performed, and it was found that the abdomen contained free blood, ruptured left tube; a fetus 3 inches long was found in the ruptured tube. Patient was discharged as cured on March 16th.

CASE II.—Unruptured ectopic gestation. Operation by Dr. W. H. S.

Patient N. S., was twenty-nine years of age, married, had one child, aged eight years, no miscarriages. She had had always backache and dragging pains at menstrual periods, otherwise healthy. She was admitted August 2, 1899. She had been taken ill three weeks before with what she supposed was a miscarriage, profuse flowing, backache, and sharp intermittent pains. Upon examination it was found that the uterus was retroverted, tumor tense and fluctuating in cul de sac, and to the left. Bloody discharge from vagina. Operation demonstrated a tumor, attached to the left fallopian tube; fluid blood was drawn off with aspirator. Sac was dissected out, tube and ovary were removed. Examination of specimen showed it to be an unruptured tubal gestation sac. Patient was discharged as cured on August 30th.

CASE III.—Unruptured ectopic gestation, chronic appendicitis. Operation by Dr. W. H. S.

Mrs. R., age thirty-eight. One month ago, while sitting, she had a sharp pain in the abdomen, cramp like, which lasted one half hour; six days later she had a chilly sensation followed by severe pain. On the following Monday she again had a chilly sensation, followed by cold sweat. Next day there appeared pain in abdomen in right inguinal region. Since then she had been in bed, and pain had continued at intervals; lately attacks of pain were followed by weakness. Examination showed presence of tumor in the region of the right tube. Operation showed an unruptured ectopic gestation sac and chronic appendicitis. Patient was discharged as cured.

CASE IV.—Ruptured ectopic gestation. Operation by Dr. W. H. S.

Previous History.—Mrs. W. W. B., age thirty-seven. Menstruation had been regular every twenty-one days, lasting about one week. Two years ago when menstruating she had had an attack of pain in left iliac region. Since then she had had pain more or less in same region. She had two children, aged fourteen and eight years.

Present History.—Patient was admitted to the hospital February 8, 1900. Four weeks ago menstruation had appeared at regular time. One week later there began an irregular flow of blood from vagina which continued from Saturday until Wednesday. She had felt well for the last three weeks, except at times she had had pains in left iliac region and when standing a bearing down feeling. Vaginal examination demonstrated a cystic tumor, size of orange, to left of uterus.

Operation.—Operation was performed on February 12, 1900. There was a ruptured ectopic gestation sac in the left tube and pelvic hematocoele. Drainage was removed March 15th, and patient discharged as cured.

CASE V.—Ruptured ectopic gestation, infected. Operation by Dr. W. H. S.

Mrs. W., age thirty-four, was admitted July 2, 1900. Patient had a child four years ago, one month ago she had had a two months' miscarriage, and was cured. On June 10th she had shooting pains localized right side over appendix, accompanied with fever, pains continued at intervals, abdomen was distended. On operation the right tube was found to be perforated, infected blood clots were

found in pelvis. The tube and clots were removed. Patient died within twelve hours.

CASE VI.—Ectopic gestation, ruptured extraperitoneally. Operation by Dr. W. H. S.

Mrs. O. N., age thirty-three. Admitted on July 12, 1900. Patient was the mother of four children. One month ago she had had a six weeks' miscarriage and was cured; two weeks later she was confined to bed for one month, owing to cramp like pains in the abdomen, which would last for a day or so, to reappear in a few days. There were local pains, tenderness below and to right of umbilicus. Uterus was felt above pubes and to right of median line was felt a tumor. Operation showed a ruptured ectopic gestation sac, a child three and one half months old was removed alive with its placenta. Tube and ovary on same side were also removed. Patient was discharged as cured.

CASE VII.—Ruptured ectopic gestation. Operation by Dr. W. H. S.

Mrs. K., married, age thirty-five years, was admitted to the hospital on February 6, 1901. Two weeks before entrance she had what was supposed to be a two months' miscarriage, she expelled a false placenta, bleeding at intervals. She complained of pain left lower abdomen. On operation a ruptured ectopic sac was found in the left tube, with a large hematoma, also ovarian cyst in the right side. She was discharged as cured.

CASE VIII.—Unruptured ectopic gestation. Operation by Dr. W. H. S.

Mrs. C. E. C., married, was admitted to the hospital on February 1, 1902. The patient should have menstruated on January 1st, but menses commenced on January 14th and persisted until the end of the month. She had pain on January 21st and again pain in the left side on January 22d. Examination showed an enlarged uterus and a mass in the left side of the pelvis as large as a goose egg not connected with uterus. On operation an unruptured ectopic gestation sac was found in the left tube. Patient was discharged as cured.

CASE IX.—Ruptured ectopic gestation. Operation by Dr. S. E. G.

Mrs. J. S., age thirty-three; mother of eight children, youngest two years of age. She had had no miscarriages. For past six or seven weeks she had been flowing irregularly and complained of pain in left side, which was cramp like in character and increasing in severity. Operation showed a ruptured ectopic gestation sac in the left side, with free blood in the cul de sac. Right tube and ovary were apparently normal. Patient was discharged as cured.

CASE X.—Ruptured ectopic gestation. Operation by Dr. S. E. G.

Mrs. G. S., age twenty-four, was admitted on April 20, 1903. On March 24th the patient noticed discharge of blood from vagina, the discharge was accompanied with pain. Since then the discharge had varied but little from the time of its origin. Menstrual history was otherwise normal. On examination general tenderness to pressure was elicited all over the abdomen, but greatest over right side in this region, while vaginal examination showed the cervix soft, with bloody discharge from uterus, and a fluctuating tumor on the right side of uterus. Operation was performed on April 21st. Free blood was found in pelvis, the right tube was ruptured, which was spherically enlarged two and one half inches, containing blood clot. Tube and ovary were removed. Primary union took place, and patient was discharged as cured. She has since borne a living child under normal labor, some infection following, from which she recovered. She is now in good health.

CASE XI.—Ruptured ectopic gestation. Operation by Dr. W. H. S.

Mrs. C. W., age thirty-two, was admitted on July 6, 1903. She was the mother of five children, youngest five years old. One year ago she had been cured for endometritis. Four weeks ago she was taken with severe abdominal pain, resembling a labor pain, when she supposed to be three weeks pregnant. These pains lasted three or four hours, and then subsided. Three weeks later pains again came on, more violent in character. Since that time she had not suffered severely, but had had slight pain most of the time. Examination showed tenderness below and to left of umbilicus, rigidity of left rectus muscle. Operation showed free blood in pelvis, and the left tube was found to be the site of ectopic gestation. Patient was discharged as cured.

CASE XII.—Ruptured ectopic gestation, complicating normal pregnancy. Operation by Dr. S. E. G.

Mrs. A. F., age twenty-six, was admitted on August 22, 1903. She stated that she thought to be pregnant about three months, as she had had all the signs. She menstruated last in April, but had had from time to time slight bloody discharge. For several weeks she had had an intermittent pain in the left side, also extending to thigh and leg. Ten days ago it became more severe. Two days ago she began to have cramps in abdomen. On morning of admission pain became very severe and lasted most of the day. Abdomen was tender to pressure. To left of median line just below umbilicus was a tender point, and patient complained of pain over left iliac region. Breasts were apparently normal. Operation showed a uterus enlarged third month, right tube and ovary normal, free clotted blood in pelvis, the left tube ruptured and enlarged. Tube and ovary were removed, primary union taking place. Patient was discharged as cured. Uterine pregnancy went on to term, was normal, and of short duration. On about the eighth day a phlegmasia alba dolens developed, from which she slowly but entirely recovered. Since then patient has been delivered of a child, without any sign of infection.

CASE XIII.—Ruptured ectopic gestation. Operation by Dr. S. E. G.

Mrs. L. T., age thirty-four, was admitted on September 15, 1903. She was the mother of five children, had had no difficult labors, no miscarriages, and menstruation had always been regular. Five weeks ago she felt a sudden pain like a labor pain in left side of abdomen which lasted one half hour, the pain became intermittent, coming on every few hours and lasting for an hour or more. After two days the pain became constant in left iliac region. For the past three months she had menstruated twice a month, without any unusual pain with last menstrual flow. Upon examination the uterus was found to be movable, to left of uterus was felt a large mass. Operation showed a large number of blood clots in pelvis, left tube ruptured, which was removed. She was discharged as cured on October 5, 1903.

CASE XIV.—Ruptured ectopic gestation. Operation by Dr. W. H. S.

Mrs. S., age thirty-seven, was admitted on January 12, 1904. She was the mother of eight children, youngest four years of age. Two years ago she had been operated upon at St. John's Hospital for ruptured ectopic gestation in the left tube (see Case IX). Four weeks before admission patient began to complain of sharp pain in lower part of right abdomen, which had continued since with increasing severity. There had been bloody discharge from vagina most of the time. Patient gave no history of having skipped a period. Operation demonstrated free blood in pelvis, a ruptured right tube, which was removed. She was discharged as cured on February 12, 1904.

CASE XV.—Ruptured ectopic gestation. Operation by Dr. W. H. S.

Mrs. K., married, age twenty-two, was admitted on July 18, 1904. Menstruation had been irregular, and a miscarriage had occurred last year. One week after menstruation was due she noticed a slight hemorrhage from vagina. For past seven weeks she had been flowing without intermission. On July 18 she was cured, and upon examination a retroverted uterus was found with a fluctuating mass behind the organ. She was operated upon on July 27, when on left side of uterus was found an old ruptured ectopic gestation sac. Patient was discharged as cured.

CASE XVI.—Ruptured ectopic gestation, active hemorrhage. Operation by Dr. S. E. G.

K. F., age thirty, was admitted on August 27, 1904. She was the mother of two children, also had had many miscarriages (five or six). For some weeks previous to admission she had been having pain in abdomen, localized in left side, also some bloody discharge from time to time from vagina. She was advised to come to the hospital several days previously by her physician, but refused. Early on the day of admission she was seized with violent, cramp like pains in abdomen, followed by weakness, bordering on collapse. When admitted to the hospital her general appearance was anemic, abdomen was distended, there was extravasation of blood at umbilicus, pulse was weak and thready, and the patient was in bad condition. There was also a slight, bloody discharge from uterus, with marked fullness in the left fornix. Soon after admission she was operated upon, and a four months' fetus was found floating free in the abdominal cavity. There was a

large rent in the inner third left tube, which was enlarged and bleeding. Abdominal cavity was filled with blood clots. Left tube and ovary were removed. Uterus was somewhat enlarged. Patient died a few hours later of shock from loss of blood.

CASE XVII.—Ruptured ectopic gestation. Operation by Dr. S. E. G.

K. F., age twenty-four, was admitted in June, 1906. She had been married at sixteen years of age, had two living children, one miscarriage. On May 11, 1906, she commenced to menstruate, menses continued on and off to June 4th; she also complained of dragging pain in the lower part of abdomen, but had been able to work until May 30th. Upon examination there was found a cystocele, rectocele, lacerated perineum, bloody discharge from uterus, and some resistance in the right fornix. She was operated upon on June 4, 1906, free fluid blood in pelvis, right tube ruptured and bleeding, a mass the size of an English walnut was removed from the lumen of right tube, which was removed. Patient was discharged as cured on June 23d.

CASE XVIII.—Unruptured ectopic gestation. Operation by Dr. S. E. G.

Mrs. A. C., age thirty-one, was admitted on November 27, 1906. She was the mother of two children, ten and eight years, but had had no miscarriages. She had always been healthy, but frail. Up to seven or eight weeks ago she was fairly well; about this time she had a moderately severe attack of cramp like pain in right iliac region, lasting from ten minutes to one and one half hours, no regularity of occurrence, but the severity of attacks was greatest during menstrual flow. For the past seven weeks there had been no distinct menstrual flow, but a few blood clots were sometimes noticed to pass from vagina. About ten days ago the attacks became very severe, patient fainting during one attack. Examination on November 27, 1906, showed the uterus in normal position, movable, left tube and ovary normal. To the right of uterus was a mass, tender on pressure. Diagnosis was made of ectopic gestation. Examination under ether on December 1st demonstrated two rounded, freely movable masses about size of walnut in the region of right ovary, about one and one-half inches apart from each other. On operation the uterus, left tube and ovary were found to be in normal condition, right ovary was also normal, but in the right tube, midway between the two extremities, was a rounded mass of the size of a walnut. The right tube including mass removed, and abdomen was closed. Patient was discharged as cured on December 15th. The examination of specimen by Dr. James Ewing showed an unruptured ectopic gestation sac.

CASE XIX.—Ruptured ectopic gestation. Operation by Dr. W. H. S.

Mrs. E. W., age twenty-nine, admitted on January 17, 1907. Menstruation had been regular, lasting three days, five children living, last five pregnancies resulted in abortion, last one on April 16, 1906. Patient stated that she was pregnant three months, about five weeks ago began to have severe pains in lower abdomen, which would come on every day, lasting about two hours, cramp like in character. She had menstruated October 24, 1906, menses lasting two days; she was fourteen days overdue when she menstruated on November 15th, menses lasting but two hours. About December 1st she began to notice a pinkish discharge from vagina. On day of admission she had a severe attack of pain lasting several hours, much more severe than previous attacks. On examination there was found in the right lower abdomen a mass over which there was rigidity, tender on pressure, percussion dull over tumor. Operation showed a ruptured ectopic gestation sac of the right side. Patient was discharged as cured.

CASE XX.—Ruptured ectopic gestation. Operation by Dr. S. E. G.

S. W., age twenty-six, married, was admitted April 21, 1907. Her present condition began two weeks ago with chills and pain in lower abdomen, no nausea or vomiting, bowels were constipated. She had menstruated on February 1st for three days without pain, on March 1st, three days, and again on April 1st, when menses lasted only a few hours. No flow between these dates. Slight soreness in right side, and cramp like pains. Abdomen was moderately distended, no rigidity, in right iliac region was found an indefinite tumor mass resistive to pressure, movable dullness in both flanks. Diagnosis, probably ruptured ectopic gestation sac. Upon operation blood and blood clots escaped from abdomen, also a living fetus with cord

and part of placenta. An opening was found at junction of middle and proximal thirds of right tube, with active bleeding point. Right tube was removed. Left tube and ovary were normal. Patient was discharged as cured on May 13, 1907.

CASE XXI.—Incomplete rupture ectopic gestation. Operation by Dr. S. E. G.

Mrs. S., age thirty-two, married, was admitted on August 4, 1907. Patient had had two children, age twelve and ten years, no miscarriages, had always been delicate; she had suffered from attack of indigestion, and never was quite up to the mark. Within the last year she had been under treatment for catarrhal salpingitis and had greatly improved, the stomach symptoms had also been improved. She had menstruated regularly last part of May, the next period was delayed two weeks. About the tenth of July she complained of pain in rectum with tenderness, and about this time she began to have an irregular discharge from vagina. Examination on July 15th per rectum was negative, per vaginam there was felt low down to the left of uterus a movable tumor, which was tender on pressure, and was thought to be a prolapsed ovary. From this time patient had pains in pelvis of varying severity, but always a feeling of weight or heaviness. On July 29th she still had pains, and continued flow from vagina, tumor was larger than it was on July 15th. Suspicion of ectopic gestation. On August 3d patient was still flowing, tumor movable, larger, tender on pressure, uterus increased somewhat in size, cervix soft. Patient had had for the past few days severe attacks of pain, followed by faintness and coldness, and had been obliged to lie down. Diagnosis of ectopic gestation was made, and early operation advised. On August 6th abdomen's contour was found to be normal, no organs palpable, no rigidity. In both iliac regions, especially left, was tenderness, indefinite feeling of a mass about size of walnut in left iliac region, not felt in right side. The uterus was forward, movable, increased in size; cervix soft, open. Presence of bloody vaginal discharge. Operation on August 7th showed a small amount of free blood in pelvis, no clots. In the middle third of left tube was a mass entirely within the tube. The peritoneum covering a portion of the tube was denuded. The uterine end of tube was apparently normal, the fimbriated extremity closed. Right tube and ovary were normal. Left tube was ligated and removed, pelvis was dried of blood, and wound closed. Primary union took place, and patient was discharged as cured on August 10th. Examination of specimen by Dr. James Ewing showed the presence of chorionic villi and a tubal mole.

Summary.

1. Ectopic gestation in almost every instance occurs primarily in the tube, and if found as intraligamentous abdominal or tuboovarian, it has followed a primary rupture of the tube.

2. It occurs in women largely who have long been sterile or who give some history of a catarrhal salpingitis.

3. Symptoms before rupture are: Missed menstrual period followed by irregular flowing or irregular and prolonged bloody discharge. Pain, feeling of weight and soreness in pelvis, followed by sudden sharp attacks of pain, intermittent in character. Cervix softened, dilated; uterus enlarged moderately, often a bloody vaginal discharge, presence of a mass to one side of the uterus, tender on pressure. A large majority of the patients consulted a physician previous to rupture.

4. Symptoms of primary rupture are: Sudden great pain, as if something had torn; faintness; collapse; if hemorrhage is great, collapse is profound; pallor; rapid, thready pulse; subnormal temperature; shallow respiration; thirst. Examination shows abdominal rigidity; a tumor mass in cul de sac, of a boggy feeling; uterus enlarged; cervix soft, dilated. Bloody vaginal discharge.

5. Prognosis is bad for mother if unoperated on

in at least 70 per cent. Operation, if done in time, will save 92 to 95 per cent. of all cases.

6. If not positive of diagnosis before rupture, consult, and if necessary examine under anesthesia, and if diagnosis is confirmed operate at once. After rupture immediate operation if hemorrhage gives signs of continuance; if signs of abating hemorrhage, wait until shock is recovered from, then operate, but be prepared to operate immediately if bleeding again occurs.

7. Operation preferably through abdomen; only use vaginal approach in some selected cases.

8. Before the fourth month always remove the products of gestation; it is much the safer plan for the mother; the chances of a healthy living child are very remote.

84 ASHBURTON AVENUE.

PRIMARY NASAL DIPHTHERIA,

*With a Report of Several Cases, One in an Infant Ten Days Old.**

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In the consideration of this subject so much depends upon just what comprises diphtheria that it might be well, before proceeding, to define exactly what we mean by that term. The view that is held by the majority of modern observers is well expressed by Park (1), who says that under the term diphtheria should be included all inflammations of mucous membranes due to the diphtheria bacillus of Loeffler; a case of acute hyperæmia in which the Loeffler bacilli are present being considered as truly a diphtheria as one with pseudomembrane or exudate. Practically the same definition is given by Holt (2), Lennox Browne (16), and many others.

With this conception of what constitutes diphtheria we can pass on to the consideration of primary nasal diphtheria, and just what we mean by that term. There are many cases of nasal diphtheria that are secondary to disease of the respiratory tract lower down, and the direct result of extension upward. These cases are usually of a very serious nature, and it is not with them that we deal in this paper. We have to do only with primary nasal diphtheria, under which term we include all cases of rhinitis, be they "fibrinous," "membranous," "croupous," "diphtheritic," "purulent," or what not, provided they are associated with the presence of the Klebs-Loeffler bacillus, and have their origin in the nose.

As typical examples of the affection under consideration we wish to report several cases:

CASE I.—S. S., white male, born Jan. 8, 1900, was one month and five days old at the time when the infant was just thirty days old.

The mother was a white female, aged 28, with a history of diphtheria, and was a patient of the Philadelphia Hospital for the Blind.

The father was a white male, aged 30, with a history of diphtheria, and was a patient of the Philadelphia Hospital for the Blind.

*Read before the Philadelphia Association of Physicians, November 14, 1907.

As to the present complaint the mother said that the infant had been perfectly well until it was ten days old. It had never been brought down stairs, and to the knowledge of the parents had not in any way been exposed to contagion. The mother had never had diphtheria. On the tenth day it contracted what its mother took to be an ordinary "cold in the head," and it was pronounced so by the attending physician, with the assurance that the trouble would soon disappear. Instead of subsiding, however, the obstruction in the nose increased to the extent of considerable embarrassment to its nasal breathing, which was wheezing in character, so that at times it would throw its hands about and grow quite red in the face. On this account there was some interference with nursing, the child being compelled to frequently draw its head away from the breast to get sufficient air. The discharge from the nose became profuse and purulent. The infant, as the mother said, "did not seem sick," nor did she think it had lost in weight, but remained, with the exception of its local trouble, an apparently healthy, well nourished child.

Examination of the patient at the time of the first visit, the twentieth day of the disease and the thirtieth day of its life, revealed a well nourished, well developed infant that was normal in every respect except for the local condition in the nose. It appeared bright and did not display any evidence of toxæmia. Temperature and pulse were normal. There was no enlargement of the glands of the neck. There was a profuse purulent discharge with a wheezing nasal breathing, so that the child presented a picture not unlike that of snuffles. Of course, in a child but a month old, little or no satisfactory view could be obtained of the nasal cavities, but what little was possible revealed only the anterior ends of the swollen and congested lower turbinates bathed in a thick mucus. The mother said that several times small membranous shreds had come from the nose. Examination of the nasopharynx was negative. The oropharynx was normal, being not even congested. The larynx was uninvolved. Smears and cultures were taken from the nose and given to Dr. F. H. Klaer for examination. Typical Klebs-Loeffler bacilli were demonstrated in both. In a few days this was repeated with the same result, the cultures in all the tubes being almost pure, a few cocci being seen in the stained preparations. A guinea pig was then inoculated and it died at the end of thirty-six hours. In cultures and stained preparations from the pig's serum Klebs-Loeffler bacilli were found, in one tube in pure culture, in the others in association with cocci.

On July 13th, according to the mother's statement, the child weighed twelve and a half pounds. It slept well and continued to appear perfectly healthy except for its nasal trouble with its purulent discharge, which remained quite profuse. About a week later the mother said it weighed fourteen pounds. Frequent examinations were made by the bureau of health, but not until August 14th did they succeed in obtaining the two successive negative cultures that are required before the quarantine can be lifted—just two months after the onset of the disease. However, the nasal discharge persisted for several weeks after that and then gradually disappeared. Never in any way did the child suffer any ill effects from its infection, while it actually gained in weight during the course of its trouble.

The feature that is of particular interest in this case is the extreme youth of the infant—ten days old at the time the disease was first noticed. As far as the writer has been able to discover there has never been a case of primary nasal diphtheria reported in one this young. It is also interesting to note that not only was there a complete absence of systemic involvement in a child of such an age that one would naturally expect the resistance to be but small, but that it actually gained, at least some, in weight.

It is to the courtesy of Dr. W. S. Hargett that I am indebted for the data of

CASE II.—F. B., white, male. The child had been well up to ten days before the time it was first seen, when it developed what the parents thought was a "cold in the head." There was a mucopurulent discharge from the nose which was at times streaked with blood. Medical advice was then sought on account of a slight sore throat and frequent sneezing. At that time the child had a thick mucopurulent

nasal discharge, and the upper lip was excoriated and raw. On examination the nose was found to be completely blocked on both sides by a thick, whitish membrane, disturbance of which with a probe caused free bleeding. The throat examination revealed a similar membrane on the right tonsil about the size of a dime, which was completely removed with a swab and a raw, bleeding surface exposed. The temperature was 102° F. Cultures taken separately from the nose and throat both were positive to diphtheria. Twenty-four hours after the removal of the faucial membrane, which was not followed by a recurrence, the temperature was normal and he again appeared well except for the nasal discharge, which remained unchanged. For ten days after this cultures were positive, and the membrane was still present. Negative cultures were then obtained, but the nasal discharge persisted for some time.

The interesting feature of this case is that as long as the disease was confined to the nose, and in all probability it had its origin there, there was an absence of systemic involvement, and it was only when the membrane had extended to the tonsil that the child seemed ill enough to seek medical attention. While coincident with the disappearance of the faucial lesion, although the nasal condition remained unchanged, there was a prompt subsidence of the fever and other manifestations of toxæmia; indeed to such an extent that it was only with difficulty that the parents were persuaded that the child was really sick and the precautions of quarantine necessary.

CASE III.—T. F., white, male, five years old, and

CASE IV.—J. S., white, male, four years old, both presented practically no symptoms whatever except a purulent discharge from the nose, with excoriation of the lip. A distinct membrane was present in each, and the Klebs-Loeffler bacillus conclusively demonstrated.

CASE V.—J. D., white, male, three years old. The only complaint was a "sore" on the upper lip. Examination showed this to be secondary to a purulent rhinitis (no membrane). Examination for diphtheria bacilli was positive.

These cases merely serve as further examples, among many such reported, of the ordinary mild type of this affection as frequently met with to-day.

Many of these cases of mild type have been reported by recent observers—five by Townsend (3), two by Baginsky (4), six by Pluder (5), twelve by Ravenel (6), two by Ellett (7), ten by Park (1), three by Abbott (8), three by Stamm (9), five by Concetti (10), six by Gerber and Podack (11), and thirty-six by Lack (12), which seven are mentioned by Grayson (13), etc.

The symptom complex presented by these cases is essentially as follows: Without apparent cause the child, usually between the ages of two and seven, develops what the parents ordinarily take to be a "bad cold in the head." The onset is insidious. There is little or no systemic disturbance, and the temperature is normal or but slightly elevated. The child "does not feel sick" and does not go to bed, but usually continues to mingle freely with his associates; and there are undoubtedly many cases that go undetected throughout the course of the disease. There is a decided tendency towards chronicity, and it is frequently its persistence that causes something more than a "cold" to be suspected. The discharge from the nose may be slight or profuse, thin and watery, thick and purulent, or flocculent, and may contain membranous shreds. It is often streaked with blood; indeed epistaxis is quite common, although it is apt to be slight and to occur late in the disease. The nasal vestibules and the upper lip may be excoriated. Examination of

the nose may reveal the presence of a purulent discharge only, or a whitish membrane covering the lower turbinals, the floor of the nose and the septum, and the mucous membrane is congested and bleeds readily when touched with a probe. It displays a marked tendency to limit itself to the nose, extension downwards being the exception rather than the rule. The glands of the neck may be enlarged, but usually not to as great an extent as in the faucial type. Albuminuria is uncommon. Its duration varies from three to twelve weeks, though it may be longer. The prognosis is good. Paralytic phenomena, such as loss of knee jerks, paralysis of the palate, etc., are extremely rare.

By this we do not mean to deny the existence of malignant nasal diphtheria, or even of malignant primary nasal diphtheria. Indeed the physicians at the various contagious hospitals have learned by bitter experience to look with dread upon cases of nasal diphtheria that come under their observation, most of which, however, are undoubtedly secondary, and to give a grave prognosis. But is it not, as a rule, only the severe ones that go to the hospital? For there are many cases that do not feel sick enough to even go to bed, as we have seen, while many are probably undetected. Those that are seen in contagious hospitals are not only severe but apt to run a very malignant course, attended by all that goes to make up the clinical picture of profound diphtheria toxæmia, and are somewhat prone to have even alarming epistaxis and to be followed by sequelæ such as the various paralytic phenomena, etc. In a collection of a thousand consecutive cases of diphtheria by Lennox Browne (16) there were but two that were nasal alone, and one patient of these died, while secondary extension to the nose occurred in 21.3 per cent. of all cases. He, therefore, considered primary nasal diphtheria extremely rare, and nasal diphtheria, as a whole, very malignant, with a mortality of 63.4 per cent. But he did not regard as diphtheria the frequent cases of what he termed *rhinitis fibrinosa*, many of which have been shown, by the light of recent investigations, to be due to the Klebs-Loeffler bacillus.

Although there may be very extensive nasal involvement, and marked nasal symptoms may have been present as early as the second or third day of the disease, these malignant cases, when first seen by the physician, usually show an involvement of some portion of the fauces, and on account of the rapidity of the affection, it is difficult to say with certainty whether it had its origin in the nose with extension downwards, whether there was a simultaneous involvement of both, or whether there was a secondary infection of the nose from the throat. Hence the conception of nasal diphtheria, particularly of the primary type, held by those who see large numbers of hospital cases is likely to be at variance with that of men who see large numbers of these cases at the various dispensaries for example; the former being naturally impressed by the severity of the disease, the latter by its mildness.

From an acquaintance, then, with only the type of nasal diphtheria as seen in contagious hospitals, embracing as it does many cases that are undoubtedly secondary, one is apt to form a biased and one-sided opinion of primary nasal diphtheria, and to obtain an exaggerated idea of the severity of the dis-

ease, taken as a whole. The idea is conveyed by some of our textbooks (16, 17, and 18) on the subject that, on account of the abundant lymph and blood supply to the part and the consequent increased facilities of absorption of the poison, nasal diphtheria is a very serious affection, apparently laying stress upon the fact that because it is the nose that is attacked the result must necessarily be severe, when we know that there are many patients afflicted with nasal diphtheria that present practically no clinical symptoms whatsoever. May not, then, the nasal involvement be the result, rather than the cause, of this severity?

If it were possible to collect all the cases of primary nasal diphtheria, both of the mild type (not to mention the many that are probably undetected) and the severe (excluding all secondary ones), it seems safe to say that, in all probability, there would be but very few of the malignant cases, while the vast majority would be made up of mild ones, such as presented in this paper.

That this affection, usually a mild one limited to the nose, *does* sometimes, though exceptionally, extend downwards and assume a more malignant character, must undoubtedly be admitted. In one of the cases reported by Townsend (3) the membrane, originating in the nose, spread to the tonsils, posterior pharyngeal wall, and trachea; intubation became necessary, and death followed shortly. The high temperature and toxæmia seemed to go hand in hand with the extension downwards. In one of Park's cases it spread to the tonsils, pharynx, and larynx and resulted in death about the tenth day. One of Conetti's (10) cases developed secondarily a membranous condition in the larynx, and another was followed by paralysis of the palate. In Dr. Hargett's case, presented in this paper, a patch appeared on one tonsil, and similar involvement has been mentioned by numerous others. However, it is difficult to find records of cases, where the disease originated in the nose and remained confined thereto, that proved to be very serious.

Although it has been difficult to trace instances of direct infection from many of these cases, and not infrequently they have been found surprisingly free from such a result, even though the patient may have been for a long time closely associated with other persons under conditions that would naturally seem to favor it, still, that it is a communicable disease capable of acting as a focus of infection, sometimes severe, can not, in the light of our present knowledge, be denied. Infection seemed to be directly traceable to two of Townsend's (3) cases, and likewise to two of Conetti's (10). One of the latter's, one of Scheinman's (6), and one of Ravenel's (6), in the last of which there was an element of doubt, gave rise to faucial diphtheria. One patient of Park's (1) infected four other children, two of whom died. Hunt (14) reports a case which though not proved bacteriologically seems to have been diphtheria, as it was followed by two cases of true diphtheria in the same house, one in a servant who had an attack of "tonsillitis" followed by paralysis of the palate, and the other in a baby who died of "croup." Pluder (5) traces direct infection from three of his cases, resulting in mild forms of both nasal and faucial diphtheria. McCollom (15) shares his opinion, asserting that the statement that many

serious outbreaks of diphtheria are due to individuals who have a profuse discharge from the nose without constitutional disturbance is not a theoretical one, but the result of experience.

Notwithstanding the fact that this may be true, there seems to be a tendency of this disease to reproduce itself, or at least to cause a form of diphtheria equally mild in character. The frequency with which a mild attack of diphtheria seems to beget a benign type of the disease has been observed, among others, by Holt (2), who, however, points out that of the many hundreds of cases treated by the New York Health Department, by far the most virulent bacillus was obtained from the throat of a boy who had what was clinically regarded as a very mild form of tonsillar diphtheria. Ravenel (6) reported several instances where membranous rhinitis due to the bacillus of diphtheria was followed by identical affections in others; four in his own experience, two in Seifert's, two in Abbott's and two in Chapin's. Lack (12) in an exhaustive paper on the subject in which he reported thirty-six cases of "membranous rhinitis," in all of which he demonstrated the Klebs-Loeffler bacillus, showed that they were in many instances followed by nasal, and sometimes faucial lesions, in which the diphtheria bacillus was also found, and which were likewise accompanied by little or no constitutional disturbance. Without agreeing with the dictum that every morbid condition in which the Klebs-Loeffler bacillus is found must be pronounced diphtheria whatever the clinical appearances, he thinks it must be allowed that if this microorganism is constantly found in an affection clinically characterized by the formation of a membrane, as was true in all of his cases, the affection is a form of diphtheria. He thereupon advances the view that just as lupus of the larynx and laryngeal phthisis, though clinically distinct, are both indisputably tuberculous, or as cellulitis and acute abscess, though distinctly clinical affections, are both due to invasion by the *Streptococcus pyogenes*, so may the Klebs-Loeffler bacillus give rise to two distinct affections—the one "fibrinous rhinitis," as he calls it, marked by slight or complete absence of general symptoms, the other what he designates "true nasal diphtheria," characterized by very serious constitutional disturbance and a grave prognosis. But the question why the bacillus should display such an action, he says, must remain at present undecided.

Be that as it may, the whole question seems to hinge on just what is understood by the term diphtheria; that is, whether it is defined from a bacteriological or clinical standpoint. Most observers, prominently among them Abbott, Holt, Park, Ravenel, Gerber and Podack, and others, do so from the former point of view. Hence, with this conception of it, the affection under consideration must be regarded as a form of diphtheria; and this mild type of rhinitis, as described in a hundred cases collected in this paper, be it "fibrinous," "membranous," "croupous," "diphtheritic," "purulent," or what not, provided it is associated with the presence of the Klebs-Loeffler bacillus and has its origin in the nose, must undoubtedly constitute a large majority of all the cases that may be included under the general term of primary nasal diphtheria.

Conclusion: From this viewpoint, it might not

be amiss, in conclusion, to call attention to the following points:

Primary nasal diphtheria is a more common disease than is ordinarily supposed.

It is usually a benign affection, the constitutional symptoms being not marked or even entirely absent.

The primary form is very seldom malignant *per se*, and especially is this true if it remains confined exclusively to the nares.

It displays a tendency to limit itself to the nose.

When it does spread to portions of the respiratory tract lower down, the severity, that is, the toxæmia and systemic disturbance, seems to increase *pari passu* with, and as a direct result of, such extension.

There is a decided tendency towards chronicity.

The prognosis is, as a rule, good.

Paralytic phenomena, such as loss of knee jerks, paralysis of the palate, etc., are extremely rare.

It is capable of acting as a focus of infection, and the resulting cases may be of a malignant type. The importance of early detection of this disease by bacteriological examinations of all cases of persistent purulent rhinitis of doubtful origin, especially in children, can not, therefore, be overestimated.¹

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1819 CHESTNUT STREET.

A Mixed Infection with Tertian and Quartan Malaria Occurring in a Patient with Symmetrical Gangrene.—Wood reports eight such cases and concludes that malaria may be considered a direct or a provocative agent of symmetrical gangrene of the skin. The skin lesion differs somewhat from the classical description of Raynaud. Tertian and quartan malaria may occur simultaneously, but such a combination is exceedingly rare. Usually one type predominates. Latent tertian fever is very unusual. Certain peculiar psychoses may be present in malaria and are probably of toxic origin.—*Journal of the American Medical Association*.

¹ Since the publication of the above paper, three more cases have been reported.

Therapeutical Notes.

Treatment of Soft Chancres.—Franceschini (*Giornale italiano della malattia venere*, through *La Clinique*, November 1, 1907) formulates the following treatment of soft chancre, which he declares is more rapid and more sure than those which are habitually employed. Although soft chancre is a local affection and benign in its character, yet on account of its tendency to phagedena it can open the door to long and serious complications, particularly at the level of the ganglia. The object is to transform this ulcer caused by the bacillus of Dugercy into a granulating surface with a tendency to spontaneous healing. This can be accomplished by cauterization with pure carbolic acid. This, however, is not without danger, since although it acts upon the bacillus of Dugercy, it at the same time acts on the tissues so as to retard healing. For a certain time after its application the wound remains torpid and does not cicatrize. After a number of experiments, the author found that the following formula was free from this inconvenience:

B Pulverized camphor,	6.0 grammes;
Phenol,	3.0 grammes;
Rectified alcohol,	1.0 gramme.

This solution is a limpid, colorless liquid, looking like water. Others have used it in anthrax, in panaris, etc., but it had not been previously used in soft chancre. In this form the phenic acid loses all its causticity. It may be externally used in large doses, without danger. After thorough cleansing of the chancre with some antiseptic solution, the author allows one or two drops of this preparation to fall upon the middle of the chancre. It does not cause the slightest pain or burning. After this a compress of absorbent cotton moistened with this solution is applied directly to the chancre, making slight pressure. This is covered with gauze roller bandage, and the patient instructed not to touch it for ten or twelve hours. At the expiration of this period the ulcer should be again cleansed and dressed in the same manner. The last dressing is only allowed to remain for two or three hours, then it is to be removed and a cicatrizing powder substituted, after which the ulcer rapidly heals.

Potassium Permanganate Solution for Fissure of the Anus.—Schuls, a Russian physician, recommends the following simple treatment of lineal ulcer of the anus. He commences by placing the patient upon a diet which will make soft stools. This being accomplished, he places the patient in the genupectoral position, and asks the patient to make the rectal mucosa project. By separating the folds of this with the fingers, the fissure is easily detected. In men the lesion is usually found at the posterior path of the anal orifice; in women, on the contrary, it is in the anterior part of the anus. They may be confined to the mucous membrane, but are sometimes prolonged to the skin around the anus. In the latter case, the integuments form a little projection at the level of the fissure, which is often mistaken for a hemorrhoid. Having located the ulcer an application is made to the surface of saturated solution of potassium permanganate by means of a small piece of cotton, tightly wound around a probe. It should be applied to the whole extent of the ul-

sure, but care should be taken that there should be no excess of caustic to overflow the adjacent tissues. All the fissures are thus treated at one sitting, each having only one application. This treatment can be repeated daily, until cure is complete, which will be in from eleven to twenty-eight sittings.—*Journal de médecine de Paris*, October 20, 1907.

Fluoroform in Whooping Cough.—In a communication to the Société de thérapeutique, Tissier reported (*Bulletin général de thérapeutique*, November 8, 1907) the results of experiments in whooping cough with chloroform, bromoform, iodoform, and especially with fluoroform. The latter (CFH_3) is a tasteless, odorless, and colorless gas, which remains a liquid below $+15^\circ \text{C}$, so that in practice it is necessary to employ a saturated, watery solution which contains 2.81 per cent. of fluoroform. For nursing infants the dose is one drop after each paroxysm for the first day, then two or three after each coughing spell until these diminish. It should not be continued beyond one hundred drops. For children of 2 to 5 years of age, from 5 to 10 grammes may be given daily. In adults the dose is 30 grammes (or one ounce) daily, in teaspoonful doses. Under the effects of this treatment the paroxysms are said to diminish very rapidly. At the end of one week, it is exceptional to find more than ten during the day. On account of its effects he regards it as a specific. Out of 117 cases reported by Tissier, all were cured by this treatment, no matter what was the age of the patient. In none did any bronchopulmonary complications appear.

Extract Mistletoe for Hæmorrhage.—Gaultier (*Le Bulletin médical*, November 9, 1907) reports the results obtained by the administration of an aqueous extract of mistletoe of the oak, and also by hypodermatic injection. The usual dose of the extract in pill form was 0.20 to 0.30 gramme (or gr. iii to v) in the twenty-four hours. The hypodermatic dose was 1 c.c. of a solution representing 0.20 gramme of the aqueous extract. The physiological action is that of a reducer of tension, a hypotensor. Its clinical applications are found in congestive hæmorrhages and particularly the hæmoptyses of tuberculosis, which it stops almost immediately, by reducing arterial pressure. It is also valuable in relieving the symptoms arising in arteriosclerosis, by reducing the high tension, without producing toxic effects. Other applications of a similar character may be found for this antihæmorrhagic and hypotensive remedy.

Bichloride Tablets.—Dr. F. D. Canfield, of Ingersoll, Ontario, Canada, observed that a number of valuable instruments in his instrument cabinet were becoming rusted beyond use or repair, especially those nearest a glass bottle with a cork stopper containing the usual bichloride tablets. The bottle was tightly corked. Upon removing the bottle from the cabinet the process of rusting at once stopped. These tablets had been there some months. It would be interesting to find out, writes Dr. Canfield, to what extent the bichloride tablets deteriorate with age. And, says the author, may not the use of old tablets explain how some surgical wounds have late infections, as described in the article *Microscopic Traumatic Gangrene*, in the *New York Medical Journal*, 1888, No. 20.

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THE ARMY MEDICAL BILL IN CONGRESS.

Military surgeons and all interested in military surgery will be pleased to learn that the prospects for the passage of the bill providing for an increase in the medical corps of the army are reported as excellent. This measure, which was introduced by Representative Hull, chairman of the Military Committee of the House of Representatives, will be known as House bill No. 186. In the Senate the medical bill will be introduced by Senator Warren, who has expressed himself as feeling assured of the early and favorable consideration of the measure.

In his annual message to Congress President Roosevelt laid particular stress on the need of the medical corps of the army, saying: "The medical corps should be much larger than the needs of our regular army in war. Yet at present it is smaller than the needs of the service demand even in peace. The trouble in the Spanish war was not with the then existing officials of the War Department; it was with the representatives of the people as a whole, who for the preceding thirty years had declined to make the necessary provision for the army. Unless ample provision is now made by Congress to put the medical corps where it should be put, disaster in the next war is inevitable, and the responsibility will not lie with those then in charge of the War Department, but with those who now decline to make the necessary provision. A bill has long been pending before the Congress for the reorganization of the medical corps; its passage is urgently needed."

There should surely be no difficulty in securing the prompt enactment of a bill which has the cordial support of the President and of the leaders of the dominant party and to which there is, so far as we are aware, no active opposition in any quarter. There is, however, always a certain passive opposition to any measure, and to overcome this it is desirable for physicians, all of whom should be interested in the enactment of this bill, whether connected with military medicine or not, to use their personal influence with their representatives in Congress to secure its early and favorable consideration. The bill has twice passed the Senate and has been reported favorably by the House Committee on Military Affairs in two previous Congresses, and it is a matter of astonishment, in view of the lack of active opposition, that it has not long since become a law. The fact that it has failed of final enactment after being passed by the Senate accentuates the need for its active support on the part of the medical profession generally, and we urge our readers to take up this matter, giving the bill their support and urging its passage on their representatives in Congress.

DR. SAJOUS'S STUPENDOUS WORK.

The recent appearance of the second volume of Dr. Charles E. de M. Sajous's great work on *The Internal Secretion and the Principles of Medicine* (Philadelphia: the F. A. Davis Company) calls for more prominent mention than we could give it in our department of Book Notices; indeed, nothing short of a ponderous quarterly could accommodate anything like an adequate analytical and critical review of the work treating of so many and such recondite problems. The volume is a large one, consisting of seventeen pages of preliminary matter and 1,073 pages of text, index, and supplement.

Though the work deals largely with the "adrenal system," and especially with the pituitary body, it is really a masterly exposition of our present knowledge—much of it due to Dr. Sajous himself—of the protean part played by the intact central nervous system in sustaining and coordinating the bodily processes as they go on in health and of the part played by disordered nervous organs in the generation and maintenance of disease. It lifts out of the field of empiricism and speculation much of medicine that was before shrouded in such mists. While it is founded on experimental observation, it is far from being a mere record of laboratory "findings." It is pervaded and vivified by the author's comprehensive grasp of the facts of general medicine, so that it virtually presents us with a new philosophy as regards a great portion of the science of medicine. And, above all, it is written in a style that can-

not fail to prove attractive to the general reader. Its availability as a guide in the actual practice of medicine has been well set forth by Dr. Sajous's colleague in the conduct of the *Monthly Cyclopædia of Practical Medicine*, Dr. J. Madison Taylor, in the following words:

The grave mortality from all diseases in the young as well as in the old shows, unfortunately, that, although our body is endowed with protective functions, these are often inadequate to prevent or even arrest disease. This is where Sajous's labors are to prove most prolific in results, since they have demonstrated conclusively that by means of the remedies in constant use among physicians the protective mechanism can be activated sufficiently to protect the patient. Pasteur's prophylactic treatment against rabies, Wright's inoculations, bacterial vaccines, etc., are but examples of the protection afforded through agents which stimulate the test organ, this action differing in no way from that of the drugs referred to, the action of which can, besides, be more readily controlled. All these measures cause the blood to be flooded with thyroïdase (opsonin) and autoantitoxine. Hence the fundamental principle Sajous establishes—that "immunizing medication is the foundation of rational therapeutics," which, as he shows by a comprehensive study of cancer, tuberculosis, syphilis, Asiatic cholera, cholera infantum, bubonic plague, epilepsy, puerperal eclampsia, and many other foes of mankind, is as applicable to the most virulent diseases as to the more benign. He not only points out the meaning of the *vis medicatrix nature*, but shows us how we can increase its efficiency and thus master disease.

Dr. Sajous has indeed performed a great work, one for which the medical profession will forever feel indebted to him, and we are glad to observe that it is meeting with appreciative recognition in various parts of the world.

YELLOW FEVER IN THE WEST INDIES.

The general press news from St. Thomas, Kingston, and St. Vincent concerning an outbreak of yellow fever at Barbadoes, confirmed by dispatches from Bridgetown, comes as somewhat startling to all students of tropical diseases and of general public health. The facts and circumstances have been too specific and detailed to allow any question of doubt to arise in the medical mind. Cases afloat and ashore, more than a dozen, all within four days of its appearance, these and three or four deaths, are self-explanatory and convincing. Its appearance at Barbadoes, after a long period of immunity, save for one case last year, its rapid extension, the flight of the unacclimated to England, to the neighboring islands, and to New York, as well as the instant departure of H. M. S. *Indefatigable* with several new cases on board, also of a German school or training ship, amply indicate that the insular and naval authorities have fully grasped the true import of the danger.

Medical historians give the habitat of yellow fever as the West Indies and in general the shores of the Spanish Main. We are told that from the earliest dawn of civilization a fever supposed to be

yellow fever played its own specific rôle, localized at times and seemingly inactive, then with an explosion and its extension to near and distant centres, leaving a train of sorrow, death, and complete paralysis of all commercial activities. During its periods of seeming quiescence an occasional or sporadic case has meant its continued life in some of the islands and the ports of South and Central America or Mexico. In some of the localities referred to an utter lack of sanitary measures has had an important influence on its continuance. In the pre-Columbian days the natives or Indians gathered in pueblos, or villages, along the shores of Central and South America. Later, when subsoil foulness due to fæcal accumulations occurred, fever often appeared. Then an epidemic would follow, when the natives after a heavy death rate would flee to a new locality, where the same events were reenacted *de novo*. Such was the information obtained by Columbus and the early Spanish discoverers. From that time to our own, yellow fever has lived in many localities, fostered indeed by an almost criminal contempt of its activities and dangers. In short, century after century it has repeated its fateful history. Residence within the tropical zone is supposed to confer immunity. The natives of the islands and countries named, together with their children, have the disease. The mortality among them is far less than among the purely foreign element and when they recover they are supposed to be immune. To have had the disease and to have recovered means to them full and perfect acclimation. From time to time foreigners from Europe and the United States proceed to the various localities enumerated. Many stay and enter upon business. Gradually a colony of wholly unacclimated people assemble. Given the introduction of a case from without, or that of infected mosquitoes, and an outbreak occurs.

ATYPICAL TYPHOID FEVER.

It is well known that at different periods and in different localities decided changes are observed in the phenomena of the acute infectious diseases as well as in the mortality from them. An interesting account in point is given by Schlesinger of the recent features of typhoid fever as it has prevailed in Vienna (*Wiener klinische Wochenschrift*, 1907, No. 17; *Berliner klinische Wochenschrift*, September 30th). In the first place, the disease made its appearance suddenly, much more frequently with a chill, than had previously been observed. The rose spots were commonly wanting in the early stage, being delayed sometimes until the stage of convalescence. Herpes labialis was frequently noticed,

although it had previously been regarded as pointing to the nonexistence of typhoid fever.

Contrary to Curschmann's statement that the occurrence of pronounced and persistent sweating at the height of the fever speaks decidedly against its typhoid nature, Schlesinger observed that the Vienna patients did sweat. A relative reduction of the pulse rate following the height of the fever was only seldom witnessed; even in cases that were progressing favorably a high rate of the pulse was present. According to the Vienna observations, neither absence of diarrhoea or of the characteristic stools nor the presence of persistent constipation or the regular evacuation of formed faeces invalidated the diagnosis of typhoid fever.

Even the appearance of the Vienna patients was not that typical of the disease. Stupor and delirium, as well as dryness of the tongue, were generally absent. A strikingly large proportion of the patients became hard of hearing in the course of the disease, but this disturbance gradually disappeared. The mortality was quite high, from sixteen to twenty per cent.

THE BOGUS "HUSTLER."

Those of us who are really mature well remember the times, some forty years ago, when the business men of New York were gentlemen almost without exception, when they walked to their offices in the morning and walked home in the afternoon, greeting their acquaintances courteously and making way for them and for everybody else with scrupulous politeness. When they passed persons coming toward them, they turned well to the right; when they passed those going in the same direction as their own, they swerved gracefully to the left. Anything like a collision was a rare accident, and rudeness was almost unknown. There are a few of these old fellows still left, and there are some of the present generation, but their fate is to be jostled by the "hustler," who is a two legged incarnation of the hog.

Now, we have no objection to the genuine "hustler." It is he who hastens along in the pursuit of pressing business, but always preserving his sense of decency. "Hustling" has accomplished much, and consequently has led to depraved imitation, to the development of the bogus "hustler," the brute who puts on the semblance of earnest and exacting business only to jostle everybody whom he meets or overtakes on the street or in any place of general resort. He is making a pretense of business activity. He has his comparatively innocuous counterpart in the letter writer who pretends to be overworked (thereby seeking to imply that his firm's business is tremendous) by disregarding all courtesies

in correspondence. His letters are not directed to "Mr. John Smith," but simply to John Smith. But it is with the physical offender that we have to do at present, for it is he who puts lives in peril.

The motorman who starts his car or his train with unnecessary abruptness, or stops it in the same way, too often brings a cripple to the floor, with the consequent risk of serious injury. Hardly less destructive of life is the train guard who slams the door of a car while a passenger has one foot on the car and the other on the station platform, or the elevator boy who starts his carriage while a woman has not yet completely entered or left it. But worst of all is the horde of savages who twice daily do their best to elbow men, women, and children aside, even if they do not knock them down, in a mad rush to board some public conveyance. Sometimes the poor victim is thrown under the wheels, but what does the bogus "hustler" care and what disciplinary force is brought to bear on him?

Then, too, there is the arrogant and murderous master of a "devil wagon," who seems intent on getting somewhere within an incredibly short space of time, utterly reckless of the death and destruction he may spread in his path. All these creatures are bogus "hustlers," so many menaces to the community. Measures ought to be taken, and that speedily, to rid us of these birds of prey.

CAFFEINE AND MUSCULAR WORK.

Much valuable labor has been expended on the problem of the relation of the action of caffeine to muscular work and muscle fatigue, and pharmacologists have reached a position of comparative security on this point. Their results have not been unassailable, particularly from the technical, experimental side, and it is of note to find that in some recent work of W. H. Rivers and H. N. Weber, done in the psychological laboratory at Cambridge (*Journal of Physiology*, November), an attempt has been made to reexamine the question with special emphasis laid on the elimination of those technical defects of experimentation which have served to keep the issue uncertain in the minds of those not professedly conversant with the difficulties of pharmacological research.

The subjects experimented on were the writers of the paper, the recording instruments being the Mosso ergograph devised by Kraepelin, and the experiments were carried on for a considerable period of time, care being taken to eliminate any false conclusions from too few or too fragmentary readings.

The conclusions reached by these authors, they say, confirm those of practically all previous workers in that caffeine produces a distinct increase in

the capacity for muscular work, this increase being not due to the various psychical factors which it was the special object of their work to exclude. It is quite evident that a very considerable amount of variation is met with in different individuals; in some the rise in muscular capacity is not much greater than that which occasional variation might permit; in others, however, the increase in muscular capacity is very marked.

Variations of this character are found in conjunction with modifications as to time reactions. In one individual the heightened muscular capacity was more or less constant, while in another it set in very early, but was soon replaced by a decided fall toward the end of the experiment.

These and further variation showed that the action of caffeine was not simple, and the authors contend that it has a double effect. On the one hand caffeine may be said to diminish the effects of fatigue, while on the other there is a transitory stimulation which is followed by a reaction sufficiently pronounced to warrant the description of an acceleration of fatigue.

The authors hold that the contention of Kraepelin that the action of caffeine in increasing the height of the ergograph record has a peripheral seat is probably correct, and their results tend to confirm his in showing by the double action of caffeine that it acts both peripherally and centrally. It is well known that caffeine acts on the isolated neuromuscular mechanism, and Kraepelin's experiments have further demonstrated that it has an effect on central activity by its action on the capacity for mental work. The authors' conclusions are of interest in demonstrating the presence of this double action on the capacity for muscular work.

News Items.

Changes of Address.—Dr. Hugh Kidder, to 241 West Fifty-second street, New York.

A Clinical Society in Wheeling, W. Va.—The physicians of Wood County, W. Va., have organized a clinical society, which meets weekly in Wheeling, at the City Hospital.

Personal.—Dr. Walter Sherwood Taylor, of Tallula, Ill., and Dr. James Boyd Neal, of Tsinanfu, China, are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

A Royal Grant to Sir Frederick Treves.—King Edward has granted to Sir Frederick Treves Thatched House Lodge as a residence. The house is one of the three lodges in Richmond Park.

The Geneva, N. Y., Medical Society held a meeting on Thursday evening, December 5th. A paper entitled "Some Interesting Cases of Two Months' Hospital Service" was read by Dr. C. C. Lytle.

Appointments in the University of Vienna.—Dr. O. Grosser has been appointed extraordinary professor of anatomy and Dr. O. Stoerk extraordinary professor of pathological anatomy in this institution.

The Cost of Tuberculosis.—According to the Monthly Bulletin of the New York State Department of Health,

it is estimated that tuberculosis occasions to the United States an annual loss of at least \$330,000,000.

The Hamburg Institute for Ship and Tropical Diseases has sent Dr. Keysseltz and Dr. Meyer to German East Africa to study protozoan diseases in man and animals. Their headquarters are at Amani.

The Buffalo Medical Clinic held a meeting on Thursday evening, December 5th, at the residence of Dr. John Chalmers. The paper of the evening was read by Dr. Leonard E. Curtice on the subject of Typhoid Fever.

Honors for Dr. Koch.—Dr. Robert Koch has been promoted to the rank of Wirklicher Geheimer Rath (Royal Councillor) with the title of Excellency, in recognition of his researches into the causes of the sleeping sickness.

Clinical Society of the Elizabeth, N. J., General Hospital.—At the next meeting of this society, which will be held on Tuesday, December 17th, at 9 p. m., Dr. H. Morton Pierson will read a paper on Lobar Pneumonia and its Treatment.

Medical Inspection of Schools in Buffalo.—Dr. Ernest Wende, Health Commissioner of Buffalo, has asked the department to make provision for two medical inspectors and a trained nurse to look after the children attending the public schools.

The Section in Medicine of the Buffalo Academy of Medicine held a meeting on Tuesday, December 10th. The paper of the evening was read by Dr. John H. Musser, of Philadelphia, on the subject of Fundamental Principles of Therapeutics.

Fall River, Mass., Medical Society.—At the annual meeting of this society, held on December 11th, the following officers were elected for the ensuing year: President, Dr. W. H. Butler; vice president, Dr. A. C. Peckham; secretary, Dr. F. H. Beckett.

The Mütter Lecture on Surgical Pathology, which is given yearly at the College of Physicians of Philadelphia was delivered this year on Friday evening, December 13th, by Dr. John Rogers, of New York. Dr. Rogers's subject was Thyreoidism and its Treatment.

Donation Day for St. Joseph's Hospital, Providence, R. I., was held on Thanksgiving Day, and a total of \$2,264.87 was realized. In addition to the money given, the hospital received a quantity of wines, food, and other articles well adapted for use in the hospital.

The Cumberland County, Me., Medical Association held a meeting on Thursday evening, December 5th, which was one of the largest in its history. The paper of the evening was read by Dr. John B. Deaver, of Philadelphia, on the subject of Gallstones and Bladder Troubles.

The American Journal of Urology.—Beginning with January 1, 1908, this journal will be edited by Dr. William J. Robinson, of New York. It will be enlarged in scope so as to include venereal and skin diseases. The address has been changed to 12 Mount Morris Park West, New York.

Sanitation in the British Army.—It is announced that after March 1, 1908, all lieutenants in the British Army will be required to pass an examination in sanitation before being promoted to the rank of captain. Instruction in the subject will be given to all ranks, and also to cadets.

The Literature of Carcinoma.—The fourth volume of *Die Karcinomliteratur*, recently published in Berlin and edited by Dr. Sticker, shows that during the last five years there have appeared 3,395 publications dealing with the subject of carcinoma. Six hundred and seven of these were in English.

Mosquito Fever.—It has been announced that at the International Sanitary Congress, held last week in Mexico City, the name of malaria was formally and officially changed to mosquito fever. It is expected that other scientific and medical societies will adopt the new name and that it will eventually become a general one.

A Tuberculosis Exhibit in Utica, N. Y.—The State Health Department held a tuberculosis exhibit in Utica during the month of November at the Robert H. Bennett School Building. An Address on the subject of tuberculosis to the public in all matters pertaining to the treatment of tuberculosis and the best methods of preventing the spread of the disease.

Defective Children in New York.—According to an estimate based on the medical examination of pupils in

the public schools, there are more than 10,000 children in the public schools of New York who are mentally defective and deficient. Classes have been organized for a few of these children, and additional classes will be organized.

Richmond County Medical Society.—The annual meeting of this society was held at the Staten Island Academy on Wednesday, December 11th. There was an election of officers for the ensuing year, and the following papers were read: Hygiene, by Dr. John T. Sprague, of Stapleton, S. I.; Anesthetics, by Dr. Charles E. Pearson, of New Brighton, S. I.

The Toronto Academy of Medicine, which was organized recently, held its first meeting on December 3d. Portraits of Dr. Richard Andrew Reeve, dean of the medical faculty of the University of Toronto, and Dr. R. Barrington Nevitt, former dean of the Woman's Medical College, were presented to the academy, and Dr. Ross, president of the academy, read a paper on Ideals of Medicine.

Low Birth Rate in France.—According to statistics published by the official journal of the republic, the birth rate in France for the year 1906 was the lowest that history records. There has been a steady decline in the number of births for a number of years. The average yearly rate from 1896 to 1905 was 839,843, and in 1906 the number of births fell to 806,847, while the deaths during the year aggregated 780,196.

A Physicians' Protective Association has been formed in Fall River, Mass., to which every physician in the city belongs, with one exception. The members of the association have entered into an agreement to refuse to continue doing contract society work, and they have further agreed to have no consultation with any violator or non-signer of the agreement, and to resign from any hospital staff which may recognize him.

Memorial Tablets Unveiled at Seney Hospital.—Two bronze tablets were unveiled in Seney Hospital, Brooklyn, on December 5th. One tablet was dedicated to the memory of George Ingraham Seney, whose gift of \$410,000 made possible the founding of the institution twenty-five years ago, and the other tablet was in honor of Mr. and Mrs. William Halls, Jr., who contributed \$175,000 toward the completion of the buildings.

The Philadelphia County Medical Society.—At the regular semi-monthly meeting of this society, held on Wednesday evening, December 11th, a symposium was held on the subject of diseases of physicians. Dr. Roland G. Curtin read a paper on the Diseases of Physicians; Dr. Joseph P. Tunis read a paper on the Longevity of Physicians, and Dr. William Pepper, Jr., read a paper entitled *The Diseases of the Great Physicians of the Past*.

Instruction in Public Schools Regarding Tuberculosis.—A department for the instruction of pupils on how to avoid tuberculosis has been introduced into the public schools of Pittsburgh. The department will be maintained by the Pittsburgh Sanatorium, an organization of wealthy men in Pittsburgh, who conduct a charity sanatorium exclusively for the treatment of the disease. Miss Bertha L. Stark, of Baltimore, has been engaged to conduct the department.

Tri-State Medical Association.—At the twenty-fourth annual meeting the Tri-State Medical Association of Mississippi, Arkansas, and Tennessee, held recently in Memphis, the following officers were elected: President, Dr. Eugene Johnson, of Yazoo City, Miss.; vice president for Mississippi, Dr. R. E. Howard, of Durant; vice president for Arkansas, Dr. C. M. Lutterloh, of Jonesboro; vice president for Tennessee, Dr. Herman Hawkins, of Memphis; secretary, Dr. Richmond McKinney, of Memphis; treasurer, Dr. Marcus Haase, of Memphis.

A Joint Meeting of Pharmacists and Physicians Planned.—At the meeting of the New York Branch of the American Pharmaceutical Association, which was held at the New York College of Pharmacy on Monday evening, December 9th, a committee was instructed to undertake the preparations for a joint meeting of pharmacists and physicians to take place some time in February. Invitations will be extended to all the various medical and pharmaceutical associations in Greater New York to participate in the meeting.

Additional Endowment for the Carnegie Institution.

—At a dinner given by the board of trustees of the Carnegie Institution of Washington, D. C., on Tuesday evening, December 10th, announcement was made of the receipt of a gift of \$2,000,000 from Mr. Andrew Carnegie, which is to be added to the \$10,000,000 endowment fund of the institution. The report of the trustees showed that much important work had been done during the year, and upon their recommendation the sum of \$529,940 was set aside for scientific research work next year.

The Health of Pittsburgh.—During the week ending November 30, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Pittsburgh: Chickenpox, 7 cases, 0 deaths; typhoid fever, 137 cases, 11 deaths; scarlet fever, 17 cases, 2 deaths; diphtheria, 20 cases, 3 deaths; measles, 19 cases, 1 death; whooping cough, 11 cases, 0 deaths; pulmonary tuberculosis, 13 cases, 4 deaths. The total deaths for the week numbered 112, in an estimated population of 403,303, corresponding to an annual death rate of 14.44 in 1,000 population.

The Thirty-ninth Anniversary of the Presbyterian Hospital, New York, was held on December 7th. The annual report of the board of managers, which has just been issued, shows that during the year an average of 625 patients daily received attention in the various departments of the hospital. This is an increase of ten persons each day over the previous year. The pathological department has been reorganized and is now under the direction of Dr. Eugene L. Opie, of the Rockefeller Institute for Medical Research. The capacity of the children's ward has been almost doubled.

The New York Department of Health.—Statistics of the general work of the department for the week ending November 30th are as follows: Total inspections of premises, 40,358; orders issued for abatement of nuisances, 611; inspections of milk and other foods, 16,136; pounds of food condemned and destroyed, 175,234; chemical analyses made, 198; bacteriological examinations made for diphtheria, 1,422; bacteriological examinations made for tuberculosis, 487; vaccinations performed, 2,986; children's employment certificates granted, 304; children's employment certificates refused, 13; medical inspections of schools, 1,911.

The Queens-Nassau Medical Society.—The semi-annual meeting of this society will be held at Miller's Hotel, Long Island City, on Saturday evening, December 14th. Dr. Harris A. Houghton, of Bayside, will read a paper on Intestinal Putrefaction as a Factor in the Etiology of Nephritis, and Dr. John Douglas, of Manhattan, will read a paper on the Blood Count in Abdominal Surgery. After a discussion of these papers, the president, Dr. Irving F. Barnes, of Oyster Bay, will deliver an address, which will be followed by the presentation of interesting cases. There will be an election of officers for the ensuing year.

The Mortality of Chicago.—According to the report of the Department of Health for the week ending November 30, 1907, there were during the week 502 deaths from all causes, as compared with 571 for the corresponding week in 1906. The annual death rate in one thousand of population was 12.42. The principal causes of death were: Apoplexy, 11; Bright's disease, 36; bronchitis, 10; consumption, 52; cancer, 26; convulsions, 5; diphtheria, 16; heart diseases, 46; influenza, 3; intestinal diseases, acute, 27; measles, 1; nervous diseases, 19; pneumonia, 78; scarlet fever, 7; suicide, 4; typhoid fever, 7; violence, other than suicide, 22; all other causes, 132.

The College of Physicians of Philadelphia.—At the regular monthly meeting of the college, held on Wednesday evening, December 4th, the Honorary Librarian reported the addition of fifty-two volumes to the library during the month. Two sets of specimens were added to the Mütter Museum: a collection of shoes and sandals from many races, from the earliest times until today, by Dr. H. Augustus Wilson; and a collection of casts showing syphilitic alterations of the teeth, by Dr. Arthur Van Haringen.

At the monthly meeting of the Section in General Medicine, held on Monday evening, December 9th, Dr. Thomas R. Boggs, of Baltimore, read a paper on the Clinical Aspects of Coagulation of the Blood.

The American Pharmaceutical Association.—The Philadelphia branch of this association held a meeting

on the evening of Tuesday, December 3d. Dr. John H. Musser spoke on the Evil Influence of Mystery in Therapeutic Agents upon the Science of Medicine. Dr. John B. Roberts spoke on Physicians' Breach of Trust; the Use of Secret Remedies. Dr. Alfred Stengel spoke on the Legislative Need for Limiting the Prescribing and Dispensing of Potent Drugs to Responsible, Educated Persons. Dr. H. W. Cattell read a paper entitled Accurate Knowledge of the Composition of Medicines Prescribed by Physicians is Demanded. Dr. J. M. Anders, Dr. S. Solis Cohen, Dr. H. C. Wood, Jr., Mr. Edward Bok, Mr. Frank E. Morgan, and other took part in the discussion.

Scientific Society Meetings in Philadelphia for the Week Ending December 21, 1907.—*Monday, December 16th*, Ornithological Section, Academy of Natural Sciences; Medical Jurisprudence Society; North-East Branch, Philadelphia County Medical Society. *Tuesday, December 17th*, Section in Ophthalmology, College of Physicians; Dermatological Society; Academy of Natural Sciences; North Branch, Philadelphia County Medical Society. *Wednesday, December 18th*, Section in Otology and Laryngology, College of Physicians; Association of Clinical Assistants, Wills Hospital; Franklin Institute. *Thursday, December 19th*, Section in Gynecology, College of Physicians; Section Meeting, Franklin Institute; Medical Society of the Woman's Hospital. *Friday, December 20th*, American Philosophical Society.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending December 7, 1907:

	November 30 Cases. Deaths.	December 7 Cases. Deaths.
Typhoid Fever	77	18
Smallpox	2	2
Varicella	115	16
Measles	323	47
Scarlet fever	323	37
Whooping cough	9	3
Diphtheria	343	326
Tuberculosis pulmonary	337	164
Cerebrospinal meningitis	8	12
Totals	1,535	1,861

New York Pathological Society.—At a meeting of this society, held at the Rockefeller Institute for Medical Research on Wednesday evening, December 11th, Dr. Eugene L. Opie gave a demonstration of Inflammation of Serous Cavities; Dr. P. A. Levene read a paper entitled Leucocytes in a Protein Absorption; Dr. Hideyo Noguchi read a paper on Sporulation of Aerogenes Capsulatus Group of Bacilli; Dr. Alexis Carrel gave a demonstration of Acute Calcification of the Arteries of a Cat with Transplanted Kidneys; Dr. J. W. Jobling gave a demonstration of Lymphatic Metastases and Metaplasia of a Rat Tumor; a paper on the Ratio of the Heart to the Body Weight of Animals was read by Dr. Don R. Joseph, and a demonstration of Living *Spirocheta Pallida* and *Spirocheta Duttoni* was given by Dr. Simon Flexner and Dr. B. T. Terry.

A Health Clearing House for Chicago.—At a conference of the health officers of the city of Chicago and all towns and cities within a radius of fifty miles of the city, held recently, arrangements were made for establishing an organization which may properly be called a health clearing house for this district. Daily reports of contagious diseases and other matters pertaining to the public health can then be made to one central point, and a statement of these reports forwarded immediately to the associated boards of health. It has been agreed that the laboratory facilities of the Chicago Department of Health be made available to all departments of health in the association, each to bear the expense of its individual cases. It is thought that through an organization of this kind considerable economy in the purchase of supplies will result to the member towns.

Charitable Bequests. By the will of Adeline G. Fry of Philadelphia, Lying-in Charity receive \$8,000; the German-American Dispensary and Hospital, and the Society to Rescue Children from Cruelty receive \$2,000 each; the Home for Consumptives at Chestnut Hill, and the Children's Aid Society receive \$2,000 each; the Aid Association of the Philadelphia County Medical Society and the Orange Home at Harbors, receive \$1,000 each.

By the will of David Scull the Philadelphia Lying-in Charity receives \$5,000 for the purpose of endowing the Hannah E. Scull bed. The Lying-in Charity is a contingent legatee to the amount of \$5,000 for the purpose of establishing a second free bed in memory of Hannah E. Scull.

The Health of Philadelphia.—During the week ending November 23, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Philadelphia: Typhoid fever, 42 cases, 4 deaths; scarlet fever, 53 cases, 2 deaths; chickenpox, 67 cases, 0 deaths; diphtheria, 87 cases, 17 deaths; measles, 27 cases, 0 deaths; whooping cough, 7 cases, 0 deaths; pulmonary tuberculosis, 51 cases, 49 deaths; pneumonia, 48 cases, 46 deaths; erysipelas, 10 cases, 0 deaths; cancer, 12 cases, 22 deaths; mumps, 4 cases, 0 deaths; tetanus, 1 case, 1 death; puerperal fever, 1 case, 0 deaths; German measles, 1 case, 0 deaths. The following deaths from other transmissible diseases were reported: Tuberculosis, other than tuberculosis of the lungs, 5; malarial fever, 1; diarrhoea and enteritis under two years of age, 9. The total mortality numbered 453 deaths, in an estimated population of 1,500,595, corresponding to an annual death rate of 1561 per 1,000 population. The total infant mortality was 79; under one year of age, 64; between one and two years of age, 15. There were 42 still births—22 males and 20 females.

The Philadelphia Pathological Society.—The regular semi-monthly meeting of this society, which was held on Thursday evening, December 12th, was devoted to a symposium on syphilis. Dr. R. C. Rosenberger read a paper entitled The Present Status of the Treponema Pallidum; Dr. Joseph Evans read a paper on Immunity in Syphilis; Dr. Simon Flexner and Dr. B. T. Terry, of the Rockefeller Institute for Medical Research, New York, demonstrated the living organism of syphilis by a new type of microscope, from a patient with a primary sore, furnished by Dr. Macy Brooks, and the living Treponema Duttoni from an infected mouse. Dr. J. W. Hunter and Dr. Cope exhibited specimens of Spirocheta Obermyeri from a case of relapsing fever in the service of Dr. James Tyson. Dr. Judson Daland exhibited specimens of Treponema Pertenuis from a case of yaws. Gross specimens and microscopic slides were exhibited as follows: Illustrating syphilis of the eye, by Dr. George E. de Schweinitz; syphilis of the skin, by Dr. Jay F. Schamberg; syphilis of the nervous system, by Dr. W. G. Spiller, D. J. McCarthy and T. H. Weisenberg; syphilis of the osseous system, by Dr. W. T. Longcope and Dr. Ward Brinton, and syphilis of the viscera, by Dr. Allen J. Smith, Dr. W. M. L. Coplin, and Dr. A. O. J. Kelly.

Society Meetings for the Coming Week:

MONDAY, December 16th.—New York Academy of Medicine (Section in Ophthalmology); Medical Association of the Greater City of New York; Hartford, Conn., Medical Society.

TUESDAY, December 17th.—New York Academy of Medicine (Section in Medicine); Buffalo Academy of Medicine (Section in Pathology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings, N. Y.; Binghamton, N. Y., Academy of Medicine; Clinical Society of the Elizabeth, N. J., General Hospital; Syracuse, N. Y., Academy of Medicine; Ogdensburg, N. Y., Medical Association.

WEDNESDAY, December 18th.—New York Academy of Medicine (Section in Genitourinary Diseases); New York Society of Dermatology and Genitourinary Surgery; Woman's Medical Association of New York City (New York Academy of Medicine); Medicolegal Society, New York University; New Jersey Academy of Medicine (Jersey City); Buffalo Medical Club; New Haven, Conn., Medical Association; New York Society of Internal Medicine; Northwestern Medical and Surgical Society of New York.

THURSDAY, December 19th.—New York Academy of Medicine; German Medical Society, Brooklyn; Newark, N. J., Medical and Surgical Society; Association Club of Buffalo, N. Y.

FRIDAY, December 20th.—New York Academy of Medicine (Section in Ophthalmology and Section in Surgery); of the New York Postgraduate Medical School and Hospital; Long Island Medical Association of the City of New York; New York Microscopical Society; Brooklyn Medical Society.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL

December 5, 1907.

1. The Technique to be Observed in the Examination and Local Treatment of the Upper Rectum and Pelvic Colon. By T. CHITTENDEN HILL.
2. Some Further Studies on Nocturnal Paralysis. By ISADOR H. CORIAT.
3. Exophthalmic Goitre. By EDWARD SWASEY.

1. **The Technique to be Observed in the Examination and Local Treatment of the Upper Rectum and Pelvic Colon.**—Hill says that the elbows and knees for male patients and the right lateral semiprone for women are the easiest positions in which to conduct the preliminary examination. In the first position the whole perianal region is readily accessible without the aid of an assistant, while in the latter the patient, if an assistant is not a hand, can facilitate the examination by supporting the left buttock. The sweat and sebaceous glands in the immediate vicinity of the anus are numerous and large, and for this reason the anal orifice should be cleansed by thoroughly wiping with absorbent cotton, which has been wrung dry of some antiseptic solution. After carefully inspecting and palpating all about the anus, the index finger with soap under the nail (if gloves are not used) is smeared with a stiff lubricant, and gently inserted with a rotary motion into the rectum. It is unnecessary to soil the finger with fecal material, as its presence should be noted before actual contact takes place. When the rectum is found to contain feces, a small enema of boric acid solution, not exceeding ten ounces, will quickly empty the rectum and likewise the sigmoid in many instances, in such a manner as to permit of instrumental examination. Greatest care and caution should be exercised in passing the sigmoidoscope, especially when there is an active ulcerative condition of the bowel, or other inflammatory condition of the neighboring organs. No force should be used after the end of the sigmoidoscope has passed the anal sphincters. But before introducing the sigmoidoscope the patient should be made as comfortable as possible in the genupectoral position. If for some reason this posture is impossible, the lateral semiprone with the knees well drawn up on the abdomen may be substituted. In fact, this latter position is favored by some proctologists for æsthetic reasons, stating that it is much pleasanter for women and hypersensitive individuals, and the writer believes that the greater ease with which the instrument is passed and so much less discomfort is occasioned the patient that the genupectoral position should nearly always be the one of preference. The sigmoidoscope, warm and smeared with petrolatum, should be pressed firmly over the anal orifice, the patient at the same time being requested to strain down, thus relaxing the sphincters. Steady firm pressure, in a downward and forward direction, should be made on the handle of the instrument until it has passed the anal canal. After this portion has been passed, the handle should first be gradually lowered and pushed forward until the end of the instrument has reached the middle portion of the sacrum. At this point the obturator should be withdrawn, which will allow the bowel

to become distended with air so that the tube can be passed onward by sight. The instrument is then gradually raised, allowing it to be gently pushed onward to the promontory of the sacrum, where considerable resistance to the onward progress of the instrument is met with. After this has been overcome the directions usually given are to make slight pressure on the hand bulb of the pneumatic sigmoidoscope which will sufficiently inflate the gut so that it may be inserted to its full extent, and the whole interior of this portion of the intestine brought plainly into view.

2. **Some Further Studies in Nocturnal Paralysis.**—Coriat observes that nocturnal palsy on clinical evidence seems to possess the following characteristics: 1. It appears only in the hypnagogic state and runs parallel with it. 2. When it occurs in normal individuals it is a transitory and rare phenomenon. 3. Sometimes it follows a strong emotional shock and assumes the characteristics of a recurrent mental state. 4. The symptom complex may occur in hysteria, neurasthenia, or psychasthenia. In neurasthenia it appears to be merely symptomatic of the underlying neurosis with its concomitant sense of exhaustion. In hysteria and psychasthenia it is an equivalent disorder in the sense of replacing the narcoleptic attacks in the former disease or the peculiar crises of anxiety in the latter. 5. This nocturnal palsy has a varying duration, from a few seconds in normal individuals, to several minutes or even a quarter of an hour, in pathological cases. 6. The entire symptom complex is a mental dissociation reacting most strongly on the motor mechanism, and as a purely functional disorder, it is distinctly amenable to psychotherapeutic treatment.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

December 7, 1907.

1. Spinal Localization as Shown by a Case of Acute Meningomyelitis, with Secondary Softening and Cavity Formation. By JAMES HENDRIE LLOYD.
2. Facial Hemiatrophy. Statistical Review of Ætiological Factors and Pathogenesis. Report of a Case. Morphological Stigmata. By THEOPHIL KLINGMAN.
3. A Mixed Infection with Tertian and Quartan Malaria Occurring in a Patient with Symmetrical Gangrene. By EDWARD JENNER WOOD.
4. The Sleeping Canopy and the Need of Such Means of Ventilation. By CHARLES DENISON.
5. An Improved Abdominal Subtotal Hysterectomy, Especially Applicable in Chronic Pelvic Inflammation. By WILLIAM F. METCALF.
6. Isopral and Chloral Hydrate. By E. IMPENS.
7. Comments on the Above Communication on Isopral. By REID HUNT.
8. Human Myiasis from the Screwworm Fly. By C. E. YOUNT and M. T. SUDLER.
9. Differential Diagnosis between Measles and Rubella. By H. M. McCLANAHAN.
10. Dengue as Observed in Brownsville, Texas, in August, 1907. By JOSEPH GOLDBERGER and G. W. MCCOY.

2. **Facial Hemiatrophy.**—Klingman says that the correct interpretation of the symptom complex of facial hemiatrophy is very difficult. It is now generally conceded by physiologists and neurologists that the vasomotor and trophic supply of nerves reach the peripheral parts, the skin, subcutaneous tissue, muscle, and bone mainly, if not entirely, through the sympathetic nervous system, and the fibres for the head are supplied by way of the cervical sympathetic. Schiff and Meltzer dem-

onstrated that the ear receives vasomotor fibres from the great auricular nerve, a branch of the third cervical nerve. Vasomotor fibres are also carried by way of the cranial nerves and spinal nerves and the sympathetic ganglia with which they are connected. It is also stated that these fibres reach the fifth cranial nerve by communicating branches from the superior cervical ganglion. These fibres have also been demonstrated in the seventh and hypoglossal nerves. We may assume, therefore, that a lesion in these paths, particularly in the fifth cranial nerve, being a compound nerve, may cause sensory, motor, and trophic symptoms. While it is difficult to understand how in some cases the trophic fibres could be affected so extensively without some implication of the sensory or motor fibres, it is a clinical fact that in cases of neuritis of the nerves of the lower extremities a lesion in the sciatic may present various clinical pictures, motor, and trophic disturbances, without any change in sensation and *vice versa*. From the statistical review it is evident that, in a majority of cases reported, the symptoms are those of disturbed trophic function, that the disorder is more or less acute and more rapidly progressive at the beginning of the disease and that the association with acute conditions is a close one, traumatism is not infrequent and infections are occasionally met with. In these points and in the close analogy of the symptoms with those occurring in neuritis there is evidence of a peripheral nerve lesion.

5. An Improved Abdominal Subtotal Hysterectomy, Especially Applicable in Chronic Pelvic Inflammation.—Metcalf observes that in the supravaginal hysterectomy the portion of cervix left after even "low amputation," so long as the incision does not reach the vagina, must contain a sinus of varying depth, and leading from this sinus are crypts in the form of branching glands which harbor infection. Drainage of the cervical perimetrium is not established, and drainage of the pelvic cavity and of the pelvic lymphatics is not adequate, with the result that the lymphatic glands along the iliac vessels may become so changed in their effort to care for the infection as to prolong convalescence or make necessary subsequent operation for their removal, or they may suppurate. By this method the cervical mucosa is entirely removed so that no gland bearing tissue remains; the pelvic cavity and lymphatics are thoroughly drained; the proper support of the remaining pelvic organs is assured, and, therefore, subsequent bladder irritability is less, also more nearly normal intraabdominal pressure is maintained. It is applicable to practically all cases except those of malignancy. The microscopical studies show that hypertrophy of the endometrium is accompanied by hypertrophy of the myometrium; that there is a temporary increase of muscle as well as of connective tissue; that, where marked chronic inflammatory changes are observed in the tubes and ovaries and in the myometrium, corresponding changes are found in the mucosa of the cervix and of the corpus uteri; that in this class of cases the ovarian substance is slow of involvement. There may be marked infiltration in the surrounding tissue and yet the ovary remain free. When involvement occurs, the infiltration shows first about the vessels of the stroma. The ovary is protected by a fibrous

of its cortex—a thickening of the tunica albuginea, the condition in many cases preventing the rupture of follicles. In many cases the congestion dependent on these conditions prevents the normal degeneration of corpora lutea, the lutean cells developing to form a new growth. Abscess is more likely to occur in corpora lutea cysts than in follicular cysts.

8. Human Myiasis from the Screwworm Fly.—Yount and Sudler give Osborn's description of *Comptosia macellaria*: "The fly is a small species less than half an inch in length and of a bluish green color with metallic reflections. It is particularly distinguished from related forms by the presence of three longitudinal black stripes in the thorax. The head is reddish or yellow and the body is covered with stiff black hairs. The fly appears in early summer, the exact time depending on the latitude, after having passed the winter as an adult, either in a latitude free from extreme cold or in a protected location. In depositing its eggs it selects some decaying matter or wound, and lays a mass of eggs at once; at least three or four hundred may be deposited by a single female in a space of a very few moments, and the same fly may lay at different times and in different places hundreds and even thousands of eggs." It attacks man and domestic animals, and the authors report twenty-three cases, eighteen showing nasal myiasis and five myiasis of some other site. There are four fatal cases, all of them being the nasal form. Two deaths were directly due to the screwworms, while in the other two life was greatly shortened by them. The mortality for all cases was fifteen per cent. For the nasal cases alone the mortality was a little over twenty-two per cent. Certainly enough to demonstrate the serious nature of the disease. In studying these cases it is seen that the patients are always attacked out of doors. The fly is probably attracted by moisture and certainly by odors. It seldom lays its eggs on normal tissue, and in the vast majority of cases the nose is the site of the attack, but any ulcerated or unclean parts uncovered by clothing are liable to attract the fly. When the eggs are once deposited the larvae are capable of boring directly into healthy as well as diseased tissue. In nasal myiasis within twenty-four hours after the eggs are deposited there is discomfort. This gradually increases into intense pain, usually located over the frontal sinuses. This may radiate out to either temple or it may be in the superior maxilla. There is fever, but usually it does not rise above 102° F. In severe cases delirium may be present. In nasal myiasis a bloody, foul smelling discharge is always present. This does not contain the larva except in the last stages of the disease, when they are full grown and seek the earth to undergo their transformation. The tissue attacked is very much inflamed and may present a necrotic or gangrenous appearance. The soft parts may be so completely destroyed that the bone is exposed and may even undergo necrosis. Perforation of the palate may result. Swallowing or spitting may be impossible, due to the destruction and swelling of tissue. Pneumonia may result from the inspiration of the septic discharge. Otitis media with suppuration occurred in one of the cases. In myiasis of other regions of the body the symptoms vary according to the location, but there is usually pain, swell-

ing, and a foul smelling discharge. The diagnosis can usually be made on the symptoms. The maggots can rarely be seen on simple inspection. In general, however, it may be said that any patient having a profuse serosanguinous, foul smelling nasal, aural, or wound discharge during the summer months should be carefully examined in a good light. If that be negative then apply chloroform and examine immediately afterward to see if that will not bring the parasites to light. Even if the larvæ are seen they can not be successfully removed without the use of chloroform, since when they are not under its influence they will wriggle away and bury themselves deeper in the tissues on the slightest touch. The method of treatment has been chloroform, differing only in the method of its administration. In this disease the nose seems to have an unusual tolerance for chloroform and other strong antiseptics. This is probably due either to the destruction of the Schneiderian membrane or to its inactivity from the severe congestion. Their best results were obtained by spraying chloroform, in varying strengths from twenty-five per cent. to the pure drug, from a metallic syringe with a spray tip, ejecting the chloroform with considerable force up into the nasal chambers and, if possible, their accessory sinuses. Olive oil is used to dilute it when necessary. When the chloroform is applied it should be followed by an immediate search for larvæ, using a good light, head mirror, a nasal speculum, and alligator forceps. This should be repeated twice a day until all the larvæ are removed. Irrigations of four per cent. boric acid or potassium permanganate, 1 to 4,000, should be used in addition as often as necessary to keep the nose clean. The pain is usually sufficient to require morphine for its relief. The chloroform may be applied to accessible positions on a swab or compress, and its distribution is then more easily controlled than when it is sprayed in with a syringe. The prevention of this disease is much easier than its cure. A chronic rhinitis or otitis or even uncleanness attracts the female fly, as does also any exposed wound or ulcer, and personal uncleanness seems to cause some of the attacks. Sleeping in the open air gives the fly an opportunity to deposit its eggs. The disease may be easily avoided by the proper care of the nose, ears, and throat, and all wounds or contusions, and cleanliness. Also one should not sleep out of doors during the daylight hours of the summer months unless properly protected by netting.

MEDICAL RECORD.

December 7, 1907.

1. Six Cases of Malignant Endocarditis.
By ALFRED MEYER.
2. Perforated Gastric and Duodenal Ulcer; a Report of Eight Cases.
By CHARLES H. PECK.
3. Tuberculin and Sera; a Synopsis of the Different Preparations in Use.
By WILLIAM MEYER.
4. Alcoholic Delusional Insanity.
By L. F. LA PIERRE.
5. The Treatment of Joint Tuberculosis in Children.
By LEONARD W. ELY.
6. The Surgical Aspects of Malignant Endocarditis.
By JOSEPH A. BLAKE.

1. Six Cases of Malignant Endocarditis.—Alfred Meyer, of New York, from six such cases observed, states that most writers agree that at present cases of malignant endocarditis are beyond our control. Treatment, he states, was of no avail in any

of his cases in averting the fatal issue. Besides the use of a variety of cardiac stimulants (caffeine, digitalis, strychnine, sparteine, digitalone, and camphor), which entered more or less into the treatment of all the cases, sodium salicylate was given in three cases—in one of these as high as 25 grains every 2 hours for one day, in another 20 grains every 2 hours for four days. The author thinks there appears justification for their use in the fact that they are valuable in benign endocarditis, and in the beginning the distinctive diagnosis may be uncertain. In two cases inunctions of ungt. Cr  d   were employed. In one case an intravenous injection of 1 c.c. of a 10 per cent. silver nitrate solution mixed with 500 c.c. of water was tried. A number of writers refer to the use of quinine. Romberg mentions prompt improvement after the use of this drug, and ultimate recovery. He is careful to accentuate, however, that this was after and not necessarily because of its use. Meyer believes that a more extended trial of this drug ought to be made in carefully observed cases. It was used in but one of those here reported, and it did not appear to be of service; but the administration was not begun until six weeks after the onset of acute symptoms, and this can scarcely be regarded as a fair test. Much was expected, he says, by the profession from the various sera. Thus far the results have been very disappointing, and his personal experience with them in the mixed infection of tuberculosis, in sepsis without endocarditis, and in a private case of pneumococcus endocarditis have not impressed him with their value. Still, Nathan Raw reported recovery in two cases of malignant endocarditis with polyvalent antistreptococcus serum. Theoretically intravenous injections of dilute formaldehyde solutions might have promised some favorable results, but W. H. Park's conclusion that they were dangerous in septicemic rabbits discouraged the author from their employment.

2. Perforated Gastric and Duodenal Ulcer.—Peck reports eight cases and says that perforated gastric or duodenal ulcer should be curable in a good percentage of cases if promptly recognized, the mortality being in direct ratio to the time allowed to elapse prior to operation. Perforation is apt to occur without any especial warning or exacerbation of gastric symptoms, and often without any previous history of such symptoms. The operative procedure should be simple, quick, and accompanied by as little manipulation of intraabdominal contents as possible. Closure of the perforation by suture without attempt at freshening the edges or excision of the ulcer is generally sufficient. Gastroenterostomy is better held in reserve as a secondary operation, and may never be required.

4. Alcoholic Delusional Insanity.—La Pierre thinks that, for the benefit of the person affected, and for the safety of the public at large, it is essential that patients with alcoholic delusional insanity be recognized early and placed in hospitals for treatment. These cases are ideal ones for treatment in acute psychopathic wards of general hospitals, if such wards existed. Many cases would abort if treatment and restraint were early applied. The delay too often occurs and the person is allowed to go his way till it becomes absolutely necessary to secure

commitment papers and commit him to some State institution. This delay is fatal, and many cases become chronic and many crimes are committed which could easily be prevented. It is best to withdraw the alcohol immediately, and improvement usually takes place rapidly. Chloral and the bromides are useful in the early stages, and opium and hyoscine may be added at times with advantage. It is best to humor the patient in regard to his hallucinations and delusions. These patients are dangerous, and great care must be used. After the acute period is passed, employment of some kind is a benefit. Later, in chronic cases, outdoor employment upon the farm will improve their physical conditions, and they often become valuable help. Any return to alcohol will almost certainly cause an exacerbation of the mental symptoms.

BRITISH MEDICAL JOURNAL.

November 23, 1907.

1. Some Types of Conjunctivitis, By H. H. B. CUNNINGHAM.
2. A Critical Study of Organic Preparations of Silver in the Treatment of Conjunctivitis, By J. M. KELLY.
3. An Investigation into the Frequency and Significance of Optic Neuritis and Other Changes in the Retina of Patients Suffering from Purulent Disease of the Middle Ear, with the Results of the Examination of the Eyes and Ears in One Hundred Consecutive Cases, By J. S. BARR and J. ROWAN.
(Seventy-fifth Annual Meeting of the British Medical Association.)
- Section of Dental Surgery.
4. The Relation of Dental Surgery to General Medicine, By J. McK. ACKLAND.
5. Discussion on the Causes, Effects, and Treatment of Dental Disease in Children, By G. F. STILL, E. OWEN, and J. G. TURNER.
6. Notes on Some Cases of Neuralgia, By W. R. ACKLAND.
7. Difficult Eruption of the Third Molar, By A. W. W. BAKER.
8. Some Anatomical Results of Efficient Mastication, By F. J. BENNETT.
9. Irregularities of the Teeth in Animals, By J. F. COLYER.
10. Sarcomata of the Jaws, By H. A. T. FAIRBANK.
Section of Pathology.
11. The Relation between the Thyroid and Parathyroid Glands, By D. FORSYTH.
12. The Place of the Spirochæta Pallida in the Diagnosis of Syphilis, By A. MACLENNAN.
13. Note on the Spirochæta of Naves (*Spirochæta Pertensis*), By A. CASTELLANI.
14. Note on a Bacillus Found in a Case of Gangrenous Appendicitis, By A. CASTELLANI.
15. The Muscular Lesions of the Rheumatic Infection, By C. COOMBS.

1. **Conjunctivitis.**—Cunningham discusses a few types of conjunctivitis as follows: Catarrhal conjunctivitis may be acute or chronic. The predisposing causes of the acute form are a lowering of the local vitality, as from a cold or a foreign body, or of the general vitality from defective hygienic surroundings. The exciting causes are several microorganisms, of which the Koch-Weeks bacillus is the most common; it attacks all ages but especially the young, and causes a mucopurulent conjunctivitis which is highly contagious. This is the disease known as *school ophthalmia*, handkerchiefs and towels being the chief media of contagion. Other organisms causing conjunctivitis are the pneumococcus, the xerosis bacillus, and the strep-

tococcus. The symptoms of acute conjunctivitis are well known; the condition usually lasts for a week or two. The treatment consists in the use of boracic lotion and boracic ointment, and painting the everted lids with one of the milder silver preparations. The chronic form may follow an attack of the acute form, or be due to irritating dust, gases, etc. But the most frequent cause of its continuance is an error of refraction, especially astigmatism. A definite type of chronic conjunctivitis, known as chronic angular conjunctivitis, is caused by the Morax-Axenfeld diplobacillus. The symptoms are aching and a sensation of sand in the eyes, the lids being glued together in the morning. There is no swelling of the conjunctiva, and secretion is diminished. The edges of the tarsal plates are injected. The condition does not resolve spontaneously, but goes on to involve the edges of the lids, the cilia being lost. The patient must be removed to better hygienic surroundings, the eyes protected from dust by means of goggles, and an astringent lotion used, composed of alum, tannin, or zinc sulphate. Phlyctenular conjunctivitis, also called eczematous or lymphatic conjunctivitis, is seen most frequently in children of the working class, most of them being either definitely tuberculous or of the strenuous diathesis. No specific bacillus has as yet been found. The phlyctenule appears as a small elevation on the limbus conjunctivæ, and is thought to be a reaction of the tissue to the toxins of the tubercle bacillus. Subjectively there is photophobia and frequently blepharospasm. Lacrymation may be profuse, but there is little or no mucopurulent discharge. The phlyctenulæ ultimately break down and form ulcers, which heal in a week or two. But subsequent attacks soon recur. Dark glasses must be worn, and boric lotion and boric ointment used. If the cornea is involved atropine must be used also. Ophthalmia neonatorum is a purulent type of conjunctivitis found in the newborn, in which the conjunctiva shows a marked papillary development and in which there are seldom any signs of scarring on recovery. In the great majority of cases the cause is the gonococcus, but pneumococci, streptococci, and colon bacilli have also been found. The treatment consists in cleaning the palpebral sacs and keeping them clean. A useful solution to use is 1 to 5,000 bichloride of mercury. Prophylaxis is of the utmost importance in this affection (Credé's method).

3. **Optic Neuritis and Middle Ear Disease.**—Barr and Rowan have found that vascular changes are far from uncommon in purulent disease of the middle ear; in six out of one hundred cases there was optic neuritis, and in twenty-one there were vascular changes, abnormal in character, but short of neuritis. The ear affections associated with these vascular changes in the eye are especially severe and persistent, as shown by their course as compared with others. The presence of these vascular changes therefore in the optic discs would seem to give an unfavorable character to the prognosis of purulent middle ear disease—in short, it is a danger signal not to be ignored. The practical lessons deducible are (1) that a case showing these changes in the fundus should be closely watched, and their existence should be regarded as an additional reason for the early performance of the radical mastoid opera-

tion. (2) If on the other hand they show a tendency to clear off, especially with improvement in the ear condition, or if the fundus is normal in the beginning and remains so, we may, with more confidence, look for a favorable response to conservative treatment.

LANCET.

November 23, 1907.

1. The Treatment of Epithelioma with Röntgen Rays,
By E. SCHIFF.
2. A Contribution to the Study of the Relationship between Avian and Human Tuberculosis,
By S. G. SHATTUCK, C. G. SELIGMANN, L. S. DUDGEON,
and P. N. PANTON.
3. Notes of Four Cases in which Filigree Implantation Was Successfully Applied to Abdominal Hernia Previously Considered Incurable,
By L. H. MCGAVIN.
4. The Treatment of Bacterial Infections by Vaccines,
By G. T. WESTERN.
5. Fatal Injury to the Bladder during an Operation for Femoral Hernia,
By W. H. CLAYTON-GREENE and E. OWEN.
6. Treatment of Innocent Laryngeal Growths by the Galvano Cautey,
By A. WYLIE.
7. Rectal Carcinoma Treated by a Modification of Wietz's Colostomy and Three Weeks Later by the Extirpation of the Entire Organ by the Vaginal Route,
By F. V. MILWARD.
8. An Interesting Case of Tubal Abortion,
By G. W. FITZGERALD.
9. Observations on the Treatment of Yaws (Frambesia),
By A. CASTELLANI.
10. A Case of Cardiac Disease,
By W. B. JONES.
11. A Case of Gastroenterostomy with Complications,
By T. J. C. EVANS and G. P. NEWBOLT.

1. **Epithelioma and X Rays.**—Schiff's conclusions are as follows: 1. The favorable effect of Röntgen rays on epithelioma is indisputable. 2. But Röntgen ray treatment must not be considered in a category by itself, but must be looked on as an alternative or as an addition to other methods. 3. The success of the Röntgen ray treatment depends upon biological differences in the various kinds of epithelioma. 4. To aid the effect produced by the Röntgen ray treatment small operations may be done and the cautery applied according to the nature of the case. 5. In those cases in which no favorable influence is produced by the Röntgen rays at the latest after the fourth or fifth sitting, this treatment must be discontinued, as little more is to be expected from it. 6. The intervals between the single sittings must not be too long; a more active Röntgen light—medium, soft tube—with, of course, a careful covering of the healthy parts of the skin, is to be continued. 7. In the case of surgical operations a subsequent application of rays is eventually desirable. 8. It is of especial importance to lay stress on the fact that by the application of Röntgen rays the patient is saved from an operation, and the result produced by Röntgen ray treatment is not only equally good as regards the cure, but much better as regards the subsequent appearance.

2. **Avian and Human Tuberculosis.**—Shattuck, Seligman, Dudgeon, and Pantan have studied the relationship between tuberculosis in birds and in human beings. They find that the human tubercle bacillus is pathogenic to the pigeon in a limited degree only. It sets up a local or local and glandular disease in the pigeon only when injected into the muscles or subcutaneous tissues. The avian tubercle bacillus is pathogenic to the

guinea pig in a very limited degree. The human bacillus is not convertible into the avian by inoculation into the bird—i. e., the bacilli are not identical. Theoretically it would, of course, be quite possible that the human bacillus after its insertion into the pigeon might lose certain of its characters and become incapable of exciting more than a trivial disease in the guinea pig or in the human subject from which it was originally derived. Their experiments do not, however, support this theoretical possibility. As evidence of the nonidentity of the human and avian tubercle bacillus, the writers attach more importance to the positive results afforded by feeding and inoculation experiments than to the negative evidence in the other direction provided by the opsonic test. The latter shows, it is true, that either bacillus will extract the opsonin from tuberculous serum. But they do not regard this as a proof of their identity; it is by no means a proof, i. e., of the identity of their physiological or chemical properties. The opsonin may be extracted from the tuberculous serum by saturating it with a thick suspension of melanin, which proves that the general removal of opsonin by bacilli is not wholly indicative of specificity, but that it is largely mechanical.

4. **Vaccines and Bacterial Infections.**—Western summarizes as follows the results obtained by him in treating cases of bacterial infection with vaccines according to Wright's method. In cases of lupus, both of the dry and ulcerated varieties, though particularly of the latter, treatment by inoculation has proved a very valuable adjunct to such other measures as procure a local hyperæmia. Out of thirty cases of enlarged tuberculous glands only four failed to show improvement, whilst sixteen were completely cured, eight of which when first seen were discharging from contaminated sinuses. In the case of chronic tuberculous arthritis and in such topographically diverse affections as erythema induratum and tuberculous epididymitis, the results have been almost universally satisfactory; in affections of a nontuberculous origin, those such as acne, generalized furunculosis, and obstinate carbuncle, which have been treated with their appropriate vaccines, have cleared up with remarkable rapidity. The narrower experiences of pneumococcal and bacillus coli infections are sufficiently significant to foreshadow the far wider fields that seem to be opening before a line of treatment that bids fair, at no distant period, to rank among the most potent weapons of future therapeutics.

9. **Treatment of Yaws.**—Castellani sums up his ideas regarding the treatment of yaws as follows: 1. Drugs and preparations which are efficacious are potassium iodide, atoxyl, sodium cacodylate, quinine cacodylate, and mercury. These drugs have also probably a preventive action. 2. The best routine treatment for ordinary cases is potassium iodide given in large doses. 3. In severe or persistent cases a mixed treatment consisting of a course of potassium iodide, followed by a course of injections of atoxyl or the cacodylates, is of great advantage. 4. The treatment of yaws patients should be prolonged long after the eruption has disappeared, as, although the granulomatous eruption speedily subsides, the infection in many cases

is merely dormant, not destroyed. 5. As regards local treatment it is sufficient to keep the skin clean by washing the eruption twice daily with a 1 to 1,000 solution of bichloride of mercury. The ulcerated granulomata may be dusted with iodoform or boric acid. Mercury ointment may be beneficial, but is not sufficient to hinder secondary pyogenic infections; for this purpose a 20 per cent. protargol ointment is far more efficacious. Caustics are not called for unless the ulcers become phagædemic; in such cases pure carbolic acid is the best.

LA PRESSE MEDICALE.

November 16, 1907.

1. Human Atheroma. Experimental Atheroma and the Suprarenal Capsules, By A. GOUGET.
2. The Active Principles of Digitalis Which Are Utilized Therapeutically, By G. BARDET.
3. Toxicity of the Therapeutical Sera, By R. ROMME.

1. **Atheroma and the Suprarenal Capsules.**—Gouget says that in his opinion the aortic lesions obtained experimentally in the rabbit by means of adrenalin or tobacco are not identical with the lesions present in human atheroma. The lesions of experimental atheroma commence and predominate in the middle musculoelastic tunic, while the lesions of human atheroma are usually considered to begin in the deep part of the internal tunic and to involve the middle tunic only secondarily. At the same time the analogies between experimental and human atheroma seem to him to be more striking than the differences between them. Whether atheroma is of suprarenal origin or not the hypertrophy and hyperplasia of the elastic fibres to be observed around the atheromatous focus, whether experimental or human, should be considered, he thinks, as secondary to these foci, and they present a reactionary, compensatory phenomenon which tends to conserve a sufficient resistance in the enfeebled arterial wall.

2. **Active Principles of Digitalis.**—Bardet says that we have the choice between three sorts of products when we wish to administer the active principle of digitalis, one perfectly defined, of constant dose and regular action, crystallized digitalin, the others less certain in their composition, or variable dosage, and consequently difficult to prescribe, amorphous digitalin and digitoxine. Hence the former alone deserves a place in the pharmacopœia.

November 20, 1907.

1. Spinal Stovainization, By CHAPUT.
2. Pharyngeal Troubles of Dyspeptic Origin, By ALFRED MARTINET.
3. Practical Apparatus for the Simultaneous Administration of Chloroform and Oxygen, By LOR.

1. **Spinal Stovainization.**—Chaput is enthusiastic about this method of producing general anesthesia and presents the following conclusions: 1. Lumbar anesthesia with stovocaine is trustworthy, constant, complete, and essentially benign. 2. It permits the successful performance of operations not only on the perineum and the lower limbs, but also on the abdomen, the thorax, the neck, and the head. 3. As this anesthesia is as satisfactory as general anesthesia and is more benign we may hope to see it pose as a rival to general anesthesia in all parts of the body. One may avoid the immediate and consecutive accidents due to stovainization by carefully observing rigorously the contraindications in re-

gard to age and general condition; (2) employing the isotonic stovocaine of Billon; (3) evacuating a proper quantity of the cerebrospinal fluid before the injection; (4) injecting one quarter of a milligramme of scopolamine an hour before in nervous subjects; (5) injecting caffeine when the face becomes pale and the pulse feeble.

2. **Pharyngeal Troubles of Dyspeptic Origin.**—Martinet considers these troubles to be of neuro-pathic origin and formulates the treatment as 1, habitual diet proper for those who have an excessive amount of hydrochloric acid in the secretions of the stomach; 2, neutralization of the hyperacidity of the gastric contents with alkalies; 3, local emollients; 4, psychotherapy.

LA SEMAINE MEDICALE.

November 20, 1907.

1. The Diet of Diabetes, By PROFESSOR JAQUET.
2. The Mortality in the Various Parts of Europe.

1. **The Diet of Diabetics.**—Jaquet gives a schematic suggestion, for it is impossible to give an exact and complete régime to be prescribed for each particular diabetic. The treatment of each must be individual.

2. **The Mortality in the Various Parts of Europe.**—A review of an official publication gives a considerable number of interesting statistics under the following headings: General mortality, mortality according to sex, according to age, according to diseases.

BERLINER KLINISCHE WOCHENSCHRIFT.

November 11, 1907.

1. Address at the Opening of the Clinic, October 29, 1907, By W. HIS.
2. Investigations Concerning the Valuation of More Modern Methods for the Diagnosis of Tuberculosis by Animal Experiments, By G. JOANNOVICS and G. KAPSAMMER.
3. The Nature of the Leucocytes Which Occur in the Urine in Bright's Disease, By SCHNÜTGEN.
4. Disturbance of the Color Sense by Focal Disease of the Brain, By M. LEWANDOWSKY.
5. Concerning Secretion of the Gastric Juice During Rectal Alimentation, By C. MICHAEL.
6. Transformation Process of the Vertebral Column During Fœtal Development, By E. FALK.
7. Hernia Cruralis Pectinea sive Cloquetii (Concluded), By DEB.
8. Concerning the Epidemic of Relapsing Fever in Kiev (Concluded), By M. RABINOWITSCH.

2. **Diagnosis of Tuberculosis by Animal Experiments.** Joannovics and Kapsammer experimented with high dilutions of tubercle bacilli and injected them into the inguinal region of guinea pigs, as recommended by Bloch to inject fluids suspected of containing tubercle bacilli, and at the end of nine or ten days found, without exception, the inguinal glands of the guinea pigs enlarged and full of bacilli. Hence they conclude that there is no doubt that Bloch's method enables us to obtain within fourteen days a positive diagnosis in regard to the presence or absence of tuberculosis in any case in which its presence may be suspected. Other tests, such as von Pirquet's skin reaction, the ophthalmoreaction, etc., they consider inferior.

3. **The Nature of the Leucocytes Which Occur in the Urine in Bright's Disease.**—Schnütgen considers them to be lymphocytes, as proved by

staining, and asserts that this is of importance in a double way: 1. It obviates the contradiction which existed in the old statement that pus corpuscles were met with in Bright's disease while that inflammation is nonpurulent. 2. From a diagnostic standpoint, because in certain cases the presence of lymphocytes alone in the sediment would furnish the differentiation between Bright's disease, abscess of the kidney, or pyelonephritis. In complications of the different conditions, the different forms of white blood corpuscles naturally would be present likewise, and not lymphocytes alone, but pus corpuscles also would be found in the urine.

4. Disturbance of the Color Sense by Focal Disease of the Brain.—Lewandowsky reports the case of a man, fifty years of age, who, while sitting at his desk and writing, became suddenly aware that he could no longer read or write. He left his office at once and was astonished when on the street to find that the signs all looked alike and that he could not read the inscriptions. After some time he was able to find the house in which he lived, but was unable to make himself understood by the people. As it was impossible to understand him, he was taken to the hospital, where he presented the typical picture of Wernicke's sensory aphasia; no one could understand what he tried to say. The case presented nothing special until after the lapse of three or four weeks. The symptoms were improving at that time, when first a right hemianopsia appeared, which later became a hemiamblyopia. But this did not interfere with the patient's recognition of forms and of objects, and there was no psychical blindness. In the color test he confounded the wools irregularly, could not tell the color of well known objects, could not tell the color of snow or of coal, but could distinguish darkness from brightness. Eventually the patient recovered until the color sense was present and completely intact.

5. Secretion of the Gastric Juice During Rectal Alimentation.—Michael was unable to demonstrate any increase of the gastric juice in either healthy or diseased persons, either one half or one hour after the injection of a nutritive enema.

MUNCHENER MEDIZINISCHE WOCHENSCHRIFT

November 12, 1907.

1. Contribution to the Bacteriology of Congenital Syphilis, By BAB.
2. A Vital Staining of the Spirochæta Pallida, By MANDELBAUM.
3. The Diagnostic Importance of the Ophthalmalmo Reaction in Tuberculosis, By SCHENCK and SEIFFERT.
4. Vascular Striae, a Means of Recognition of Commencing Consumption, By FRANCKE.
5. Concerning a Case of Ulcerative Affection of the Skin in Adults, Caused by the Bacillus Pyocyaneus, By LEWANDOWSKY.
6. Concerning Pancreatin in Carcinoma, By HOFFMANN.
7. Habitual Rotation Subluxation of the Fourth Cervical Vertebra, By VAN OORDT.
8. Initial and Recurrent Forms of Roseola, By VÖRNER.
9. Casuistics of Pseudodysentery, By HILGERMANN.
10. Apparatus for the Quantitative and Qualitative Determination of Gas in Gas Developing, Anaerobic Media, By SEIFFERT.
11. Pyocyanosis as a Prophylactic and Remedy in Certain Infectious Diseases (Concluded), By EMMERICH.
12. Obituary of Josef Gossmann, By GRASSMANN.

1. Bacteriology of Congenital Syphilis.—Bab examined fifty cases of congenital syphilis bacterio-

logically, microscopically, and biologically, with the following results: Agreement between the demonstration of spirochætae and antigen positive in seventeen, negative in fifteen. In one case spirochætae were demonstrated, although the antigen reaction was questionable; in another there was a slight antigen reaction, although no spirochætae could be demonstrated. In twenty-five positive cases of syphilis biologically studied spirochætae were demonstrated in twenty, not found in five. In these five cases antigen also was regularly wanting. In eight questionable cases spirochætae were present six times, while in a positively not syphilitic control case no spirochætae could be found. As regards the question of antigen in fetal organs, it was positive in sixteen cases out of twenty-five certainly syphilitic, eight times negative, and once questionable. In eight doubtful cases the reaction was three times positive, five times negative. The organs of two certainly not syphilitic children contained no antigen. The placenta in eight positive cases of syphilis contained antigen. In one doubtful case the reaction for antigen in the placenta was questionable. The presence of antimaterial in the fetal ascites was demonstrated only in one doubtful case. Whether both mother and child were syphilitic, or either the mother or the child was immune, antimaterial might be found in the mother's milk. In a positive case of syphilis antigen was found in the mother's blood; in a doubtful case it was wanting, as well as antimaterial. In ten positive cases of syphilis the semen was examined nine times for spirochætae, three times for antigen, once for antimaterial; all the results were negative.

2. A Vital Staining of the Spirochæta Pallida.—Mandelbaum suggests the following method of staining the *Spirochæta pallida* while still alive. A hanging drop of the material to be investigated, serum from a chancre or a papule is placed on a slide, methylen blue is added with the platinum needle and mixed with the material, and then a drop of a 0.1 solution of sodium hydroxide is added. If the margin of the hanging drop is now examined with the oil immersion and ocular 4 (Zeiss), the *Spirochæta pallida* can be seen as delicate, fine, pale blue forms, with small spirals closely succeeding each other that diminish toward each end and terminate in a fine point. Confounding it with other forms of spirochætae is impossible, because the latter appear coarsely stained. The advantages alleged for this method of staining are that, 1, it is immediate; 2, it preserves perfectly their natural form; and, 3, that by the recognition of the motions of the stained spirochætae the objection that we have to deal here with an artificial product is entirely done away with.

3. The Diagnostic Importance of the Ophthalmalmo Reaction in Tuberculosis.—Schenck and Seiffert conclude from their observations that this test should be recommended for common use among physicians because of its harmlessness and the simplicity of its application. The test as suggested by Calmette was to instill into the conjunctival sac a drop of a 1 per cent. solution of dried tuberculin which had been precipitated by alcohol. Schenck and Seiffert used a drop of a 1 per cent. solution of old tuberculin (Höchst) in a 3 per cent. solution of boric acid. If no reaction was produced a drop of a 2 per cent. solution was used, and if there was still no re-

action a drop of a 4 per cent. solution. No stronger solutions were used.

4. Vascular Striae, a Means of Recognition of Commencing Consumption.—Francke describes vascular striae which he has observed over the apex of the lung in cases of incipient tuberculosis and asserts that the presence of these striae in the skin over the apex of the lung shows that tuberculous inflammation exists or has existed in the neighboring portions of the lung and is pathognomonic. He states that the presence of the striae shows involvement of the superficial portions of the lung, that when these striae are absent in cases of evident pulmonary tuberculosis the inflammation involves the deeper parts of the lung tissue and not the superficial; that the extent of the tuberculous focus can be estimated from the mass and distribution of the striae; that the color and form of the striae show the age of the inflammation; that the intensity of the inflammation may be estimated from the color, form, and massing of the striae, and that a mixture of striae of different kinds shows the successive existence of old and new inflammations.

6. Pancreatin in Carcinoma.—Hoffmann concludes: 1. The pancreatin treatment of inoperable carcinomata results in the cleansing of the ulcerated surface, the cessation of hæmorrhages, and of pain, together with a retrogression in the size of the tumor. 2. Its efficiency is later reduced by the increasing epidermisation of the surface. This can be remedied easily by the removal of the epidermis with either the cautery or caustics. 3. The previous application of a drug to produce anæmia, such as epinephrin, does not appear to enhance the action of the pancreatin. 4. Histological investigation reveals a high degree of oedematous infiltration and moderate cellular infiltration of the connective tissue, swelling of the capillary endothelium, and loosening of the epithelial cells, which show profound signs of degeneration. Whether the latter is to be ascribed to the direct action of the pancreatin is uncertain. The changes resemble those of cutaneous erysipelas. 5. The action of erysipelas, cauterization, and in part of the x rays rest upon the same basis as that of pancreatin. 6. The removal of cartilage takes place at first not through direct contact with the carcinoma cells, but through a vascular layer of connective tissue which lies between them. 7. Perhaps pyocyanosis is suited for the treatment of ulcerating, inoperable carcinomata because of its high proteolytic and bactericide power.

THE MILITARY SURGEON

December, 1907.

1. The Sanitation of the Modern Camp. Principles and Practice. By CHARLES F. WOODRUFF.
2. The Hospital Ship. The Only Adequate Solution of Properly Caring for the Sick and Wounded in a Fleet. By JOHN CROPPER WISE.
3. Amaloid Degeneration (Chromoid). A Surgical Disease. By JOHN MILTON HOLT.
4. Tropical Diseases in The East in the Philippine Islands. By PETER M. A. HEFFEN and CHARLES F. CRAIG.
5. The Organization and Instruction of the Medical Department of the State Forces. By C. T. DULIN.
6. The Work of the Medical Corps in the Care of the Wounded at Gettysburg. By EDWIN L. BEEBE.

2. The Hospital Ship.—Wise is in favor of a hospital ship. He describes the old hospital, usually

located on the lowest deck, poorly ventilated, overheated, and most difficult to reach. The main points advanced by the advocates of a hospital ship are, to relieve a naval force of its physical incompetents before an engagement, of its wounded soon after an action, and devote itself to rescue work, within the limitations prescribed by the Geneva Convention as necessary to its neutrality, during an action. Naval war is a phase of the business beset with greater dangers than those facing the personnel in the army; the fallen soldier can be laid aside most anywhere, and the probability is that in a reasonable time he will be transferred to a field hospital, either by friend or foe; in a ship, the alternative, too often will be to remain on board and face the prospects of scalding, burning, or asphyxiation, or to jump overboard and be drowned. The sailor at sea cannot be carried to the hospital, therefore the hospital should be brought to him. The enlightened sentiment in naval circles to-day looks upon the hospital ship as a humane and efficient addition to the fleet. It is difficult to believe that there can be any opposition to a policy so clearly indicated by any one, for it is true that just in direct proportion as we relieve a ship of its noncombatant sick and wounded do we increase the fighting efficiency; it is hardly necessary in this connection to mention the great gain to the individual sick by such transfer; to carry them from the inevitable noise and activity, amid which they are but an incubus, to a ship equipped with every facility for their care and comfort.

6. The Work of the Medical Corps in the Care of the Wounded at Gettysburg.—Beebe remarks that the total number of Union wounded was 14,193. The number of Confederates wounded who fell into the hands of the Union Army was 6,802, making a grand total of 21,000. The total number of medical officers on duty at the battle was 650. Of these thirteen were wounded, one fatally. When the army left on the 5th, 106 medical officers were left to care for the wounded, and see to their transportation to permanent general hospitals, six ambulances and four wagons from each corps to convey the wounded to the station at Gettysburg. The work of removal began on July 7. From one to five trainloads a day were sent to Baltimore, New York, and Harrisburg. This work was impeded by the small number of ambulances, the damaged condition of the railroad, the insufficient rolling stock, and lack of furnishings for the cars. So that on July 22, at the end of three weeks, only 15,000 had been moved, leaving 5,000 still in the temporary hospitals.

Letters to the Editors.

TEMPORARY INCREASE OF THE ARMY MEDICAL CORPS

151 W. CHURCHMAN STREET.

BUFFALO, October 10, 1907.

To the Editors

Referring to your editorial on a scheme of Major E. P. Reynolds's for increasing the army medical corps in time of war (*Military Surgeon*, October), I should like to repeat a suggestion made during

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of December 5, 1907.

The President, Dr. JOHN A. WYETH, in the Chair.

the Spanish American War, that the proper course is to take the medical officers with the volunteer regiments, just as other volunteer officers are taken. At the outbreak of that war the major surgeons were for the most part taken as such, while the captains were degraded to first lieutenants on account of their inevitable failure to have complied with the requirements for the first promotion in the regular army medical corps.

Generally speaking, the medical officers who went with their regiments were fairly well trained in military technicalities as well, for example, as other volunteer officers, and were men of good standing in the profession and in society. On the other hand, many of the surgeons appointed from civil life not only were deficient even in the rudiments of military training, but were political appointees, and some of them were incompetent medically and surgically and off color in other ways.

Of course, any such plan presupposes the use of the National Guard as a genuine national reserve and an adjustment to possible active military service. The considerable number of retired National Guard surgeons and of first lieutenants in the medical corps with separate companies ought to compensate for any dropping out of regimental surgeons and assistant surgeons. Major Reynolds's suggestion to promote the regular army surgeons is excellent and probably entirely feasible, but the general plan should be to accompany each body of volunteer troops with a local surgeon, familiar with the personnel and already associated with the National Guard.

A. L. BENEDICT.

RIDING ASTRIDE FOR WOMEN.

LANDIS AVENUE AND STATE STREET,
VINELAND, N. J., November 21, 1907.*To the Editors:*

Though it is perhaps not a question of vital importance, and is one which fashion will doubtless have more weight in deciding than will medical opinion, I should like to ask the experience of the profession as to the effect of horseback riding on women sitting astride.

I can see a physiological objection to that method of riding for young women, but it is one they perhaps little likely to complain of to their physician. The more serious question is, Does it tend to cause uterine displacement or make other work for the gynecologist?

Bicycle riding as a pastime has gone out; exercise on horseback seems to be growing in favor, with apparently a leaning toward the notion that both sexes should ride man fashion. Not many years ago it would have been sufficiently condemned as immodest, but it is quite possible that there are better reasons for the side saddle than because our grandmothers used it, and better reason to object to the new order of things than appears at first thought.

My own experience and opportunities are too limited for any very definite conclusion even in my own mind, and I write you hoping that you or some of your contributors may be able to speak with authority.

E. H. BIDWELL.

The Pathology of Diabetes.—Dr. EUGENE L. OPIE said in this paper that a century of painstaking experiment had given emphasis to two noteworthy facts concerning diabetes mellitus: In the first place, diabetes persisting until death could be produced in animals by one method alone, namely, extirpation of the pancreas. An exception to this statement was perhaps the recent observation of Pfluger that removal of the duodenum or destruction of its nervous connection with the pancreas caused fatal diabetes, but his observations, made upon cold blooded animals, were not apparently applicable to mammals. A second well known fact was the apparent association of pancreatic disease with human diabetes, whereas the relation of this disease to changes in other organs, for example, to lesions of the nervous system, was doubtful. Furthermore, although in some cases pancreatic changes were not found in association with diabetes, such cases had no peculiarity distinguishable during life. A pancreatic type of diabetes was recognizable only by demonstration of pancreatic disease.

It had been known for more than twenty-five years that the pancreas contained structures which differed from the secreting acini and had no connection with the ducts of the gland. Evidence that these bodies were diseased in diabetes and were perhaps responsible for disturbance of carbohydrate metabolism was advanced in 1900 and had stimulated such active interest in the pathological histology of pancreatic diabetes that there had since been recorded carefully studied cases considerably greater in number than those previously described. These cases not only defined the relationship of diabetes to lesions of the pancreas and its various histological structures, but served to explain the relationship of diabetes mellitus to certain diseases, such as arterial sclerosis, and at the same time to explain facts concerning the age incidence of the diabetes.

Among 139 cases of diabetes collected by Windle in 1883, in forty-seven per cent. (sixty-five cases) the pancreas had been described as normal; in another series, among 288 more carefully studied cases, only twelve per cent. (thirty-four cases) were found without noteworthy changes of the gland. Even among these cases there were many in which the records failed to indicate that the organ was of normal size and possessed the various histological elements in normal proportion.

Until the histological studies of recent years no common character of the diverse lesions of pancreatic diabetes was definable. Destruction of parenchyma had not explained the occurrence of glycosuria, for lesions such as lithiasis or carcinoma, which caused greatest destruction of parenchyma,

were in most instances unaccompanied by diabetes. If the various lesions to which the pancreas was subject were reviewed, it would be found that those which destroyed the islands of Langerhans, especially interacinous pancreatitis and hyaline degeneration, were almost constantly accompanied by diabetes; whereas those lesions which destroyed the parenchyma and invaded the islands of Langerhans only when the change was far advanced, namely, interlobular pancreatitis, lithiasis, and carcinoma, were in most instances unaccompanied by diabetes. Lesions of the pancreas rarely affected only one element of the gland and left the other wholly unchanged, yet the careful study which had been devoted to pancreatic disease had revealed instances (ten had been recorded) in which with diabetes the islands of Langerhans had been the seat of destructive lesions (hyaline degeneration, sclerosis), whereas the secreting parenchyma had been normal. Such observations had almost the same value as purposely performed experiments, for in the absence of any evidence that these changes were secondary to diabetes they resembled the classical experiments of v. Mering and Minkowski, who, it was well known, had found that extirpation of the entire gland or the greater part of it was followed by disturbance of carbohydrate metabolism.

The disease was comparatively rare in young children and somewhat more frequent in the decade from ten to twenty years, but during each decade from twenty to seventy years occurred an almost equal number of cases. It was a noteworthy fact that diabetes with a normal pancreas occurred almost exclusively during the early period of life. During the second decade, when diabetes was uncommon, a majority of the cases exhibited no pancreatic lesion. Such cases diminished in subsequent decades and were rare after the fortieth year of life.

Instances of so called atrophy of the pancreas in association with diabetes exhibited an almost identical relationship to age; the maximum number of such cases occurred during the third decade of life, and, whereas diabetes without pancreatic lesion occurred almost wholly between the tenth and fortieth years of life, diabetes with so called atrophy of the pancreas occurred, with relatively few exceptions, between the twentieth and fiftieth years. The condition which had been described as atrophy was not in many instances, at least, an acquired lesion; the gland in such cases was unusually small. The pancreas was subject to great variation in size, and anatomists defined its normal weight within wide limits. Abnormally small glands probably occurred as the result of anomalies of development; for the wide variation to which pancreatic development was subject was suggested by the irregularity of size and relation exhibited by the ducts of the organ.

Evidence demonstrated that the lesions of the islands of Langerhans stood in causal relation to diabetes mellitus. There was some evidence that diabetes might result when the number of islands of Langerhans was unusually small. Diabetes occurring during middle and later life was, with few exceptions, referable to a pancreatic lesion. Lithiasis and carcinoma affecting the pancreas, like the same changes in other organs, occurred most frequently after the fortieth year. There was a group

of cases smaller than had been previously believed in which no change in the pancreas could be found. In such cases the disease might be referable to alteration of a nervous control of carbohydrate metabolism or to other anomaly, but such cases presented during life no peculiarity which served to distinguish them from those which were demonstrably pancreatic in origin.

The important discovery of Starling, namely, that an extract of the duodenal mucous membrane in weak acid contained a substance, designated secretin, which excited the flow of pancreatic juice, had suggested a means by which cells of the gland might be altered to assume the character of the interacinous cells. The profound influence exerted by secretion upon the pancreas had suggested that a hypothetical insufficiency of internal secretion indicated by the presence of diabetes might be influenced by the administration of this substance, especially since its use, it was alleged, caused transformation of acini into islands of Langerhans, and demonstrated that no essential difference existed between these two elements of the gland.

The pancreas had long occupied a unique position among the organs which were believed to produce an internal secretion. Extirpation or disease of the thyroid gland was accompanied by myxœdema, and in the young by certain disturbances of development; the administration of extracts of thyroid tissue overcame these alterations of metabolism. Glycosuria and other symptoms due to destruction of the pancreas were, on the contrary, uninfluenced by the administration of pancreatic tissue. The well known experiments of Cohnheim indicated that a body produced by the pancreas acted in combination with the voluntary muscles and caused glycolysis. These observations, of which the accuracy had been much disputed, were supported by experiments recently published in this country by Hall, and offered promise of more accurate knowledge of the pathogenesis of diabetes.

The Symptomatology and Treatment of Diabetes, with Special Regard to Its Effects Upon the Heart and Arterial System.—Dr. FREDERICK E. BEAL said in this paper that diabetes mellitus, as we knew it, might be defined as a condition of altered bodily metabolism, characterized by glycosuria, polyuria, polyphagia, polydipsia, and emaciation. The home of the disease was India, where ten per cent. of the total mortality of the country was due to its ravages.

Thirst and dryness of the mouth, unrelieved by drinking large quantities of water, were perhaps the first symptoms as seen in America. In the tropics, however, loss of virile power and loss of the knee jerk were in the majority of cases the first symptoms. Dryness of the skin was a prominent symptom here, while in India more often perspiration occurred. The hair was dry and brittle and the face and form became shrunken and pale, and there was a nervous, anxious expression. Osler described the diabetic hæmochromatæ facies, which was of a bronzed, dry appearance, being a characteristic feature of the so called bronzed diabetes. The appetite was usually much increased in the early stages, but lost towards the end, and was not a reliable symptom.

Emaciation was very constant and more marked the younger the patient. Loss of muscular strength was especially noticed in acute diabetes, but was less marked in the mild and intermittent forms of the elderly. Sugar was found in the urine, sweat, and tears.

Polyuria was regarded in this country as one of the most reliable signs, but in the tropics it was not relied upon. Retention of urine was always a danger signal. The quantity voided was in direct ratio to the quantity of sugar in the urine. Ten to forty pints was the range of the amount passed daily.

The saliva was diminished and of an acid reaction. The gums were soft and spongy and the teeth became carious as the disease advanced. The tongue was somewhat swollen, red, and fissured, and the breath in a proportion of the cases possessed an acetone odor. Chronic gastritis, which was considered a complication in this country, was looked upon as a symptom—a very prominent symptom—by Sir Havelock Charles in his researches in India. Constipation was present in most cases. Neuralgias of various nerves—especially the sciatic—were frequent, and often disappeared or got worse as the amount of sugar decreased or increased. Myalgias and muscular cramps occurred in many cases—indeed so often as to be a suspicious symptom—and Charcot has described an intermittent limping owing to this cause.

Defective accommodation and retinitis of various forms occurred in twenty per cent. of cases, and was, according to Hirschberg, an early symptom. Hiccough was a prominent and annoying symptom in certain cases and was to be dreaded. Tenderness elicited by deep percussion or pressure over the part occupied by the head of the pancreas and descending colon had been recently shown to be present in a large percentage of cases.

The urine contained sugar, which varied in amount from $1\frac{1}{2}$ to 8 per cent. The specific gravity was increased. While sugar might be absent from the urine of the chronic diabetic for intervals, its sudden disappearance from the urine of the acute diabetic was a danger signal. Sugar in the urine was always diminished in quantity if the patient was suffering with fever. This was well demonstrated in the diabetics who had been attacked with phthisis.

Pruritus, eczema, and erythema, especially around the genitals, were the commonest skin troubles. Carbuncles and boils were next in frequency, while urticaria, psoriasis, gangrene, and perforating ulcers were not so common. Tabes dorsalis was a frequent forerunner of diabetes. Epilepsy might cause or result from the disease. It occurred more frequently in those under forty.

In early cases the heart was usually dilated and hypertrophied, but in the later stages the heart's action became weak and at post mortem examination the organ was found small and atrophied.

The patient should be cautioned to avoid all excitement. Daily he should exercise—always, however, short of fatigue. Woolen clothing should be worn and hot baths should be taken to keep the skin active. If possible a diabetic should live in a sunny climate, and, if there was a gouty history,

and the patient could afford it, Carlsbad should be visited.

Children of a diabetic parent or parents should partake of a diabetic diet whether they were apparently healthy or not. A nondiabetic person should not sleep with a diabetic. A nondiabetic person who was the husband or wife of a diabetic should partake only of a diabetic diet. Those who were subject to a temporary glycosuria after taking 100 grammes of grape sugar should partake only of a diabetic diet.

Few cures had been effected by diet. The treatment of diabetes, both dietetic and medicinal, was at the present day extremely unsatisfactory. In the matter of foods, especially, authorities were at odds. It was generally conceded that carbohydrates should be reduced or eliminated from the menu and their place taken by albumin and fats. It had been proved conclusively that in most cases the withdrawal of carbohydrates for a limited time increased the tolerance for carbohydrates taken afterward. Fats were also highly recommended by Osler.

Medicinal remedies for the treatment of this disease were as numerous as the theories as to the cause, and many of them without any more scientific reasons. The first thing to do after recognizing diabetic symptoms was to ascertain the cause and then treat the cause. Arsenic had been advocated by many. Quinine, jambul, bismuth salicylate, had all been recommended. Sodium salicylate in increasing doses had had a number of advocates. Antipyrine was extensively used in France. Glutaric acid was just now causing interest in Europe.

Diabetes was not a disease constant in its manifestations and symptoms, but was fickle and elusive in the extreme; no drugs were specific—hence the treatment was necessarily mostly dietetic, and he who followed blindly and innocently the well known diet list as found in every textbook for all of his cases would benefit but a fortunate few; each case must be studied individually; the amount of intake must be carefully compared with the corresponding amount of output, whether it was carbohydrates, fats, proteids, or what not, and the particular article or articles of food that were offending be excluded; cleanliness, pleasant environment, and rest played an important part in the treatment, and this could be best attained by the patient, as far as practicability allowed, being under the constant supervision of the physician or, what was still better, remaining in a sanatorium until, at least, his individual condition was ascertained.

◆◆◆ Book Notices.

Bäder-Almanach. Mitteilungen der Bäder, Luftkurorte und Heilanstalten in Deutschland, Oesterreich, der Schweiz und den angrenzenden Gebieten für Aerzte und Heilbedürftige. Jubiläums Ausgabe, zehnte Ausgabe, 1882-1907. Mit Karte der Bäder, Kurorte und Heilanstalten. Berlin: Rudolf Mosse, 1907. Pp. 534.

This is the tenth time that the *Almanach* has appeared before the public, celebrating at the same time its twenty-fifth anniversary. The book is prepared with German thoroughness and can well be

recommended to every physician, not only as a source of information in advising patients who intend to visit the spas of Continental Europe, but also as a reference book on analysis, location, climatology, indication, etc., of such watering places.

The book is divided into three parts—balneology, balneotherapeutics, and balneography. Thus we have a scientific section, comprising the first two parts, and a business section, the balneography. Under balneology we find such items as the importance of physical chemistry and biology for balneology, the theory of ions, electrolytic conductivity, radium and radioactivity of the mineral and thermal spas, the importance of inorganic salts, etc.; while balneotherapeutics treats of the influence of this branch of treatment upon diseases. Among the contributors to this section may be mentioned Thilenius, of Soden, the editor in chief; Sieveking, of Karlsruhe; Schade, of Berlin; Seeböhm, of Pymont; Engelmann, of Kreuznach; Jacques Mayer, of Berlin; Ott, of Prague; Brandis and Beissel, of Aachen; Grödel, of Nauheim; von Noorden, of Vienna; Marc, of Wildungen; Pfeiffer, of Wiesbaden; Voigt, of Oeynhausen; Hausmann, of Meran; Winternitz, of Vienna, and others.

The section on balneography gives a review of the watering places, arranged alphabetically in twelve groups. This part is, as is stated in the introduction and again by a footnote, collected from answers and prospectuses sent by the managers of the spas and sanatoria, the editor not being responsible for the statements made. Very handy and explanatory is a map of Central Europe, with the watering places, and there is a good index.

What Bäderer is for the traveling public, this *Almanach* will be for the physician.

Technique oto-rhino-laryngologique sémiotique et thérapeutique à l'usage de l'étudiant et du médecin praticien. Par E. ESCAT. 322 figures dans le texte. Paris: A. Maloine, 1908. Pp. 596.

While the title page of this volume does not state title, degree, style, or quality of the author, we learn from the preface that he is lecturer at the University of Toulouse, and that a previous publication on laryngology received the Montyon Prize of the Institute in 1901. In spite of this distinction—the same prize having been awarded on another occasion to the inventors of the famous “phénot sodique”—the volume may be recommended as an excellent guide. The drawings by the author aim, as he says, to indicate the principle rather than to give a picture of an instrument, anatomical part, or operative procedure. So far as they represent operations they are excellent, as the diagrammatic method is particularly appropriate. The scale of reproduction is much too small for instruments, and outline drawings do not give a good idea of clinical peculiarities. This is strikingly shown by the very inadequate representation of the adenoid facies. In an American textbook of like importance and didactic value we should have half a dozen or more photographs from life to illustrate this important feature, and not one, but a number, of models of the commoner instruments and appliances used in the diagnosis and treatment of the diseases of the ear, nose, and throat. It is to be hoped that a second edition of this work will be as well illustrated as the first.

The Practitioner's Visiting List. Philadelphia and New York: Lea Brothers & Co. Pp. 192.

Wellcome's Medical Diary and Visiting List. London: Burroughs, Wellcome & Co., 1908.

This is the time for the physician to get a diary for the coming year. Lea Brothers & Co. have, as they have done for the last twenty-two years, placed on the market such a calendar, containing a practitioner's visiting list with weekly record space for thirty patients, followed by the usual general memoranda, lists for obstetrical and other engagements, for vaccination, a death register, addresses of nurses and patients, cash account, etc. As an introduction are given items of interest for the general practitioner, thermometric scales, weights and measures, poisons and antidotes, tables of doses, etc.

Burroughs, Wellcome, & Co. have also published, as usual, such a diary. It is arranged on about the same principle: Visiting list, obstetrical engagements, cash accounts, vaccination, addresses, memoranda. The addenda contain therapeutical notes, index of diseases and treatment, symptoms and treatment of poisonings, diet tables, microscopical stains, etc.

The Commoner Diseases of the Eye. How to Detect and How to Treat Them. For Students of Medicine. With 280 Illustrations and 8 Colored Plates. By CASEY A. WOOD, M. D., C. M., D. C. L., Professor of Ophthalmology, Northwestern University, Chicago, etc., and THOMAS A. WOODRUFF, M. D., C. M., L. R. C. P. (London), Ophthalmic Surgeon, St. Luke's Hospital and St. Anthony de Padua Hospital, Chicago, etc. Third Edition. Enlarged and Improved, with Index. Chicago: W. T. Keener & Co., 1907. Pp. 598. (Price, \$2.50.)

This volume is intended as a guide to the general practitioner, and as such contains, besides the matter indicated in the title, a number of particularly valuable special chapters on important practical subjects. Among these we may cite *The Fundamentals of Ocular Hygiene*, *Ocular Complications of Systemic Diseases*, *Headache from Eye Strain*, *Ocular Signs of General Disease*, and *The Commoner Relations of Nasal and Neighboring Cavity Diseases to the Eyes*. The book is well written, instructive, and complete. The press work might be better. The paper is of rather poor quality, thin, and glazed. Most of the illustrations are excellent, but there are striking exceptions, notably the cuts showing the method of examining the eyes of children, oblique illumination, symblepharon, the operation of sclerotomy, and the reproductions of crude line drawings, evidently original. It is a question whether the general practitioner should attempt to master the subject of refraction errors, the use of the ophthalmometer, retinoscope, phorometer, and perimeter, the tests for color perception, muscle balance, oculomotor paralyzes, and ocular manifestations of hysteria, or the performance of major eye operations such as extraction of cataract, iridectomy for glaucoma, and such exacting procedures as advancement for squint. This question the authors have answered tacitly in the affirmative, and have treated these subjects in full.

BOOKS, PAMPHLETS, ETC., RECEIVED

Principles of Surgery. By Norman. Philadelphia: Lea, Brothers & Co., 1908. Pp. 192. \$2.50.
Practical Medicine. By Norman. Philadelphia: Lea, Brothers & Co., 1908. Pp. 192. \$2.50.
Practical Surgery. By Norman. Philadelphia: Lea, Brothers & Co., 1908. Pp. 192. \$2.50.
Practical Obstetrics. By Norman. Philadelphia: Lea, Brothers & Co., 1908. Pp. 192. \$2.50.

London: W. B. Saunders Company, 1907. Pp. 431. (Price, \$2.)

The Conquest of Cancer. A Plan of Campaign, being an Account of the Principles and Practice Hitherto of the Treatment of Malignant Growth by Specific or Cancerotoxic Ferments. By C. W. Saleeby, M. D., F. R. S. (Edin.) New York: Frederick A. Stokes Company, 1907. Pp. xxiv-361.

Report of the Commissioner of Education for the Year Ending June 30, 1906. Volume I. Washington: Government Printing Office, 1907.

Miscellany.

Openings for Surgeons in the Public Health and Marine Hospital Service.—A board of commissioned medical officers will be convened to meet at the Bureau of Public Health and Marine Hospital Service, Washington, D. C., on Monday, January 20, 1908, for the purpose of examining candidates for admission to the grade of assistant surgeon in the Public Health and Marine Hospital Service. Candidates must be between twenty-two and thirty years of age, graduates of a reputable medical college, and must furnish testimonials from responsible persons as to their professional and moral character. The following is the usual order of the examinations: 1, physical; 2, oral; 3, written; 4, clinical. In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. The examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise consists in examination in the various branches of medicine, surgery, and hygiene. The oral examination includes subjects of preliminary education, history, literature, and natural sciences. The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on a cadaver. Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur. Upon appointment the young officers are, as a rule, first assigned to duty at one of the large hospitals, as at Boston, New York, New Orleans, Chicago, or San Francisco. After five years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Promotion to the grade of surgeon is made according to seniority and after due examination as vacancies occur in that grade. Assistant surgeons receive \$1,600, passed assistant surgeons \$2,000, and surgeons \$2,500 a year. Officers are entitled to furnished quarters for themselves and their families, or, at stations where quarters can not be provided, they receive commutation at the rate of thirty, forty, and fifty dollars a month, according to grade. All grades above that of assistant surgeon receive longevity pay, 10 per cent. in addition to the regular salary for every five years' service up to 40 per cent. after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address "Surgeon General, Public Health and Marine Hospital Service, Washington, D. C."

Vital Statistics of the State of New York for October, 1907.—There is a remarkable uniformity in the returns of deaths that were reported during October, 1907, and during the same month last year. The total number of deaths this year was 11,383 as against 11,364 last year. The annual death rate per 1,000 of population was the same in both instances, 16.6. The average annual death rate for the past five years was 15.4 per 1,000. There were 224 deaths from typhoid fever reported. The mortality from scarlet fever and measles was increased to 44 and 34 respectively, about double the figures of last year; but deaths from whooping cough decreased about 30 per cent. to 39. Deaths from influenza increased from 16 to 37. There were 1,080 deaths from pulmonary tuberculosis, or 10 less than during the same month last year. The deaths from external causes show a tendency to increase. The average for the past five years was 665; for October, 1906, the figures were 721; in October, 1907, the returns showed 790 deaths thus classified. Included in these deaths were 92 suicides, 60 deaths from fractures, and 57 from burning or scalding. Five people died from exposure to cold; 65 were drowned, and 40 died from inhalation of poisonous gases. From industrial accidents we have 13 deaths through injury by machinery, 112 from railroad injuries, and 54 from horses and vehicles. There were 35 homicides. Of the total number of deaths, 2,221 were of children under 1 year of age; from 1 to 20 there were 1,442 deaths; from 20 to 40 years, 1,882; from 40 to 60, 2,345; from 60 to 80, 2,706; and over 80, 777; 5,999 were males. There were 17,260 births recorded during October, giving an annual birth rate per 1,000 of population of 25.2. Of those born, 8,955 were males.—*Monthly Bulletin, New York State Department of Health, November, 1907.*

The Health of the Navy and Marine Corps.—Surgeon General P. M. Rixey, in his annual report, says that the health of the Navy and Marine Corps for the calendar year 1906 was good, the ratio of admissions to the sick list, 1,000 of strength, being greater for last year, but less than for the ten preceding years. The average strength of the active list during the year 1906 was 42,529, which is an increase of 1,316 over the previous year, the average strength of 1905 being 41,313. Returns were received by the Bureau of Medicine and Surgery from a force of 41,600, the difference, 839, representing the crews of small vessels not provided with medical officers, officers and men on leave, and those on special or detailed duty at places from which medical returns in detail are not received. Reports of death are received from the total force, and the figures representing that strength are used in computing the ratios of death, but all other ratios are based upon the number shown by the returns of the Medical Department. The total number of admissions for all causes was 32,517, the ratio per 1,000 of strength being 787.23, as compared with a ratio of 714.81 for the previous year and 788.18 for the ten preceding years. There were 27,452 admissions for disease and 5,065 for injuries, giving ratios of 658.47 and 121.49 respectively. The corresponding ratios for 1905 were 504.82 and 106.67, from which it will be seen that the admissions for diseases and injuries were greater than in

1905. The daily average of patients was 1,420.44, and the ratio per 1,000 of strength, 34.06, being greater than the previous year, when the daily average was 1,250.12 and the ratio per 1,000, 31.55. The total number of sick days was 518,461, or an average of 12.43 sick days for every man in the Navy and Marine Corps, and the average duration of the treatment for each case was 15.94 days. During 1905 the total number of sick days was 456,296, the average per man 11.51, and the average duration of treatment 16.11 days. The number of persons invalided from the service during the year for disease and injury was 1,117, giving a ratio of 26.26 per 1,000 of strength. The corresponding figures for the previous year were 1,201 and 29.07, respectively. The ratio for 1906 was lower than that, for last year and of the ten preceding years. The discharges for disability include 908 for disease and 209 for injury, with ratios per 1,000 of strength of 21.35 and 4.91, respectively. The corresponding figures for 1905 were 1,023 and 4.38, with ratios per 1,000 of strength of 24.76 and 4.38, respectively. There were 241 deaths during the year, giving a ratio of 5.66, which is considerably less than that of the previous year (6.48) and less than the average of the ten preceding years (6.63). One hundred and forty-four deaths occurred from disease, with a ratio of 3.31, and 97 from injury (including poison), with a ratio of 2.28. Among the causes of admission to the sick list gonorrhoea stands first, with 2,640 admissions, and malarial diseases, with 1,854 admissions, stands second. The diseases causing the largest number of admissions to the sick list stand in the following order: First, venereal diseases, 2,640; second, malarial diseases, 1,854; third, tonsillitis, 1,375; fourth, bronchial affections, 1,211; fifth, wounds, 1,211; sixth, syphilis, 1,147; seventh, epidemic catarrh, 1,076; and eighth, rheumatic affections, 980.—*From the Army and Navy Journal.*

Official News.

Public Health and Marine Hospital Service
Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the week ending December 6, 1907:

Places.	Date.	Cases.	Deaths.
California—San Francisco.	Oct. 22-23.	3	0
Illinois—Chicago.	Nov. 1-2.	1	0
Illinois—St. Louis.	Nov. 2-3.	1	0
Kentucky—Lexington.	Nov. 2-3.	2	0
Indiana—Lafayette.	Nov. 2-3.	1	0
Massachusetts—Fall River.	Nov. 2-3.	2	0
Montana—Butte.	Nov. 2-3.	1	0
Dennisham—Albany.	Nov. 2-3.	1	0
Tennessee—Nashville.	Nov. 24.	2	0
Texas—San Antonio.	Nov. 2-3.	4	0
Virginia—Richmond.	Nov. 1-2.	2	0
Washington—Seattle.	Nov. 1-2.	1	0
Washington—Tacoma.	Nov. 1-2.	2	0
Wisconsin—Milwaukee.	Nov. 2-3.	1	0
Foreign.			
Argentina—Buenos Aires.	Nov. 2-3.	1	0
Australia—Sydney.	Nov. 2-3.	1	0
Brazil—Rio de Janeiro.	Nov. 2-3.	1	0
Canada—Montreal.	Nov. 2-3.	1	0
France—Paris.	Nov. 2-3.	1	0
Germany—Berlin.	Nov. 2-3.	1	0
Italy—Rome.	Nov. 2-3.	1	0
Japan—Tokyo.	Nov. 2-3.	1	0
Spain—Madrid.	Nov. 2-3.	1	0
Sweden—Stockholm.	Nov. 2-3.	1	0
Switzerland—Zurich.	Nov. 2-3.	1	0
United States—New York.	Nov. 2-3.	1	0
India—Bombay.	Oct. 21-22.	1	0
India—Calcutta.	Oct. 21-22.	1	0
India—Madras.	Oct. 21-22.	1	0
India—Rangoon.	Oct. 21-22.	1	0
India—Bathurst.	Oct. 21-22.	1	0

Malta.....	Nov. 3-9.....	6	1
Mexico-Aguas Calientes.....	Nov. 17-23.....	1	1
Mexico-Mexico.....	Oct. 13-19.....	1	3
Russia-Libau.....	Nov. 3-9.....	1	
Russia-Moscow.....	Oct. 28-Nov. 2.....	4	
Russia-Odessa.....	Nov. 3-9.....	1	
Russia-St. Petersburg.....	Oct. 2-26.....	1	
Russia-Warsaw.....	Sept. 22-Oct. 5.....	1	21
Spain-Cadix.....	Oct. 1-31.....		
Spain-Valencia.....	Nov. 3-17.....	66	2
Spain-Vigo.....	Nov. 2.....	1	
Turkey in Asia-Bağdad.....	Oct. 13-19.....	32	6
<i>Constant Foreign.</i>			
India-Calcutta.....	Oct. 5-19.....		101
India-Madras.....	Oct. 10-25.....		2
India-Nagarpottam.....	Oct. 5-11.....		7
Russia-General.....	July 9-Oct. 29.....	10,107	4,772
Russia-Baghdad-Vladivostok.....	Nov. 9.....		3
Russia in Asia-Tientsin.....	Nov. 10.....		1
Philippine Islands-Manila.....	Oct. 3-19.....	73	21
<i>Yellow Fever.</i>			
Cuba-Habana Province- Bamao.....	Nov. 24-Dec. 3.....	2	1
Cuba-Habana Province- Habana.....	Dec. 2.....	1	
<i>From Union de Reyes.</i>			
Venezuela-La Guaira.....	Oct. 28-Nov. 9.....	1	
West Indies-Barbados.....	Nov. 19-21.....	7	4
<i>Indefatigable, in Quarantine on Pelican Island.</i>			
<i>Plague-United States.</i>			
California-San Francisco.....	Nov. 27-Dec. 1.....	6	1
<i>Total to Dec. 9, 109 cases and 65 deaths.</i>			
<i>Plague Foreign.</i>			
Australa-Cairo.....	Sept. 15-Oct. 1.....	6	2
Brazil-Bahia.....	Sept. 8-Oct. 26.....	30	33
Brazil-Belo Horizonte.....	Sept. 8.....	1	
Brazil-Peramburo.....	Sept. 16-30.....	3	8
Brazil-Rio de Janeiro.....	Oct. 21-Nov. 3.....	14	6
<i>Oct. 30, 7 cases and 2 deaths from animals from Mar- seilles, via ports.</i>			
India-General.....	Oct. 6-19.....	26,336	18,615
India-Bombay.....	Oct. 23-29.....		22
India-Calcutta.....	Oct. 5-19.....		14
Japan-Yokohama.....	Oct. 13-21.....	1	0
Peru-Paita.....	Nov. 4.....	5	5

Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of
Commissioned and Noncommissioned Officers of the United
States Public Health and Marine Hospital Service, for the
week ending December 7, 1907.

BLUE, RUPERT, Passed Assistant Surgeon. Detailed to attend the meeting of the State Health Officers of California, at Riverside, December 3, 1907.

DE VALIN, HUGH, Assistant Surgeon. Granted leave of absence for one month from December 16, 1907.

DYNAN, N. J., Acting Assistant Surgeon. Granted leave of absence for seven days from November 30, under paragraph 210, Service Regulations.

FROST, W. H., Assistant Surgeon. Granted leave of absence for one day, November 24, 1907, under paragraph 210, Service Regulations.

GOODMAN, F. S., Pharmacist. On being relieved from the Jamestown Ter-Centennial Exposition, directed to report to the medical officer in command at Baltimore, Md., for duty and assignment to quarters, December 4, 1907.

HOLSENDOFF, B. E., Pharmacist. Directed to proceed from San Juan to Mayaguez, Porto Rico, for temporary duty; upon completion of which to rejoin his station.

KEATLEY, H. W., Acting Assistant Surgeon. Granted leave of absence for three days from November 3, and five days from November 13, 1907, under paragraph 210, Service Regulations.

MULLAN, M. H., Assistant Surgeon. Granted leave of absence for one day from November 26, 1907, on account of sickness.

ROBERT, NORTON, A student Supporter Granted leave of absence for seven days from November 22, 1907, under paragraph (a), Service Regulations. Granted extension of leave for twenty-three days from November 29, 1907.

RYDER, J. W. 1941. *United States Game Wards for seven days from November 21, 1907, under paragraph 210, Service Regulations.*

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Dr. A. J. W. [unintelligible] is a [unintelligible] assistant [unintelligible]

Dr. Charles W. Naulty, Jr., was appointed an acting assistant surgeon for duty at Perth Amboy Quarantine Station, N. J.

Boards Convened.

A board of medical officers was convened to meet at Seattle, Wash., December 2, 1907, for the purpose of making a physical examination of certain detained immigrants. Detail for the board: Passed Assistant Surgeon L. E. Cofer, chairman; Passed Assistant Surgeon M. J. White, and Acting Assistant Surgeon F. R. Underwood, recorder.

Boards of medical officers were convened to meet December 6, 1907, for the purpose of making physical examinations of certain officers of the Revenue Cutter Service to determine their fitness for promotion, as follows:

At San Francisco, Cal., Surgeon H. W. Austin, chairman, and Passed Assistant Surgeon C. H. Gardner, recorder.

At Port Townsend, Wash., Passed Assistant Surgeon N. J. White, chairman, and Acting Assistant Surgeon F. R. Underwood, recorder.

At Newport News, Va., Assistant Surgeon C. L. Collins, chairman, and Acting Assistant Surgeon A. C. Jones, recorder.

At Boston, Mass., Surgeon R. M. Woodward, chairman, and Assistant Surgeon T. W. Salmon, recorder.

At Portland, Me., Surgeon F. C. Killoch, chairman, and Acting Assistant Surgeon A. F. Stuart, recorder.

At Mobile, Ala., Surgeon G. M. Guiteras, chairman, and Acting Assistant Surgeon J. O. Rush, recorder.

At Detroit, Mich., Surgeon Fairfax Irwin, chairman, and Assistant Surgeon C. W. Chapin, recorder.

At Galveston, Tex., Passed Assistant Surgeon G. M. Corput, chairman, and Acting Assistant Surgeon W. H. Gammon, recorder.

At Baltimore, Md., Surgeon L. L. Williams, chairman, and Passed Assistant Surgeon J. T. Burkhalter, recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending December 7, 1907:

CLARK, J. A., Captain and Assistant Surgeon. Granted two months' leave of absence.

IVES, F. J., Major and Surgeon. Will report in person to Brigadier General J. M. K. Davis, president of an Army retiring board, Washington, D. C., on December 20, 1907, for examination by the board.

HUMPHREYS, H. C., First Lieutenant and Assistant Surgeon. Relieved from duty at Camp Captain John Smith, near Norfolk, Va., and ordered to Fort Terry, N. Y., for duty.

WICKLINE, W. A., First Lieutenant and Assistant Surgeon. Left Army General Hospital, Presidio of San Francisco, Cal., on twenty days' leave of absence.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending November 7, 1907:

ANGWIN, W. A., Passed Assistant Surgeon. Commissioned a passed assistant surgeon from June 2, 1907.

BARBER, C. H., Surgeon. Orders of November 11th modified; ordered to the Naval Hospital, Boston, Mass.

BELKNAP, J. L., Assistant Surgeon. Orders to Naval Hospital, Boston, Mass., revoked; ordered to continue duty on board the *Wabash*.

BEYER, H. G., Medical Inspector. Ordered to report at the Navy Department to the surgeon general of the Navy for special temporary duty.

BRISTER, J. M., Passed Assistant Surgeon. Detached from the *Pennsylvania* and ordered to the *Milwaukee*.

BROWN, E. W., Assistant Surgeon. Appointed an assistant surgeon from November 29, 1907.

DOBERT, E. S., Jr., Surgeon. Detached from the *Milwaukee* and ordered to the *Pennsylvania*.

FARWELL, W. G., Passed Assistant Surgeon. Commissioned a passed assistant surgeon from June 28, 1907.

LANGNECKER, H. L., Assistant Surgeon. Appointed an assistant surgeon from November 29, 1907.

MCGUGAN, J., Pharmacist. Detached from the Naval Hospital, Port Royal, S. C., and ordered to Washington, D. C., December 16th, for examination for retirement

MUNSON, F. M., Passed Assistant Surgeon. Detached from the *Philadelphia* and ordered to the Asiatic Station, sailing from San Francisco, Cal., about January 6, 1908.

OWENS, W. D., Passed Assistant Surgeon. Commissioned a passed assistant surgeon from May 17, 1907.

SCHALLER, W. F., Assistant Surgeon. Detached from the *Brooklyn* and ordered to the *Pennsylvania*.

STOKES, C. F., Surgeon. Detached from command of the Naval Hospital, San Juan, P. R., and ordered to report to the surgeon general of the Navy at the Navy Department for special temporary duty.

SUTTON, D. G., Assistant Surgeon. Appointed an assistant surgeon from November 29, 1907; ordered to duty at the Naval Hospital, Newport, R. I.

THOMAS, G. C., Acting Assistant Surgeon. Ordered to report at the Naval Hospital, Philadelphia, Pa.

TOULON, A. J., Assistant Surgeon. Appointed an assistant surgeon from November 29, 1907.

VICKERY, E. A., Assistant Surgeon. Detached from duty at the Naval Hospital, Boston, Mass., December 12th and ordered to Washington, D. C., December 16th, for examination for promotion; thence to duty at the Naval Hospital, Annapolis, Md.

Births, Marriages, and Deaths.

Born.

HASSELLTINE.—In Fort Thomas, Ky., on Saturday, November 30th, to Dr. Herman E. Hasseltine, United States Army, and Mrs. Hasseltine, a son.

ROGERS.—In Chicago, Ill., on Tuesday, November 5th, to Dr. Daniel Weston Rogers and Mrs. Rogers, a son.

Married.

GANGEWERE—WEIRBACH.—In Pleasant Valley, Bucks County, Pa., on Thursday, December 28th, Dr. Victor J. Gangewere and Miss Cora Weirbach.

KLEMM—FREY.—In Milwaukee, Wis., on Wednesday, November 27th, Dr. Louis F. Klemm and Miss Catherine M. Frey.

MCNAIR—MOSER.—In Bellgrove, Cal., on Sunday, December 1st, Dr. Donald Wallace McNair and Miss Virginia Davis Moser.

MONAGHAN—MATHIEU.—In Philadelphia, on Saturday, November 30th, Dr. Charles A. Monaghan and Miss Kathryn Angeline Mathieu.

SWIFT—HALE.—In Roxbury, Mass., on Tuesday, November 26th, Dr. Walter Babcock Swift and Dr. Edith Hale.

Died.

BOMER.—In Water Valley, Ky., on Monday, November 25th, Dr. W. C. Bomer.

CATLIN.—In Monmouth Junction, N. J., on Wednesday, December 4th, Dr. Joseph Catlin, of Chestertown, Md., aged fifty-nine years.

DONNELLY.—In Philadelphia, on Wednesday, December 4th, Dr. John F. Donnelly, of Kirkland, aged sixty-five years.

DORMAN.—In New Haven, Conn., on Thursday, December 5th, Dr. Charles A. Dorman, aged sixty-three years.

HOWARD.—In Bedford City, Va., on Monday, December 2d, Dr. Hamilton P. Howard.

MASSEY.—In Spottsylvania, Va., on Thursday, November 28th, Dr. C. R. Massey, aged forty years.

NORTON.—In Cincinnati, Ohio, on Wednesday, November 27th, Dr. O. D. Norton.

OVERDORFER.—In New York, on Sunday, December 1st, Dr. Isidor Pierce Overdorfer, aged sixty-seven years.

O'DONNAN.—In Fort Smith, Ark., on Saturday, November 30th, Dr. James H. O'Donnan, aged seventy-eight years.

ROCKWELL.—In Rochester, N. Y., on Wednesday, November 27th, Dr. Ashbel Starr Rockwell, aged sixty-four years.

SIMS.—In Birmingham, Ala., on Tuesday, November 26th, Dr. A. W. Sims, aged thirty-two years.

SMITH.—In Warrenton, Va., on Wednesday, November 27th, Dr. Thomas W. Smith, aged fifty-two years.

STEVENS.—In Chicago, Ill., on Sunday, December 1st, Dr. Frederick H. Stevens, aged eighty-two years.

TALLEY.—In Richmond, Va., on Friday, November 29th, Dr. William Talley, aged twenty-one years.

THOMPSON.—In Chicago, on Wednesday, November 27th, Dr. Thomas P. Thompson, aged fifty-nine years.

THROOP.—In New York, on Thursday, November 28th, Dr. A. P. Throop, aged seventy-five years.

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WHOLE No. 1516.

Original Communications.

A NASAL SPOOROZOON (RHINOSPORIDIUM KINEALYI).

By JONATHAN WRIGHT, M. D.,
New York.

In January, 1903, I received the following letter, accompanying some slides holding sections of tissue, from Dr. E. C. Ellett, of Memphis, Tenn.:

"I am sending by this mail under separate cover sections of three nasal tumors removed from a young man, of twenty years of age, a few days ago. The clinical history is as follows: In March, 1897, I saw him first, and removed with a snare a papillomatous looking growth which sprang from the lower anterior part of the right side of the septum. In November, 1898, I removed a smaller growth of similar appearance from the anterior end of the right inferior turbinate body. At that time the septum was healthy. In March, 1902, he had some further obstruction in the same side, when some tissue . . . was partially removed by a general practitioner. On December 13, 1902, I found a large mass of a similar appearance to the others springing from the old site on the septum, and removed it. Then a similar small growth was seen further back on the turbinate and this was removed. There was also what looked like a spur, low down and springing from the septum. On touching this it was found to be movable. The body of it was round and smooth, and it looked and moved like a spur that had had a submucous fracture through its base. This was removed. The patient passed from observation in a few days. I had all three pieces cut, and I enclose a copy of the pathologist's report. None of the previously removed growths were examined. They seemed to be benign, warty growths. The result of the examination was such a surprise to the pathologist and to me that I am going to impose on you to the extent of asking you to take a look at the sections and see if you can throw any light on the subject."

As will subsequently appear, a growth of a similar nature was reported by Major Kinealy¹ in London at about the date of Dr. Ellett's letter to me.

From the description of Dr. Ellett it may be seen that the growth was a projecting, movable papillomatous mass, while Major Kinealy describes it as "a small vascular pedunculated tumor, about the size and shape of a large pea, projecting into the vestibule of the left nasal fossa. It was a freely movable, painless growth with all the appearance of a papilloma, and was attached by a short pedicle to the mucous membrane."

In a recent letter, kindly giving me permission to use the case for this report, Dr. Ellett informs me the patient was alive and well without recurrence two years after operation. The report to Dr. Ellett by the pathologist, Dr. William Krauss, read as follows:

"I send you herewith three slides, labelled 1, 2, and 3. The first is a horizontal section from the septum; the second, a vertical subsection of the smaller piece from the septum; and the third is a vertical subsection from the

turbinate. All of the pieces were received in water, to which formol was added a few hours before transferring to alcohol in strengths increasing to absolute, then imbedded in celloidin and cut about twenty mikra thick. The sections were stained in Delafield's hamatoxylin, counterstained with Congo red, and cleared in oil of cloves."

Dr. Krauss recognized that "it is clearly a protozoan disease, but I have no idea as to the exact nature" of the parasite.

After examining the preparations, I could at that time only add that the organism probably belonged to the sporozoa.

In the five years which have elapsed great advance has been made in our knowledge of the protozoa found as parasites in man and animals. I have shown the sections from time to time to various pathologists without eliciting much information. Since I have alighted on the reports by Kinealy,² Minchin and Fantham,³ and Beattie,⁴ I have made a more detailed study of the slides and a careful comparison of the organism with the exhaustive description and the beautiful plates of the last two references. I am supported in the belief by Professor Ewing, of Cornell University, that we have here to deal with the same organism hitherto reported as having been observed only in India, all the cases, only four or five in number, being natives of "the small state Cochín on the west coast, which has given the name to *Cochin leg.*" Dr. Ellett's case was a farmer who had never been away from the neighborhood of Memphis, Tenn.

In all cases observed the organism has occurred in granulation tissue, near the vestibule of the nose, which suggests the inference that the infection was carried by the finger nail. Very minute white dots are seen to stud the tissue, and with the low power these are seen to be small, spheroid cysts imbedded in granulation tissue. (Fig. 1.)

With the exception of my failure to confirm some of Beattie's measurements, and my inability clearly to make out the nuclei of the sporules (Fig. 2), the appearances tally so closely, the clinical history and the location of the growth correspond so exactly with former reports, that I cannot doubt we have here the same organism to deal with.

The granulation tissue, in which these numerous cysts lie, presents nothing very exceptional from other granulomata. There is some tendency to giant cell formation, and some mitotic figures may be seen. The surface epithelium has rather peculiar ductlike prolongations in places. In other places it is simply hyperplastic, with some metaplasia. It contains a limited number of the larger maturing cysts (Fig. 1A), which contain the deeply stained sporemor-

¹Minchin and Fantham, *Quarterly Journal of Microscopical Science*, vol. 1, 1901, p. 100.
²*Journal of Pathology and Bacteriology*, vol. 12, p. 200, 1907.

læ, some of them discharged at the surface, some free in the tissues, a few within large phagocytes. These endogenous sporemorulæ, or mulberrylike budding spores, arise from an inner layer of protoplasm lining the chitinous hull of the spheroidal cysts. In my slides the sporules inside of the sporemorulæ (Fig. 2) are best seen in the individual morulæ lying free in the tissues or on the surface of the specimens, although faint outlines of them may be distinguished in the morulæ or pansporoblasts still in the cyst cavity, in a few instances. According to Minchin and Pantham, the cysts vary greatly in size, but they give no measurements, while the measurements of Beattie seem entirely improbable.¹ In the tissue submitted to me for examination the organisms are present in cysts, which measure from about .06 to .30 millimetre in diameter. My measurements of the sporemorulæ and of the granules corresponding to those of Minchin, being in the former case 2.5 to 10.0 mikra and in the latter 1.25 to 2.25 mikra, I can only suppose, since this is the only discrepancy

of the three sections were run back, one was restained with Haidenhain's iron hæmatoxylin, and, this being a failure, again restained with lithiocarmine. The other section was restained with fuchsin (Van Gieson). None of these attempts to develop a nucleus were successful, though with the Van Gieson stain, granules in the sporemorulæ took the fuchsin stain but from repeated handling the outlines of the sporules had been lost, and I can not assert that nuclei were observed. I have had the morulæ drawn in Fig. 2, without nuclei in the sporules. The nuclei of the cysts themselves (Fig. 3), with their nucleoli, were visible both with the original stain and with the restaining.

There seem to be, in my sections, two stages of the cysts—the granular stage (Fig. 3 and Fig. 1, B) and the sporemorulæ stage (Fig. 1, A). At the termination of this stage the cyst wall is ruptured and the pansporoblasts lie free in the tissues (Fig. 1, C) and discharged on the surface (Fig. 2).

The sporozoa² are a group of exclusively parasitic

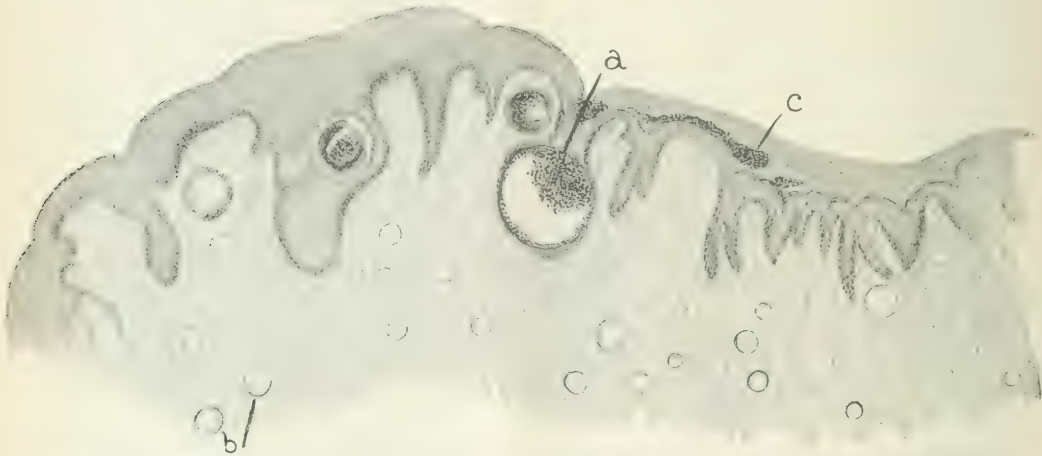


FIG. 1. Granular tissue, covered by a ciliated epithelium with gland-like digitations, and containing the cysts: a, large cyst in the sporemorulæ stage, whose walls are being pierced by a fibrous connective tissue; b, cyst in the granular stage, one nearly shows a nucleus; c, sporules and sporemorulæ escaping in the epithelium and on the surface.

there is between my own observations and those of Beattie, that there is some error of print in his report, yet it is quite possible that in one case encystment occurs in larger diameters than in another. This is illustrated somewhat in my sections. Fig. 1 shows a sporemorulæ cyst which somewhat surpasses .30 millimetre in diameter. This is in the tissue from the septum. In the section from the turbinate none can be noted over .20 millimetre in diameter. I am unable to distinguish any cysts in any of the three sections smaller than .06 millimetre in diameter.

Owing to the limited number of slides (three), their age, and the original stain of the sections (hæmatoxylin and Congo red), I have been unable to confirm the presence of nuclei in the sporules of the pansporoblasts (Fig. 2) as represented in the plates of Minchin and Pantham, and of Beattie. Two

protozoa. They always possess the power of reproducing endogenous minute protoplasmic nucleated corpuscles or sporules—a part of their own bodies. These are protected by a cyst envelope, resistant for a time to the external environment, and within this the sporules are reproduced or continue their development. The *Rhinosporidium Kinealyi*, like many of the sporozoa, seems to excrete a double cyst wall, the inner or germinal layer or endocyst, and the external or protective layer, or epicyst—an early organic differentiation into an apparatus for propagation and one for preservation. The *Rhinosporidium Kinealyi* belongs to the most simple and primitive of the sporozoa. Like the myxosporidia and sarcosporidia, spore formation apparently goes on continually without the intervention of gametes and the phenomena of nuclear division. They may be said to

¹For an exhaustive treatise on this group of the protozoa see Professor Minchin's article in Lankester's *Treatise on Zoology*, part I, 1905.

²For a description of the nasal and the nasal cavity of the human nose see the article on the nose in the *Meatus* for one cyst.

belong to the neosporidia in which growth and reproduction go on at the same time. Minchin places these among the organisms of which as yet the life cycle is not clearly understood, and therefore incapable of proper classification. In the sporemorulæ stage the inner protoplasmic or generative layer of the cysts is thicker, while in the granular stage the external chitinous or protective layer is thicker. In the sporemorulæ stage the cysts are larger and the chitinous external layer, so sharply defined in the other stage, is disintegrating. Ruptures occur apparently at the weakest point. I can make out no mikropyle or rounded hole, mentioned by Minchin and Fantham, at any point of the circumference. The sporemorulæ as well as the tiny granules seem to spring from all points of the internal protoplasmic layer which I referred to, but there are many specimens which give the appearance of a more abundant origin at opposite poles of the internal surface. In most of the cysts, especially in the sporemorulæ

granular stage (Fig. 3) I can make out no sporemorulæ. There are a few cysts, however, where some approach to this endogenous variation, as noted by Minchin and Fantham, may be observed.

There is a marked difference in the reaction of the cysts to the Delafield hæmatoxylin stain in the two stages as observed in my specimens, the sporemorulæ stage taking it deeply, while the granular stage takes it faintly, corresponding to the difference in the nuclear elements of quiescent tissue cells and of those in active mitosis. In the granular stage most of the granules may be seen to have a dark chromatin (?) speck at one pole and a clear zone at the other. (See Fig. 3.) The ripe cysts—that is, those in the sporemorulæ stage—seem to be near or in the hyperplastic epithelium. In Fig. 1 this may be observed. It is probable that many if not most of the sporemorulæ, when they emerge from the cysts, do so at the surface, and are discharged with the secretions. Some, however, are to be seen in the

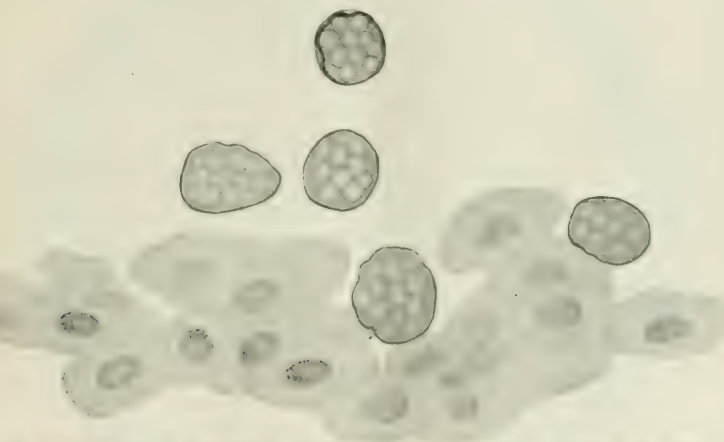


FIG. 2. Sporemorulæ of the sporozoites just as they are discharged from the mother cysts.

stage, there is plainly a transverse striation of the cyst walls. Minchin is disposed to regard this as due to refraction, since he did not observe it in his specimens.

Minchin and Fantham, in speaking of the bodies contained within the cysts, describe them as varying in size according to their situation relative to the cyst wall, the peripheral 1.0 to 1.5 mikra, intermediate 2.0 to 2.5 mikra, central 5.0 to 6.0 mikra. While there is some variation in size, with the larger at the centre, I am entirely unable to see so much variation in any one cyst, though in the various cysts, including both those in the granular stage and those in the sporemorulæ stage, the dimensions given by these authors correspond very well with my own measurements. It is rather important that this should be borne in mind, viz.: that the cysts apparently at different stages contain different sized sporules, these varying slightly among themselves, but being more or less uniform for each cyst. Owing to the minute size I cannot say there are no granules at the sporemorulæ stage (Fig. 1 A), but in the

subepithelial tissue at a more advanced stage than in the cysts, but there is none of that gradation in size observable between the sporemorulæ and the mother cyst as is to be observed between the granules and the largest of the sporemorulæ. While in the latter case the diameters vary between 1.25 and 10.0 mikra, there is no intermediate diameter between 10 mikra and the sizes of the smallest cyst I could measure, about 60 mikra, the largest being about 300 mikra.

It would seem probable that the sporules develop into the cysts, but I have been unable to find any intermediate stage, as I understand has been the case with the other observers. Unfamiliar as I am with the study of the protozoa, I cannot venture to explain how this gap comes about, since, if the cysts are the result of the development of the sporules, it would be natural to suppose we could see the intermediate stages.

The tissue reaction to the presence of these cysts, besides that of the granulation tissue itself, in which

for the most part they lie, may be seen in the hyperplasia of the epithelium around the sporemorulæ cysts and the formation of a fibrous envelope (see Fig. 1.A), which in some places is replacing the chitinous wall of the cysts. Evidently large numbers of these organisms perish in the granular cyst stage; the sporules and granules, many of them becoming pale and granular within the cyst. Those cysts, beginning to be encroached upon by the fibrous new connective tissue, apparently have been long dead. It is, as I have said, only comparatively very few of the spores which survive their environment when outside of the protecting chitinous walls. These, like the capsules of the bacteria, are their

that of the maturing cysts nearer the surface. This is suggested by the distribution of the two kinds as illustrated in Fig. 1.

A few of the sporules are taken up, even while still in the morulæ, by large phagocytes, but all the others are disintegrated in the lymph spaces, apparently without being devoured by the phagocytes. Many fragments are seen free in the vicinity of the ruptured mother cyst.

I am not convinced it is permissible, as has been suggested, to interpret the few ellipsoid and horse-shoe shaped forms of the cysts as evidences of amœboid movement. They are seen in my specimen well beneath the epithelium, where the horny or chitinous

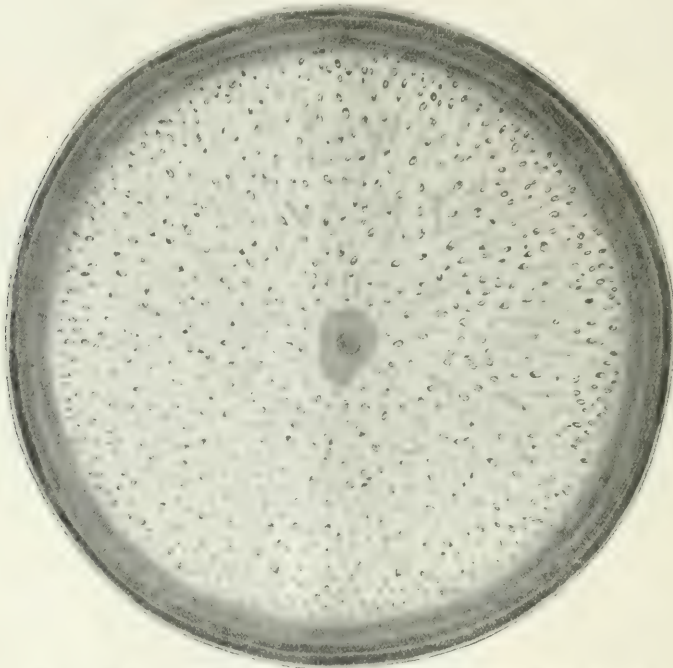


FIG. 2.—The granular stage of a cyst, with a thick external chitinous wall, the granules showing a chromatin (?) granule at one pole.

walls of defense; the struggle they are making is here for the most part ineffectual. The cysts are too large to be carried away in the circulation, and the sporules, in the sporemorulæ, are too vulnerable outside of the cyst wall.

Near the surface apparently there exists a more favorable zone for growth than elsewhere, and here the sporemorulæ stage, that also of a disintegrating cyst capsule, is observed.

We may suppose the sporules which survive are those which escape from the tissue in the morulæ and carry on other stages of their development in another environment, but this is not at all clear.

I have spoken of two stages, but it is probable that the paler granular stage (Fig. 3) is due to the unfavorable location in the tissues as compared with

walls would preclude the idea of locomotion. In some of them, apparently ruptured by external violence, the wall looks brittle. In other places it has the appearance of having been invaginated or "caved in" by the uneven pressure of the growing connective tissue surrounding it.

As has been said, Minchin and Fantham place this protozoan organism among the sporozoa in the subclasses neosporidia or microsporidia. Since it throws off its spores not from the distinctive areas of the poles alone, but from the whole of the inner layer, they call it a *haplosporidium*. I think with Beattie there is some evidence of a greater fecundity of spores at the poles, but it certainly does give them off from the whole internal surface.

Recently before the Section of Zoology of the

British Association, Fantham and Ridewood suggest the creation of still another subdivision. They would divide the sporozoa into:

1. Polysporidia, in which the pansporoblast gives rise to nine or more spores, which would include the rhinosporidium.

2. Oligosporulae, in which the pansporoblast gives rise to less than that number.

I am unable to make any contribution of value as to the number of sporules in the pansporoblasts of my sections, since, with the imperfect staining of the sections, they are imperfectly defined in all but a few individuals, of which those in Fig. 2 are very clear, but hardly fair representatives of the conditions to be observed. So far as I have been able to count them, they all hold more than nine sporules.

Besides being premature, attempts at classification of the sporozoa as yet may be deemed more arbitrary than reliable.

Whether Hektoen* would be disposed to place this disease among his "coccidoidal granulomata" or not, I do not know. The term would cover it, I suppose, but there is no evidence of metastases in the other reports, and when thoroughly removed—if we are to judge from Dr. Ellett's case, his being the only one under continual observation—it does not recur, and is therefore not of serious pathogenic import.

I desire to thank Dr. Ellett for his generosity in permitting me to report the case.

44 WEST FORTY-NINTH STREET.

THE TREATMENT OF SARCOMA BY MEANS OF THE ROENTGEN RAYS.*

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There have been published, to date, at least forty contributions upon this subject by competent observers. These include carefully recorded observations which, when read in their original form, will convince the most sceptical of the great value of this therapeutical agent, in the treatment of the class of cases in which it has been used.

The most comprehensive contribution is that by Kienböck, who has prepared statistical tables of the cases treated, by others as well as himself. These tables, when summed up, present results which compare favorably with those obtained by any other method of treatment, but one loses sight of the fact that the class of cases treated by this method do not belong to the same class in which other methods have been used.

Nearly all cases treated by this method had been previously treated by other methods with complete failure. That is, they had been operated on from one to six times, each operation being followed by recurrence in the same locality, or metastasis elsewhere. Operations were usually continued until they offered no further hope. In some of the advanced cases, Coley's toxins had been previously used without success. In others, the Coley toxins were used in conjunction with the rays with appar-

ent benefit. This view is especially expressed by Coley.

When the disease has become general, as in the failure recorded by Marsh, only the wildest dream could lead one to expect a cure. This patient was a man, fifty-two years of age, who had had six successive operations for melanotic sarcoma. Each operation was followed by recurrence and metastasis, and finally, there was recurrence in each site of operation and multiple sarcomata were scattered over the body. In addition, there was a large abdominal tumor and enlargement of the liver indicating involvement of the viscera. The patient was given five treatments and later died. This is probably the worst case recorded in which the rays have been used, but the majority of the cases recorded have been absolutely hopeless by any other means of treatment.

Other examples of this very advanced type are those recorded by:

SKINNER.—A female, age thirty-four, with a well-marked family history of malignant disease; had had an operation three years previous to the Röntgen treatment for the removal of a fibroid of the uterus, in which the uterus, tubes, and ovaries had been removed. At the beginning of the Röntgen ray treatment there was a fixed tumor the size of a caecum, involving the abdominal wall and the right iliac fossa. A section was removed which showed it to be a fibrosarcoma. It was considered inoperable. The Coley toxins were used for two months with some improvement, then there was an increase in the size until the abdomen had the appearance of a woman, seven months pregnant. The patient was weak, cachectic, and was losing flesh.

At the end of nine months and after seventy-seven treatments, she returned to her occupation as school teacher. After this, treatments were given at intervals. In all, 136 treatments were given in a period of 849 days, when she appeared to be perfectly well. A letter from Dr. Skinner states that she is living and entirely well four years and four months after the cessation of treatment, and that she has never been so well as during the past two years. She has continued her occupation five years after she was pronounced incurable by all other means.

JOHNSON.—I. A man, age fifty-six. The entire right rectus muscles was removed on account of a small, round celled sarcoma. The disease could not be completely removed on account of the extensive involvement. He was weak, emaciated, and cachectic. At the end of four months, and after about sixty-five treatments, the patient was well, and has remained well to date, which is three and one-half years.

II. A woman, aged forty-two, developed within six months after the operation a recurrent fibrosarcoma "involving the skin, subcutaneous tissue, and periosteum, which could not be removed surgically without damage to the urethra, labia majora and minora, and the clitoris." The surgeons refused to operate. Forty treatments were given in five months, when she appeared to be free from sarcoma. She has had no recurrence in the succeeding three and one-half years, as stated in a letter from Dr. Johnson.

III. A woman with a history of three operations for the removal of a growth involving the entire upper chest, the suprasternal notch, and the left axilla; the neck up as far as the insertion of the sternocleidomastoid. Her voice from the entrance of the trachea was a hoarse whisper. She suffered from paroxysms of dyspnea, carried the head in the posture and with the care seen in necrosis of the cervical vertebrae. A large ulcer of the neck, surrounded with shallow craters and changing a bad smelling, tips protruded from the front of the neck and chest. The edges of this ulceration were abrupt, thickened, undermined, and extremely indurated. The patient received several treatments and has remained well to date, from a letter from Dr. Johnson, three and one-half years.

STONWART.—A woman, aged thirty-six, had an exploratory operation for a large tumor involving the lower ab-

*Read before the annual meeting of the American Roentgen Ray Society at Cincinnati, October 26, 1907.

dominal wall and the bowel and bladder which it was considered unwise to attempt to remove. Microscopical section showed it to be a fibrosarcoma. She was treated with the Röntgen rays forty-nine times in nine months. A year after beginning Röntgen rays treatment, an examination

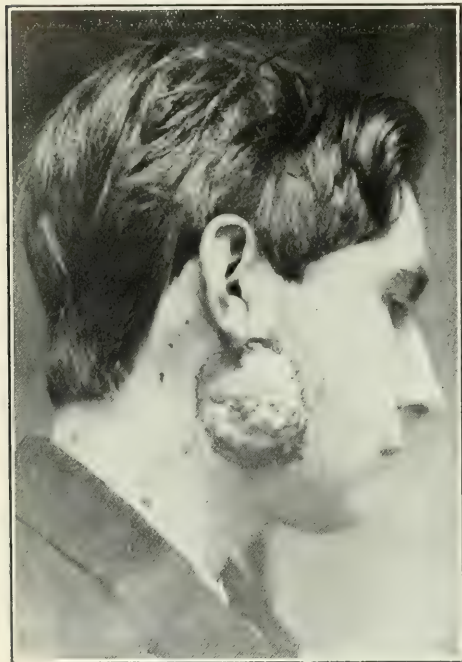


FIG. 1.—Case II, a, days before treatment.

showed her to be apparently well, and by letter we learn that she is still well three years after treatment.

ELISCHER AND ENGEL report four cases of mediastinal sarcoma. One patient remained well a year, then had a recurrence, but was improving under treatment; two others were improving under treatment, and a fourth died.

TORREY.—A man, aged forty-three, had three operations for the removal of a fibrosarcoma of the chest wall. After the third operation, Coley's toxins were used, but a recurrence developed under their use. Röntgen treatment was begun, and in four months the patient was apparently well, went to work, but was attacked by typhoid fever and died in about a month. Autopsy showed no recurrence, no metastases, and microscopical study of the site of the tumor showed only scar tissue.

CRYSOSPATHES.—A woman, aged thirty-five, had a tumor the size of a child's head in the left side of the pelvis. After an exploratory incision, it was found inoperable. A section showed it to be a small, round celled sarcoma. In nine months no evidence of the tumor could be found, and the patient was apparently well. She was still well five months later.

KROGIS.—A man, aged forty, had large recurrent and metastatic, round celled sarcomas growing from the pericostum and involving the greater part of the head. They were pronounced inoperable. In three months, under Röntgen ray treatment, the tumors had completely disappeared. The patient was still well four months after cessation of treatment.

JENN.—January, 1903, an exploratory operation was performed upon a woman for a tumor, the size of a child's head, in the left side of the abdomen. It could not be removed. A second showed it to be a spindle celled sarcoma. She had lost forty pounds in weight and was very cachectic.

The tumor disappeared under the influence of the Röntgen rays. On December 1, 1904, it had recurred, but again disappeared under treatment in five months. In September, 1905, a recurrence, the size of a lemon, had developed which disappeared in three months. The patient was still well twenty-one months after treatment.

McMASTER.—A man, aged sixty-seven, had a round celled sarcoma extending from the angle of the jaw to the clavicle and two inches back of the ear. It was considered inoperable. Under Röntgen ray treatment, there was improvement in five weeks, which continued. In the three months, Coley's toxins were used for five weeks, but with no apparent benefit and were then discontinued. Röntgen ray treatment was continued until the patient was well. This patient was still well two years after treatment.

These examples of the extreme cases of sarcoma which have been treated by the Röntgen rays might be multiplied, but sufficient has been said to illustrate the fact that statistics based upon this class of cases can not justly be compared with the statistics of other forms of treatment. At any rate, statistics based upon 186 cases would be of little value. Therefore, I have not attempted to prepare statistical tables.

Recurrence.

Coley takes a pessimistic view, and it must be admitted that his results do not compare favorably with those obtained by other men. In only six of his sixty-eight cases was there complete disappear-



FIG. 2.—Case II, at end of treatment, showing destruction of the tumor, and a dermatitis.

ance of the tumors, and in every one of them there was a recurrence within a few months after the disappearance of the disease. His cases likewise belong to the extreme type. A review of his cases as well as those of others shows that recurrence must

be expected, and that therefore every case must be kept under constant observation. Recurrences often disappear under the Röntgen ray treatment, and in some cases successive recurrences were successfully treated with the rays.

In the majority of cases we must expect recur-

surrounded the eyeball and at least obliterated her sight; 2, Röntgen ray treatment caused a complete disappearance of the tumor and did no harm to the eye, the sight remaining good; and 3, a slight operation in the region previously occupied by the growth seemed to be the exciting factor in the rapid recurrence.

CASE II.—Mr. J. L. M., aged twenty-one, referred by Professor Wm. I. Robinson, December 11, 1905. A sarcoma developed in the region of the angle of the right side of the lower jaw, the size of an apple, seven weeks previously, which was excised. In three weeks it had recurred and developed to its original size, and was removed by Professor Robinson. Five days after the second operation it had again recurred and reached the size of a hen's egg (Fig. 1). At this time he was referred to me for Röntgen ray treatment. He was given twenty very active treatments between December 11, 1905, and January 22, 1906, when the tumor had been reduced to the level of the skin. There was a surrounding dermatitis (Fig. 2), and a dermatitis directly opposite the lesion (Fig. 3), on the other side of the face, at the point of exit of the rays. He has been given no treatment since then and has been well now twenty months (Fig. 4).

The interesting points in this case are: 1, the rapid development; 2, the extremely rapid recurrence; 3, the complete disappearance under Röntgen ray



FIG. 1.—Case II, showing a recrudescence of the sarcoma, the lesion reaching the size of an apple.

rences, yet, as is shown by the references given in proceeding and in cases of my own, extreme cases of sarcoma have recovered and remained well three to four years and give every promise of remaining permanently well. Two of Coley's cases were still well two and one half years after treatment. With improvement of technique, I believe that the results will be even better.

Report of Cases

CASE I.—*Journal of the American Medical Association*, December 5, 1904. Miss D. B., aged sixteen, was referred to me by Professor L. W. Fox. A epithelial sarcoma developed which involved the entire orbit and crossed the eyeball. The tumor protruded about an inch. Forty-one treatments were given in three months, when all evidence of the tumor had disappeared and the patient appeared to be well. The eye showed no ill effects, neither from the tumor nor from the rays. The eyeball was in a normal position and sight was apparently normal. Four months later, Dr. Walter Freeman, who had originally been in charge of the patient, removed a spur from the nostril which he believed was in no way connected with the malignant disease. Two weeks after the operation she returned with pain in the region of the eye, and later in the head. She became maniacal and died within three months after the operation, in spite of active Röntgen ray treatment, probably from metastasis in the brain. No autopsy was permitted.

This case is of interest because 1, the sarcoma



FIG. 4.—Case II, twenty months after treatment.

treatment and its recurrence in twenty months; 2, the development of a dermatitis on the opposite side of the face at the exit of the ray.

CASE III.—Miss E. F., aged thirty, was referred to me by Professor L. H. Coe, September 1, 1904. In 1903 a small tumor had been removed from the left nostril,

which proved to be a round celled sarcoma. Hæmorrhages continued. Three weeks before coming to me she had a very severe hæmorrhage and consulted Professor Gleason, who applied the thermocautery. When she came to me she could not breath through her left nostril, and Röntgenographs showed the tumor mass involving the left nostril, the antrum of Highmore, the left frontal sinus, and extending backward into the ethmoid cells. Since this time she had 371 treatments in nearly three years. At first she was treated daily, then three times a week, then twice a week and later once in two weeks.

During the course of treatment the process was carefully observed by means of a successive series of Röntgenographs, which showed progressive improvement. They still show a portion of the tumor, and she still has occasional



FIG. 1. CASE VIII, at the beginning of the x-ray treatment, showing no improvement.

slight bloody discharge. She is not yet well, but there was no hope of recovery from any other means, and she was ready to do any work at the beginning. As a result of the treatment she has been comfortable, undoubtedly improved in the actual disease, and has continued her occupation as milliner nearly three years. The skin became red a number of times, but at no time has it become ulcerated. The eye had always been protected by means of lead, and most of the eyebrows and eyelashes are in place. The skin was protected by means of the Röntgen Ray filter. (Pfähler—*Proceedings of the American Röntgen Ray Society*, September 28, 1906, page 1.)

Points of interest because 1, it was inoperable. 2, the patient was unable to return to work;

3, the tumor occupied bony cavities and the rays had to traverse the bone first; 4, the problem of avoiding disfigurement from the effect of the rays was a serious one; and 5, the improvement has been carefully recorded by a series of Röntgenographs.

CASE IV.—L. C., aged eleven, was referred by Professor Rodman on January 29, 1907. A small tumor was found projecting from the right side of the nose, and by Röntgenograph it was found to extend into the ethmoid cells. A section was removed for examination, and was found by Dr. Henry S. Wieder to be a round celled sarcoma. Professor Rodman considered it unwise to operate upon her and referred her for Röntgen ray treatment. She was given thirty-one treatments between January 29 and April 18, 1907, when she appeared to be well. There was no damage to the eyes and none to the skin. She is still well, seven months after cessation of treatment.

The points of interest are: 1, inoperable from the beginning; 2, the involvement of the ethmoid cells as shown by the Röntgen rays; 3, the complete recovery in about three months; 4, the absence of any irritation of the overlying or surrounding structures.

CASE V.—Mrs. E. P., aged thirty, was referred by Professor W. W. Babcock. A tumor had developed upon the right forearm in 1901 and was removed by a competent surgeon during October, 1905. It was found to be a round celled sarcoma. In three months it recurred and was again removed by the same surgeon, and the surgeon himself gave thirty-two Röntgen ray treatments, but recurrence took place under treatment. The treatments were discontinued May 30, 1906, and amputation of the arm advised by a number of surgeons consulted. The tumor continued to grow. The patient was first seen by Professor Babcock on October 15, 1906. There was a soft, fluctuating mass, the size of a hen's egg, below the right elbow, and a second mass adjacent to the bronchial artery and surrounding the median nerve. These tumors were enucleated without dividing the artery or nerve. The growth was chiefly from the fascial planes and destroyed the external muscle group of the forearm. Two weeks after the operation there was distinct signs of recurrence.

Röntgen ray treatment was begun at this time, November, 1906. Methylene blue was used locally, and Röntgen ray treatment was given three times a week for a period of twenty-five minutes, at a distance of twelve inches, with rays No. 7 (Benoist), and one milliampère of current through the tube. In ten days there was a diminution in the pain and stiffness and less induration. At the end of a month the induration had practically disappeared, but the wound remained unhealed. At the end of five months and thirty-two treatments the wound was healed, the patient had regained the healthy color, had increased in weight and was apparently well. She has been kept under observation and treated once a month. There has been no sign of recurrence in seven months.

The points of special interest in this case are: 1, The recurrence within three months after the first operation; 2, the recurrence under the Röntgen ray treatment after the second operation; 3, the recurrence and extensive infiltration within two weeks after the third operation; 4, the disappearance of this extensive recurrence under the same number of applications which had previously failed, but with probably different technique.

CASE VI.—W. S., aged thirty, was referred by Professor Babcock on November 13, 1906. During February, 1905, a tumor was noticed upon the right scapula, the size of a hen's egg. This was excised March 3, 1905. On September 3, 1905, there was a recurrence, the size of a hen's egg, and a secondary nodule in the right axilla which were excised. February, 1906 (five months later), there was a large recurrence encircling the shoulder and an intra-scapulothoracic amputation of the arm was advised. He passed from hospital to hospital, but refused to have the arm amputated.

The patient was first seen by Professor Babcock, October 20, 1906. At this time there was a large growth covering the right scapula, extending into the axilla an-

teriorly, involving the right infraclavicular region. It was about one and one half times the size of the man's head.

He was given injections of Doyen's serum, trypsin, and methylene blue. The growth progressively enlarged. An area of ulceration, at first the size of a silver dollar, increased in size, and profuse hemorrhages occurred which were controlled by compresses of oil of turpentine. Intravenous injections of homologous blood were given twice with no apparent effect.

Röntgen ray treatment was begun on November 19, 1906. He was treated six times a week for two months, each exposure lasting from twenty to thirty minutes. To reduce the factor of the decomposing growth, to aid in restraining the growth, and to increase the fluorescence, applications and injections of strong solutions of methylene blue were employed. Despite these measures, the area of ulceration and necrosis progressively increased, the patient became progressively weaker, paler and more cachectic.

Two months of daily Röntgen ray treatment had caused a marked degeneration in the growth and it was felt that he would die within two or three weeks, not so much from the tumor itself as from the sapræmia which its necrosis had engendered.

Dr. Babcock therefore removed, with his fingers, the greater portion of this mass within the capsule. The capsules were split, one by one, and the contents shelled out by hand. The operation required about ten minutes. Nearly eleven pounds of degenerate tumor were removed. Within three or four days he was able to come for treatment again.

He was again treated six times a week for seven weeks, then three times a week. The wound, which was kept continuously coated with methylene blue, rapidly healed. The patient gained twenty pounds in weight, lost all cachexia, and had the appearance of good health.

Certain nodules in the axilla, which had been rather neglected during the Röntgen ray treatment, enlarged and were repeatedly enucleated. Finally, there was a recurrence posteriorly, the patient became rapidly septic, and died July 15, 1907.

The points of special interest in this case are: 1, A rapid and extensive recurrence after two operations; 2, a continuance of the growth under injection of Doyen's serum, trypsin, methylene blue, and homologous blood; 3, a degeneration of the growth and sapræmia after two months of active Röntgen ray treatment, which led the surgeon to enucleate the growth; 4, a neglected portion of the tumor developed rapidly and killed the patient, showing the importance of attacking the tumor from all sides.

CASE VII.—Mrs. M. M., aged sixty, referred by Professor Rodman on April 26, 1904. In 1897 a tumor developed beneath the right ear, which was removed a year later. It was found to be a round celled sarcoma. It recurred and was again excised in nine months. A third operation was performed in 1900, and a fourth in 1902. A recurrence developed which was one and three eighths inches in diameter. Dr. Wm. J. Morton gave her some treatment early in 1904. I gave her, between April 26 and July 19, 1904, thirty-nine treatments. The growth diminished in size and appeared to be a mass of fibrous tissue. Since this date she has reported at intervals for examination, but there has been no apparent change in the mass since July 19, 1904, which is now three years, and she appears to be in perfect health.

CASE VIII.—Miss L. B., aged eighteen, was referred to me by Dr. M. P. Warruth on March 5, 1900. She had bruised the upper portion of the left leg ten months previously and upon this area a painful tumor developed. On February 20, 1900, a Roentgenological examination showed the upper 9 centimetres of the fibula swollen to a diameter of 4 centimetres, or three times the diameter of the normal shaft of the bone. This diseased portion apparently contained no bone salts. It showed no medullary cavity, but in its upper portion contained an oval cavity about 1.5 by 1 centimetre. Otherwise the tumor was uniform in consistency and showed only slightly more density than muscle. Diagnosis of osteosarcoma was made. A section was removed for microscopic examination and it was found to be a round celled sarcoma.

Amputation at middle of thigh was advised, but was re-

fused. Röntgen ray treatment was then advised and begun March 5, 1906. She was treated six times a week for six weeks, then three times a week. In all, she was given forty-seven treatments in three months. She has not been treated for fifteen months and is still apparently well.

A series of Roentgenographs were made on February 20, April 7, and May 3, 1906, and a fourth on August 8, 1907. (Figs. 5, 6, 7, and 8.) These show a progressive increase in the amount of lime salts and a reduction in the size of the tumor. The fourth one, which was made fifteen months after cessation of treatment, shows apparently as much lime salts as is found in the normal bone. The surface is, however, uneven or slightly nodular, and the bone shows a number of small, long cavities, probably taking the place of the medullary cavity. During the past year she has

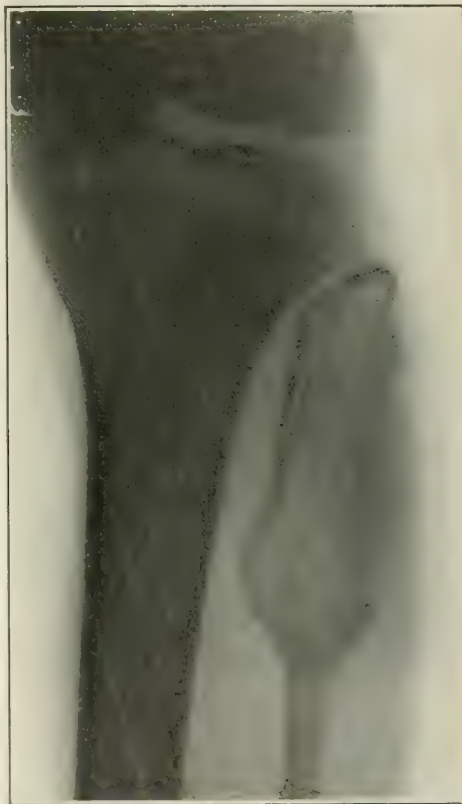


FIG. 6. CASE VIII.—Roentgenograph of the upper portion of the left leg, taken on February 20, 1900.

duced more than half its size in six weeks, and is at least symmetrically reduced to 30 per cent. It is still twice the thickness of the normal bone.

The points in this case are: 1, The Roentgenological and microscopic diagnosis; 2, the recovery after three months treatment; 3, it is probably the first case that has been observed Roentgenologically during the process of recovery from an osteosarcoma; 4, the bone tumor was only reduced to two thirds of its original size.

CASE IX.—Mr. F. B., aged fifteen, was referred by Professor Rodman, October 20, 1900, who had operated upon the patient two years previously for an osteosarcoma of

the upper jaw. A recurrence had developed five months previously; this involved the entire right anterior surface of the superior maxilla. The patient received sixty treatments in eight months. There was slight reduction in the size of the tumor. He is still living and well, four years after treatment.

CASE X.—Mr. M. L. M., aged forty-six, was referred by Professor Laplace, August 17, 1905. He had his left leg amputated on account of osteosarcoma in December, 1897; a finger and a tumor had been resected from the left hand. When he was referred for Röntgen ray treatment the entire hand, not including the fingers, was involved with osteosarcoma. He was treated six months. There was a retardation in the growth, otherwise no apparent change. He then became discouraged, and insisted upon having his hand amputated, which was done. He remained well since.

CASE XI.—Dr. X., aged thirty-two, was referred by Professor Babcock on November 11, 1905. During April, 1905, he injured his right testicle. In May he was operated upon for what appeared to be a hæmatocoele, and microscopical examination seemed to indicate that it was benign. On July 20th a recurrence was noticed. On September 2, 1905, the right testicle, right spermatic cord, and the right inguinal glands were removed. Section showed it to be a round celled sarcoma.

Röntgen ray treatment was begun on November 11, 1905, when the patient had two tumors in the left groin about the size of a hen's egg. He had severe pains in the lumbar region and involvement of the retroperitoneal glands was suspected. He was treated daily at first, and then at longer intervals. On March 14, 1906, he appeared to be well. The tumors had been reduced to small fibrous masses. He returned to active practice. His general health was good, and he had gained twenty-five pounds in weight. He then took up the special study of Röntgenology and during the past year has been treating himself at intervals.

He had had several attacks of erysipelas before Röntgen treatment, but the tumors in the groin continued to grow. He also had several attacks both during the treatment and during the intervals. These seemed to affect his general health unfavorably, but produced no apparent effect upon the tumors. September 27, 1906, or about eighteen months after apparent recovery, he had a recurrence in the left groin. This was again reduced to a small fibrous mass in about two months. March 28, 1907, he returned with a fluctuating mass in the left groin. The capsule was opened by Professor Babcock and the contents eviscerated. The contents were found to be sarcomatous. July 27, 1907, when I last examined him, the sinus resulting from the operation had nearly healed, the surrounding tissue appeared to be healthy, and his general health was good, enabling him to do the most active work; November, 1907, he is apparently well.

One of the attacks of erysipelas seemed to be aborted by an injection of Doyen's serum. He had injections of Doyen's serum several times during the course of treatment, but they produced no noticeable effect.

The special features about this case are: 1, The metastasis to the left groin after the second operation; 2, the disappearance of these metastases in about four months under Röntgen ray treatment; 3, a recurrence in about eighteen months which again disappeared in about two months; 4, another recurrence in about six months, which was incised, eviscerated, and then treated by means of the rays with apparent success; 5, the repeated attacks of erysipelas which occurred before, during, and after the Röntgen ray treatment produced no apparent effect upon the disease.

CASE XII.—A. F. H., aged four months, was referred by Professor Fox, March 19, 1907. When the child was seven weeks old a tumor began to develop in the right lower eye. This continued to grow and was removed, February 27, 1907. The pathological report by Dr. Henry S. Wieder states that: "Specimen consisting of several small irregular pieces of tissue about the size of a small pea. Microscopically, it consists of dense masses of comparatively small, spindle, and round cells with rather deeply stained nuclei and only a very moderate amount of pro-

plasm. There is no intercellular connective tissue. It is not encapsulated and in areas the growth is quite vascular. Diagnosis, irregular celled sarcoma."

Within two weeks there was a recurrence which was nearly the size of the original tumor. Treatment was begun March 10th, and at first sésées were given daily, then at longer intervals. Forty-two treatments were given between March 3 and July 31, 1907. The growth has completely disappeared and the child seems to be quite well.

The points of special interest are: 1, The youthful age at which the tumor developed as is emphasized in a paper by Dr. Wieder (*New York Medical Journal*, November 23, 1907); 2, the rapid recurrence after operation; 3, the disappearance under Röntgen ray treatment; 4, the absence of any damage to the skin or eye.

CASE XIII.—L. G., aged eight, was referred by Professor Babcock, May 7, 1907. She received a blow upon the left side of the jaw six weeks previously. A tumor developed upon this point and was removed by Professor Babcock one week previous to treatment. The bone was found to be involved and was curetted, but no resection was done. Thirty-five treatments were given between May 7 and July 19, 1907, when the wound was healed and the swelling had disappeared, the face was entirely symmetrical and patient was apparently well. Not even the scar is noticeable, it having been placed under the jaw. The microscopical examination showed it to be a round celled sarcoma.

This case is of interest because 1, the sarcoma developed promptly upon the seat of injury; 2, no radical operation was done, the tumor mass being removed as far as possible from within the capsule, with the least possible damage to the surrounding tissue; 3, the treatment was completed by a course of Röntgen rays treatment with a perfect result surgically. She is still well five months after the operation and four months after the cessation of Röntgen ray treatment.

CASE XIV.—Mrs. S. H. C., aged sixty-nine, was referred by Professor Babcock on March 26, 1907. Ten years ago a tumor was removed from the right tendo achillis by the family physician. Two years later it recurred at the same place and grew to 5 centimetres in diameter, and was removed. Two and a half years after this, Professor Babcock removed a tumor from the same site and another 7 centimetres in diameter from the calf of the leg. It was found to be a melanotic sarcoma. Ten weeks after the operation she was sent for Röntgen ray treatment. The wound was somewhat indurated and within two weeks two small nodules developed. She was given thirty-three treatments in four months. The induration and the nodules disappeared and she appears to be well.

CASE XV.—Miss S. G., aged fifty-six, was referred by Dr. Mary Griscom on February 2, 1906. A large black mole had been present upon the right shoulder blade all her life. A tumor about 4 centimetres in diameter developed within a few months upon the left shoulder blade. Both were excised by Dr. Griscom and were found to be melanotic sarcoma, the cells infiltrating deep into the muscle. Three weeks after the operation, when she came to me, there was a vegetating protuberance from each wound, and the surrounding tissue was indurated. She received sixteen treatments between February 2 and April 30, 1906, when she appeared to be well. She is still well, nineteen months after treatment.

The interesting features about this case are: 1, The generally recognized malignant tendency of melanotic sarcomata and the likelihood of metastases; 2, the development of metastasis before operation or treatment; 3, the probable recurrence immediately after operation; 4, the recovery under the combined operative and Röntgen ray treatment and no recurrence in nineteen months.

CASE XVI.—Dr. H., aged fifty-four, was referred by Professor Babcock, May 17, 1907. Dr. Steele removed a large melanotic sarcoma from the submaxillary region eight

days previously, no attempt being made to do a radical operation. He was given postoperative treatment thirteen times until May 31, 1907. He is still well, November, 1907.

CASE XVII.—Miss E. P., aged twenty, was referred by Professor Laplace on October 11, 1904. She had a sarcoma of the right shoulder of three years' duration, which was growing rapidly and which was twice the size of the left shoulder. It had been incised by the family physician for an abscess and grew rapidly after this. She was given forty-seven treatments in ten weeks. At first the growth seemed to be retarded, then increased. The rays were discontinued and Coley's toxins were used, but she died in a short time.

CASE XVIII.—Mrs. L. W., aged forty-four, was referred by Professor Fox on May 18, 1906. When a child, she injured the left eye at the inner side of the corneoscleral margin. Later at this point a little black spot developed, but only increased in size during the previous year. At the time of beginning treatment there was a vascular growth involving the inner third of the iris and projecting into the anterior chamber of the eye. The clinical diagnosis by Professor Fox was sarcoma. She was given seventy-seven treatments between May 18 and November 28, 1906. Time, fifteen minutes; distance, 25 centimetres; quality of rays, Benoist No. 6, and 1 milliamperé of current going through the tube. There was some reduction in size and no injury to the eye. There has been no increase in nine months after cessation of the treatment. The case will be reported in detail later by Professor Fox.

CASE XIX.—Mr. J. P., aged sixty-two, was referred by Professor Fox on December 13, 1905. He had an operation two years previously for the removal of tumors at the angle of the right side of the jaw. There was a recurrence within a year, and protrusion of the right eye ball. There were several tumors at the angle of the jaw varying in size from 1 to 4 centimetres in diameter. The clinical diagnosis was recurrent and metastatic sarcoma, and operation was inadvisable. He was given twelve treatments in two weeks. He had relief from pain after the third treatment. He then left the city, but continued to improve. He returned to the hospital in the fall of 1906, and had the tumors removed from the right side of the neck. He died from a hemorrhage at the site of the wound a short time later.

CASE XX.—Mr. W. B., aged sixty-eight, was referred by Professor Fox on September 9, 1905. He had injured his right eye nine years previously, and a year later his sight began to fail. His eye was removed nine months previously; diagnosis, sarcoma. When I first saw him, his orbit was filled with recurrent nodules. After two treatments he slept the whole night without opiates. He had had severe pain previously. He was given forty-eight treatments in three months. There was some improvement, but the patient was discouraged and discontinued.

CASE XXI.—Mr. J. P., aged thirty-seven, was referred by Dr. Harry Deaver. He had had a large sarcoma removed from the right supraclavicular region two years previously. There was a recurrence which extended from the ear to the axillary process, and filled the entire supraclavicular region with signs of involvement of the mediastinum. No one expected any improvement. He was given seventy-seven treatments between January 25 and April 24, 1906, then symptoms of toxæmia developed and he died in a short time.

CASE XXII.—Mr. R. T., aged seventeen, referred by Professor Laplace, March 7, 1904. A year previously, a small papule developed upon the right cheek, which grew inward, and after four months it interfered with the action of the teeth. He was then operated upon during June, 1903, by Professor Laplace. Three weeks later the growth was continued. February 15, 1904, Professor Laplace ligated the external carotid, but the tumor continued to grow and involved the entire cheek and was about the size of a fist. Between March 7 and October 31, 1904, sixty-one treatments were given. There was some reduction in size, but the results were not entirely satisfactory, so Professor Laplace ligated the common carotid artery. After this there were sixteen treatments given. The disease has remained stationary since this time, nearly three years.

In addition to these cases, I have had twenty-two other cases under treatment. Some of these will be reported later. In some, the notes are incomplete,

and others were under observation too short a time to be of value. The family history, previous history, and many of the symptoms were omitted on account of the length of the paper.

Technique.

The technique of Röntgen ray therapy is difficult to describe because we have no accurate means of measuring the dosage. This is particularly true in the treatment of deep seated conditions, where not only the danger of a dermatitis is to be considered but the danger of a toxæmia which may be produced. For this reason much will depend upon the experience and skill of the Röntgenologist, not only in the application of the rays, but also in the close study of the constitutional condition of the patient.

In general we have four fairly definite factors to



FIG. 7.—Case VIII. After treatment with Röntgen rays, showing decrease in the size of tumor.

consider, which will enable one to treat a dose and usually produce like results.

1. Distance of the anode from the skin. This will vary with the depth of the tissue involved. In the treatment of deep seated tumors, this should be about 30 centimetres.

2. Time and direction. This, too, will vary, but in general should be from ten to thirty minutes. Most of my patients received twenty minutes at each exposure. This should not be given in one place but should be divided between two points, and in the course of treatment the tumor should be treated from every direction if possible. The neglect of this point is the cause of many failures, as in the Case VI. If the treatment is given from all directions, there will likely be produced a fibrous capsule which will encase the malignant cells that are not destroyed, and all of the cells are more likely to be

destroyed. In addition to these advantages, there is less likelihood of a dermatitis.

3. Vacuum, or the quality of the rays. So far we are only able to estimate the penetrating quality of the rays. This is best done by means of a Benoist or Walter scale. The rays measure by the Benoist scale, No. 6 to 8, will likely give the best results, except where a superficial lesion is dealt with when a lower number should be used. An old high vacuum tube will usually give the best results in the treatment of sarcoma.

4. Amount of current passing through the tube. The statement of the amount of current passing

placed between the tube and the skin of the patient. Further protection is given by varying the direction of the rays and thereby the point of entrance of the rays. Likewise, the greater the distance of the tube from the skin, and the higher the vacuum, the less is the likelihood of a dermatitis.

Metastasis.

The statement, sometimes made, that the Röntgen rays cause metastases, seems to me to be without foundation, and certainly has not been observed in any of my cases. It is generally known that the rays cause a destruction of glandular cells and malignant cells first, and that the connective tissue cells are the last to be destroyed. It is also known that they stimulate the formation of fibrous tissue. Therefore, since the rays cause a destruction of the malignant cells and stimulate the connective tissue cells in the formation of fibrous tissue, it is not reasonable to suppose that the rays will destroy the capsule and liberate the malignant cells. On the contrary, reasoning upon the knowledge of the general action of the rays, we would have every reason to expect the malignant cells to be lowered in vitality and the capsule strengthened and thereby prevent metastasis.

In the ordinary course of malignant disease, metastases do occur and it is difficult to conclude that any particular agent causes the metastases; but so far as I can find, the cases in which metastases were supposed to follow the action of the rays, operations had been previously performed, or sections removed for microscopical examination; and since such operations open lymph and blood channels, it is more reasonable to suppose that operations caused the metastases.

Antioperative Treatment.

Considerable time will have to pass before we can form definite conclusions upon this subject. It is definitely known that the rays will cause an increase in the amount of fibrous tissue in the area exposed. It is, therefore, reasonable to suppose that the rays will increase the encapsulation of the tumor cells. We also know that the rays when used for a considerable time cause an obliteration of the lymphatic channels, which gives another reason for their use. Finally, they do destroy the malignant cells before they destroy the healthy tissue cells. Therefore, we have three good reasons for their use before the operation.

So far, we have only theory in the antioperative treatment of sarcoma. A review of the reports will show that all, or practically all, cases were inoperable or recurrent, in which instances the antioperative treatment could not be fairly tested.

Postoperative Treatment.

The value of postoperative Röntgen ray treatment is being more and more recognized. I believe that it is especially valuable in the treatment of sarcoma, because of the tendency to rapid recurrence, and because any remaining cells are likely to be destroyed or encapsulated.

It is especially desirable when combined with "supcapsular enucleation" as strongly recommended by Professor Babcock. He recommends a simple enucleation for benignant myelomata or giant celled



FIG. 8. Case VIII, fourteen months after treatment, showing complete recanalization of the tumor area.

through the primary of a coil is of no value in estimating the dosage. At least it is of no value in describing technique to others. The measurement of the amount of current passing through the tube, by means of a milliamperemeter, is, however, of decided value. Measured by this means, I usually use one milliampere. I find it difficult to use a greater current and keep the vacuum uniform.

Protection of the Skin.

The skin can in great part be protected by means of the filter to which I have previously referred. This consists primarily of a piece of sole leather

sarcomata, and excision or resection of the diseased area in the sarcomata of long bones. His objections to the major operations for sarcomata are 1, the immediate mortality; 2, the mutilation, incapacity, and mental anxiety produced; 3, the fact that the most extensive operation yet devised gives no assurance against future disease, recurrence being the rule and persistent cure the exception; 4, the operative trauma seems often to determine the point of recidivism.

Conclusions.

1. Röntgen ray treatment of sarcoma has in the past been confined to inoperable and rapidly recurrent sarcomata. In other words, it has been practically confined to the treatment of hopeless cases, and therefore the results obtained are marvelous.

2. It can be recommended in all inoperable cases, but the more extensive the disease, the less likely are we to obtain a complete recovery.

3. In operable cases, the rays should be used before and after operation. In each case, there should be a consultation between the surgeon and the Röntgenologist.

4. The freedom from recurrence is surely greater than that obtained from any other form of treatment in the same class of hopeless cases. Some of these cases have remained well from three to four years after cessation of treatment.

5. Finally, much will depend upon careful technique, and skillful application of the rays.

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1400 SPRUCE STREET

PROTEID INCAPACITY IN INFANTS AND CHILDREN.*

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In the earlier days of scientific infant feeding it was a widely accepted belief that proteid was a definite substance for which infants showed differing degrees of capacity, and that the solution of the problem of proteid incapacity, as its greater or lesser intolerance was called, consisted in a mere increase or decrease of the percentage of proteids in a milk mixture. But this belief has been found to be erroneous, and it is doubtful whether it was rigidly applied in practice even by its most ardent advocates (1).

When it came to be recognized that the addition of certain fixed quantities of lime water, sodium bicarbonate, or other alkalis to milk mixtures, no matter what percentage of proteid or whole milk

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they contained, had the effect of radically changing the character of the proteids of the milk, it was easy to see that in practice the form and properties of the proteids were changed, as well as the quantity, when formulas were altered. A number of forms of proteid are used successfully in infant feeding, and no pediatrician in practice confines himself to any one form.

The day has gone by when it can be said that an infant has proteid incapacity merely because it does not tolerate whole milk or diluted cows' milk. If lime water, sodium bicarbonate, potassium carbonate, sodium citrate, gruels—plain or dextrinized—whey, or acids, as in buttermilk, are used to alter the character of the proteids of the food, and the infant can then utilize them, surely it is incorrect to say that the infant has shown proteid incapacity. How many times it happens that when the character of the proteids is changed, infants not doing well have commenced to thrive. These infants really had incapacity for certain *forms* of proteid, but showed great capacity for other forms. Infants cannot thrive without proteids, and if they have real proteid incapacity they will soon die of inanition or manage to merely exist until some infection carries them off. Both of these conditions are exemplified in cases of marasmus. Therefore, the use of the term proteid incapacity should be restricted to those cases where no form of proteid is long tolerated, and the term proteid idiosyncrasy applied to those where one form is tolerated when another is not. The cases of so called proteid incapacity, which are treated successfully, are really those of proteid idiosyncrasy, caused possibly by impaired digestive organs or by conditions we do not understand, but which undeniably exist.

It is a cardinal principle of biology that no two animals or plants are exactly alike, and it might as well be recognized that wide differences exist in perfectly normal infants. It is obviously impossible to determine just what these differences are, but we can take advantage of what has been learned of the differences that exist in the individual species of lower animals. For instance, many experiments have been made to ascertain the quantity of food necessary for the growth of animals from birth to maturity; the period of growth when flesh is formed to best advantage and the effect of feeding different combinations of fat, proteid, and carbohydrate at different stages of growth. The production of meats for market is based on such experiments, and so well has the problem been worked out in certain lines that it is the practice to figure out from the market prices of corn and pork whether it is more profitable to sell corn by the bushel or to turn it into pork and sell it as flesh. Meat producing animals are looked upon as machines for turning farm produce into flesh, but there are wonderful differences in individual animals in the economy with which they produce meat. Careful experiments have shown that some animals consume twice as much food as others to produce the same amount of flesh (2). The same conditions are found in the dairy industry. One cow has been known to produce one hundred pounds of milk from food costing 21.3 cents, and a pound of butter from food costing 4.4 cents during a test period

of seven days; while another cow of the same age, under the same conditions, consumed food costing 38.2 cents in producing one hundred pounds of milk, and food costing 9.6 cents in producing one pound of butter (4). Certainly no more striking examples of the differences in animals in their ability to assimilate food will be needed to set infant feeders to thinking that no fixed quantities of any of the food elements are necessarily suited to infants in producing certain results.

In some experiments on calves it was determined that the quantity of food necessary to produce a given gain increased with the age. In calves under three weeks one pound of dry matter in the food caused a gain of one pound in live weight; during a period of ninety days, from one week after birth, it required 1.97 pounds of dry matter in the food consumed to produce one pound gain in live weight; during the first eight months it took 4.6 pounds to make a gain of one pound; for the first seventeen months it required 5.97 pounds, and for twenty-four months it took 7.19 pounds to produce a pound of live weight. During the last four of the twenty-four months it took 9.02 pounds of dry matter in the food to make a gain of one pound live weight (3).

Scientific animal raisers have learned that certain conformations of figure indicate good economical flesh or milk producing animals and select their stock accordingly, but in infant feeding the physician cannot reject the poor feeders; he must take all kinds and should be prepared to meet cases where large and apparently sufficient quantities of food do not produce correspondingly large gains. It is not a safe conclusion that because a certain percentage of proteids produces satisfactory results in many infants of a certain age, that this percentage can always be accepted as a safe standard. Other infants may not be able to assimilate more than half of the proteids, although they may digest them well. Thus we may meet cases of good proteid digestion with marked incapacity for proteid assimilation, as is often seen in adults. We may also see cases where digestion of proteids is poor, but assimilation good. It is possible that of two infants of the same age, one on a small percentage of proteids may make better gains than the other on a high percentage, no digestive disturbance being present in either.

It should always be borne in mind that proteid does not mean a simple substance, as does fat or carbohydrate, but a series of highly complex bodies which differ in form, taste, composition, and nutritive value. For instance, white of egg and milk albumin of whey, while proteid, could not be used as the sole supply of proteid. Some forms of proteid are combined with iron and phosphorus. A mixture containing 1.50 per cent. to 1.75 per cent. of proteids of cows' milk contains only one half as much organic iron as human milk of the same composition (5). Blood making calls for iron, and it is not surprising that oatmeal gruel gives such good results when employed in modifying milk when it is realized that its proteid contains a large amount of organic iron. Legume flour, which contains about 24 per cent. of proteid, has nearly twice as much iron as oat flour, and legume gruels have given

some very suggestive results where milk proteid alone did not succeed (6). Is it not possible that many of the poor results in infant feeding are due to the exclusive use of proteids deficient in iron and phosphorus? In adult feeding this is not likely to occur, because a greater variety of forms of proteid can be employed.

The foregoing is not to be construed as advocating freak feeding or random feeding. Too much of the so called scientific feeding has had these two failings. The natural food for young animals is a combination of nutritious fats, proteids, carbohydrates, mineral salts, and water, which when acted upon by pepsin and acid will change into a more or less solid condition, depending upon the type of stomach for which the food is supplied. The first step in selecting an artificial food is to provide some ingredient that will thus react with the pepsin and acid of the stomach. Cows' milk is the most available raw material for this purpose and consequently is chosen as the basis of the food. The object in infant feeding is to produce a well rounded child that shall have normal tissues and properly developed digestive organs. If the amount of proteids of cows' milk sufficient to nourish an infant properly cannot be digested, merely continuing the infant on a low percentage will result in anæmia or rachitis; thus in trying to avoid proteid incapacity, other conditions just as bad may be developed.

There are available for the purposes of nutrition many forms of proteid other than milk proteid, but they do not have the property of solidifying in the stomach and consequently can not be used alone for any great length of time, but by combining such proteids with milk the nutritive value of the food can be kept up and the disturbing element of the cows' milk reduced with safety. The cereals and legumes furnish such forms of proteid, which are used for cell formation in the embryonic plants.

Nothing about animal life is better established than the strong tendency for all living beings to adapt themselves to their surroundings and their food. There is an essential unity in the life processes of all animals, and the great differences in forms of animals are thought to be the result of long continued attempts at adaptation to different conditions and forms of food. By gradually changing the form of the food, the feeding habits of almost any species can be changed to a remarkable degree, so in adapting the various forms of proteids to the needs of infants and training infants to use them, a perfectly natural process is being employed, and the one by which Nature determines whether or not a species or individual is to live. Those species which have not been able to adapt themselves to new food supplies as conditions changed have become extinct, and so it is possible it might be with artificially fed infants.

If human milk could be prepared artificially the problem would be more simple, but it has not been made, and the more that is learned about the composition and properties of the milks of various animals, the wider apart human milk and modified cows' milk appear. On paper their differences seem slight when it is stated they contain certain percentages of proteids, or casein and lactalbumin, but when it is once grasped that all that has been actually determined on which to base these statements is

the amount of ammonia that can be produced from each milk it will not be difficult to see that our knowledge is far from exact and clear. Until a great deal more is learned about the specific properties and nutritive values of each form of proteid, it will not be safe to follow any narrow rules. The only safe plan is to follow the broad laws of Nature—present to the infant food materials known to contain good tissue builders in as nearly as possible the physical condition assumed by mother's milk in the stomach and leave it to the infant's power of adapting itself to new conditions to get the good out of the food. If this is done there will not be so many rachitic or anæmic children, so many difficult feeding cases, or so many instances of proteid incapacity, for the infants will get proper food early when their powers of assimilation are greatest, and by having a good start will be able to keep in good condition.

In conclusion it may be said that the class of cases which show actual proteid incapacity is made up of those who are permanently physically unfitted, and those who may be only temporarily unfitted, through digestive disturbance, for digesting proteids. Those in the first class will die. Many of the second class can be saved by mother's milk or by the use of very light fluid diet that remains fluid or soft in the stomach, until digestion becomes stronger. In some of these cases the use of vegetable proteid with milk proteid, especially vegetable proteid rich in iron (oat or legume), what I have termed mixed proteid feeding, may cause a general upbuilding, and improved digestion will follow.

Whenever there is difficulty with milk proteids in a fairly well nourished child, mixed proteid feeding, using high proteid gruels with the milks, should be tried, for there may be only proteid idiosyncrasy present. W. H. Jordan (7), who has had great scientific experience with the nutrition of various species of animals, particularly calls attention to the effect of catering to the idiosyncrasies of animals and states that the success of some feeders where others have failed is undoubtedly due to their taking into consideration this factor.

No attempt has been made to go into details of modifying and feeding, which have been treated elsewhere (8), the desire being to call attention to the underlying principles involved in the management of cases of proteid incapacity and idiosyncrasy, especially by the employment of mixed proteids.

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51 WEST FIFTH STREET

THE LITTLE KNOWN ATYPICAL (UNFERTILIZED) EGG OF *ASCARIS LUMBRICOIDES*.

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Published under the Imprimatur of the American Society of Tropical Medicine.

My attention was called to this egg in 1903, having found it so frequently in the stools of patients, either alone or associated with the eggs of various other parasites we have so constantly in this region. In 1904, myself and another member of my family had this egg constantly in our stools, repeated examinations on different days showing it, unassociated with any other egg. I determined to play the part of investigator and subject and dislodge the worm if possible, so I took a full dose of santonin in tablet form and found in the stool next morning—the tablets! Powdered santonin gave results in the shape of a nine inch worm that differed only from the classical female *Ascaris lumbricoides* in that it had a constricting band at the junction of the middle and the anterior third of the body, corresponding to the genital orifice. No other worm was passed, and the eggs ceased.

In 1906 I published (1) the report of six cases, the patients being Europeans who were under my

which you forwarded. The papillæ seem to agree essentially with the papillæ described for *Ascaris lumbricoides* in Europe. I do not, therefore, feel justified in concluding that your specimens represent a new species, but am inclined to agree with you that some of the eggs you have found are unfertilized."

The peculiarity of the unfertilized egg is that, when taken from the uterus, it appears as a finely granular, elliptical mass enclosed in a very delicate membrane. The typical or fertilized egg taken from the uterus has the same thick shell that is found when the egg is found in the fæces. In the fæces the appearance of the unfertilized egg is so different from that of the same egg taken from the uterus that one who has not studied the matter thoroughly would not suspect that he was examining the same egg; for, instead of finding the yolk finely granular, it is found to be coarsely globular in the fæcal specimen. The albuminous coating of the unfertilized egg is much less in volume than the coating of the typical egg, and projects from the shell somewhat like blunt saw teeth.

Wellman (2), of Africa, who has studied the egg, both as taken from the uterus and as found in the fæces, concludes that the bile in the fæces stains the envelope of the egg in such a way as to mask the yolk.

The unfertilized egg is considerably longer and somewhat narrower than the fertilized egg, and is generally markedly elliptical with a tendency to flatten at one or both ends under pressure. Occasionally it is oval in shape, but never round.

This egg has caused much speculation by different observers in many parts of the world. Fleet Surgeon Beyer wrote me from Manila (3) that the egg had puzzled him. Maxwell (4), of South China, has been working at a solution of it for some time, as has Jefferys, of Shanghai, who writes me that he has tried to incubate the egg, but without success. Booth (5), of Hankow, a recent student in the London School of Tropical Medicine, wrote me that he was working on this egg, so it would seem that it is not well known in that school. Until recently, I have been unable to find a reference to the egg in any book on parasitology or clinical diagnosis in the English language. Hume, of Changsha, recently called my attention to a volume, an American publication, I am glad to say (6), that gives a very good description, with cuts and measurements, of this unfertilized egg.

My observations were made independently, and I do not know who should have the credit of priority in the matter. The purpose of this article is not to make claims, but to advertise the fact that such an egg as I have tried to describe is the constant product of the female *Ascaris lumbricoides* that fails to get her eggs fertilized.

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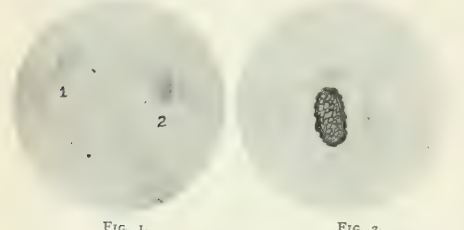


FIG. 1.

FIG. 2.

FIG. 1.—Photomicrograph of eggs of *Ascaris lumbricoides*; 1, fertilized egg; 2, unfertilized egg. X 100 (approximate).

FIG. 2.—Photomicrograph drawing of egg of *Ascaris lumbricoides*, unfertilized. X 500 (approximate).

care, the fæces of whom all showed this peculiar egg unassociated with any other form. In all these cases but one, a single female worm was passed, after which the eggs ceased. The exceptional case was one in which two females were expelled. From a study of these cases, I was led to believe that we were dealing with unfertilized eggs and not those of a new species, as others and I had first thought.

During this time I had been in correspondence with Dr. Stiles, of Washington, who kindly examined specimens of worms sent by me. After the receipt of a batch of thirty or more worms, the total output of a Chinese who had been passing both typical and atypical eggs, he wrote me under date of October 8, 1906: "I have found the same peculiar ascaris egg in a patient in Washington, and looking up the literature I came across an article in the *Centralblatt für Bakteriologie und Parasitenkunde* in which the author refers to the peculiarity of certain eggs, and came to the same conclusion which you have reached, that they are not fertilized. I have studied quite carefully the tails of the two males

RECURRING PLEURAL EMPYEMA.*

By JOHN H. PRYOR, M. D.,
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The term "recurring pleural empyema" is employed to describe a renewed involvement of the previously affected pleura, occurring at an indefinite time after recovery from the primary attack. The clinical history of a recent case is presented, because the affection is apparently extremely rare, the diagnosis is very difficult, and the symptoms most puzzling:

W. W., aged nineteen and one half years, while at Ithaca, N. Y., developed a lobar pneumonia of the right lung on March 13, 1904. The pneumonia apparently pursued an atypical course, and later an empyema of the right side was recognized. On April 26, 1904, a portion of the sixth rib in the axillary line was removed, and about two quarts of pus evacuated. Recovery was slow, and the drainage tube was not removed until September 5, 1904. The patient gained rapidly after the opening closed. He enjoyed robust health and actively engaged in college athletics until January, 1907, when he began to complain of lassitude, indigestion, and an irritating dry cough. During the month of January it was observed that the temperature rose daily to $99\frac{1}{2}^{\circ}$ or 100° F. There was little expectoration, and an examination for bacilli gave a negative result. Later, loss of flesh and an increase of the cough were noted, and the temperature exhibited the same diurnal rise.

On February 20th he came to my office with a request for a diagnosis. He complained mostly of the harassing cough and progressive weakness. The afternoon temperature was 101° F., the pulse 110, and the respiration 20 to the minute. There was surprisingly little retraction of the previously affected side. The comparative decrease in circumference being one-half of an inch. Examination of the chest revealed nothing abnormal in the left lung, and the physical signs elicited over the right side were those to be expected after an old empyema which occurred about three years before. There was marked dullness approaching flatness and feeble suppressed breath sounds except over a portion of the upper lobe. After careful examination I failed to find any evidence to account for the symptoms. Rest was advised, and any opinion withheld. After a week of absolute rest the slight fever continued and the cough became more persistent and annoying. An examination of the blood showed an increase of leucocytes to 7,500. An opinion was ventured that the patient was probably suffering from a localized empyema or an abscess of the lung. Later, the cough became so unbearable that anodynes were necessitated. The patient could control the cough at times by assuming a position on the left unaffected side, but constantly lying in one attitude grew distressing. The daily search for distinctive symptoms or reliable physical signs went on and proved futile. At the end of the third week he complained of slight pain and tenderness in the region of the old scar. The possibility of caries of the rib as a cause and the hope of locating a pocket of pus led to several unsuccessful punctures in that vicinity.

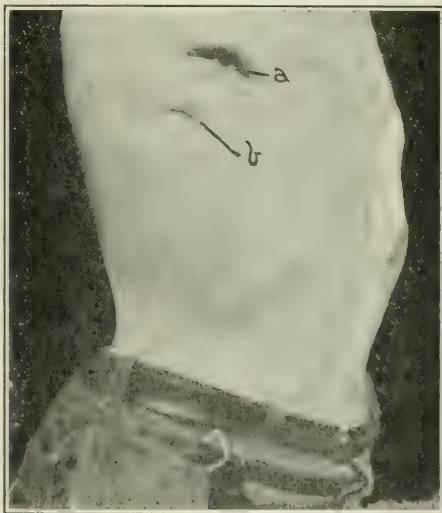
On March 20th fine crepitation below and anterior to the scar was observed. The patient, who had become very nervous and hyperæsthetic, was anesthetized and seven punctures with a long aspirating needle were made in the vicinity of the suspected region with negative result. The needle seemed to pass through about an inch of leathery tissue. Three days later he reported a sense of fullness and pressure near the sternum, and three more exploratory punctures were made with the usual disappointing result.

I then attempted to locate the seat of infection by means of a needle to drain and found that some distant cavity could be reached by the drainage through a layer of solidified pus. On March 27th two quarts of empyema were evacuated during the drainage of pus. The subsequent drainage resulted in an almost painless and free state of mind. For some days the amount of pus expectorated remained the same. The expectation that drainage would bring about a permanent cure was not realized.

The temperature rose to 102° F. each evening. The cough did not subside. The leucocytosis increased to 11,500 and the respiration to 34 per minute. Dr. Roswell Park was called in consultation, and we agreed in view of the obscurity of the condition to wait a few days more, provided no marked unfavorable change developed. There was still nothing to guide the surgeon in selecting a point of attack.

On April 4th fugitive coarse râles were discovered in the region of the scar posteriorly. Drainage was apparently incomplete, and symptoms of sepsis were more pronounced. Respiration 36 per minute, but somewhat due to shallow breathing from fear of cough. The leucocyte count was 13,000. A decision was reached to pursue a radical course and make a free exploratory opening if necessary. Dr. Park explained the danger which might accompany extended search and it was agreed that a number of exploratory punctures should be tried before deciding upon a place to invade the chest wall. A large needle was introduced six times and a location between the fourth and fifth ribs, between the nipple and the sternum, was selected for the final attempt. At last pus appeared in the barrel of the syringe.

A portion of the fifth rib was removed and about two



a Site of recent opening, April 4, 1907. b Site of location of primary empyema, April 26, 1904.

ounces of pus escaped. The pus sac was easily perceived. The upper portion was trabeculated to a remarkable degree and resembled a honey comb. The floor of the sac was formed by a thick, firm, fleshy band of adhesion extending from the old scar to the pulmonary pleura. The cavity was filled to about one-half of its capacity. The needle had entered not more than one-quarter of an inch above the lower boundary. The opening into the lung was in full view and the collection of pus was below the entrance. Dr. Park attempted to close this opening by stitches, but the pleural tissue was so thick and spongy that the sutures tore through and hemorrhage of a rather severe character resulted. The patient was then placed in the prone position and a large amount of pus was evacuated. Dr. Park attempted to close this opening by stitches, but the pleural tissue was so thick and spongy that the sutures tore through and hemorrhage of a rather severe character resulted. The patient was then placed in the prone position and a large amount of pus was evacuated. Dr. Park attempted to close this opening by stitches, but the pleural tissue was so thick and spongy that the sutures tore through and hemorrhage of a rather severe character resulted. The patient was then placed in the prone position and a large amount of pus was evacuated.

*Based on a report of the Buffalo Association of Medicine and Surgery, 1907.

I was called in the night and found hæmorrhage quite free. A rubber bandage was applied, and the bleeding controlled. Early in the morning I was obliged to remove the bandage because the patient complained bitterly of the restriction in breathing. The cough disappeared in a few hours after the operation, but the respiration became more rapid. For several days fine crepitation was present over both lower lobes posteriorly, and on the third day a septic pneumonia, probably due to aspiration, developed in the lower lobe of the left or unaffected lung. For ten days after operation the afternoon temperature was 102° or 103° F., pulse 120, and respiration 40 to 45. No evidence of renal disease was noted at any time.

Improvement began on the eleventh day and was very rapid. A gauze drain was used for two weeks, and then a drainage tube was introduced. It was necessary to push the tube upwards for a distance of three inches to obtain complete drainage. Later a solution of silver nitrate was injected to promote granulations, and finally salt solution and sodium nitrate, as recommended by Wright, was used. On May 25th patient had regained his usual weight and strength. The tube was removed September 30th, and October 10th the patient had fully recovered.

In the photograph the primary opening is shown between the sixth and seventh ribs, and the recent one between the fourth and fifth ribs nearer the sternum. Compensatory curvature of the spine is still not perceptible and the affected side of the chest measures one-half inch in circumference less than the left.

The following points of interest seem worthy of mention:

The fact that empyema may recur years after recovery has not received the attention it deserves. It seems to be a very rare affection. A careful search of the textbooks and literature of a medical character at my command failed to discover any reference to the subject. Dr. Park, who kindly offered to search the surgical literature, has notified me that he finds no mention of the subject in the textbooks. He found, however, that two cases had been reported—one by Ayer, in the *Boston Medical and Surgical Journal*, ccxvi, p. 547, 1892; and another of recurrence eight years after recovery, reported by West in the *Transactions of the Clinical Society of London*, xxviii, p. 304, 1894-5.

Secondary attacks are apt to assume the sacculated or localized form, on account of the pathological changes following a preceding general involvement of a large part of the pleura. The symptoms are confusing, and may be ascribed to tuberculosis. Some time may be required to form an opinion by exclusion. The persistent daily rise of temperature, particularly during rest, the continued absence of expectoration, the increased leucocytosis, and the harassing, dry cough, so often due to pleural irritation, were of value in making a diagnosis. It is probable that an abscess of the lung would have discharged into a bronchial tube at an earlier time. One would also expect that some predisposing disease of the lung would accompany or antedate an abscess, and the amount and progress of sepsis would probably be greater. The character of the cough and its subsidence by change of position were more indicative of pleural involvement. Naturally, the history of an antecedent empyema aroused a continued suspicion of renewed infection. The belief was strong that a focus of pus existed somewhere in the pleural cavity, but weeks were consumed in locating it, and it was finally discovered by chance. Numerous punctures had been made in the region where the site of the disease was thought to be, but it is probable no disease of the chest

more difficult to detect than a sacculated empyema, when a previous attack of a general character has destroyed or modified the normal physical signs. Pleural thickening, adhesions, and retraction of the lung may make the suspected part of the chest a sealed book. In this case when the thorax was opened the impossibility of determining the location of the pus sac by physical signs was only too apparent. The only sounds heard were fine crepitation and a few fugitive moist râles. They were audible some distance below the seat of the disease and were misleading, except that attention was directed to the axillary and anterior part of the chest wall.

Apparently in such conditions exploratory punctures must be employed more or less blindly, and the interlobar lines lose their significance as guides. A sterilized aspirating needle was introduced seventeen times during three weeks, and no detrimental effect was observed. If pus had not been discovered before operation it is difficult to prophesy what the mode and extent of procedure, and the result might have been. The pleural surfaces were not closely adherent, and as far as the finger would reach bands of adhesions and pockets could be felt. A number of openings might have been made in vain.

The essential points in treatment are, of course, largely surgical, but the very uncomfortable and perplexed physician must assume heavy responsibility in deciding how long to wait before the surgeon attacks in the dark. The patient can be closely watched, and radical interference invited before the results of sepsis are too far advanced. Time may be of more value in less obscure cases. Discharge through a bronchial tube may prove more efficient, or the site of entrance may be indicated more reliably by physical signs. It must be remembered that erosion or ulceration must be slow through a greatly thickened pleura, and a collection of pus may not reach an outlet or produce marked infection for considerable time when surrounded by dense walls from one half to one inch in thickness. Personally, I have learned to fear the shock the long drain and the danger of amyloid degeneration following extensive or multiple openings into the thorax.

As to the cause of recurring attacks of empyema I am only able to offer the conjecture that microbic life remained latent in a pocket formed in the process of healing and became active under unknown favorable conditions. So far as I can learn no bacteriological examination was made of the pus at the time of the primary attack, and thus the presence of the streptococcus on both occasions as a causative agent cannot be established. Whether the time of closure of the external opening has any relation to recurrence it is very difficult to say. The fact that years of health expire before a secondary manifestation seems to make the influence doubtful. We are apt to assume that any residual pus will be found at the lower boundary of the pleural cavity and below the site of drainage. In the case reported large bands of adhesions had formed above the old point of drainage and walled off the upper part of the cavity, honeycombed with numerous pockets. Postmortem examinations of old adhe-

sions following empyema frequently reveal this condition, and it seems rather remarkable that recurrent attacks are so rare. * Probably the report of one case will lead to the remembrance or discovery of others. Certainly the facts that a recurrence of empyema is a possibility at any time after recovery and that the diagnosis and management constitute one of the most perplexing problems associated with affections of the chest should be more fully considered in the literature devoted to pulmonary diseases.

26 LINWOOD AVENUE.

Discussion by Dr. Roswell Park.

This case of Dr. Pryor's presents very interesting as well as unusual features. Regarding its pathology, I am much inclined to regard it as an instance parallel to what one may see in the bones. I am very fond of mentioning the analogies which exist, so far as liability to septic and suppurative disease is concerned, between the lungs proper and the bones, or the pleura and the periosteum. One may see reproduced in one place practically all the lesions which occur in the other, and he has simply to accustom himself to the thought that bone differs essentially from lung in that it is, as it were, by accident or for a special purpose, calcified. We know how often bone abscesses subside and remain latent for a long time, even so long as twenty years, and then are excited into activity and develop, as it were, afresh. This particular case seems to me, then, to have features which strongly remind one of such instances.

Again, it illustrates the difficulties peculiar to the recognition of many cases of empyema. It does not often happen to me to see the recent and uncomplicated expressions of this disease, but I have seen many old cases where the difficulties of diagnosis have been very great and almost incomprehensible. It illustrates also the futility of depending upon the exploratory needle, and its uncertainties as an instrument of precision. This is in some measure due to the inadequate size of the needles ordinarily used—but also to thickness of the pleura, which is sometimes nearly an inch thick, the depth at which the pus may lie, and its own density, which prevent it flowing through any ordinary needle.

I think that the feature which led both Dr. Pryor and myself to select the old region for exploration was the fact that it had been so long under suspicion that it presented some local features, and that, on general principles, it was the most likely site for development of a subpleural abscess.

The condition, having once occurred, is not essentially different from a primary lesion of the same character, and of course calls for the same general measure, namely, free opening. The ideal operation in this case would have been a thoracoplasty sufficiently extensive to fully uncover the cavity and permit more speedy collapse of the chest wall and expansion of the lung, but this was made quite impossible by the collapse of the patient, and it required, therefore, the speediest possible work. I am sure it has been equally gratifying to him as well as to me that with an opening which seemed inadequate, although the largest we dared make at the time, there was such relatively rapid filling of the cavity and recovery of the patient.

On general principles this case would seem to me another illustration of the wisdom of more serious exploration when mere exploratory puncture has failed to reveal a lesion which clinical signs and clinical experience would indicate to exist. When one is morally certain of the existence of a collection of pus within the pleural cavity or in the lung I regard it as perfectly justifiable to remove a section of rib, if necessary, to open the pleural cavity, and in this way to make a complete exploration corresponding to such a case as may be made in the abdomen under similar circumstances. The presence of pus having been determined, subsequent procedures such as may be indicated are then to be promptly instituted.

Regarding the rarity of this condition, I cannot believe that it is so uncommon as a search through the *Index medicus* would indicate. I believe that there must be cases of this kind on record which are not revealed as such by the title under which they have been published, nevertheless, the fact remains that several pages of both series of the *Index medicus*, when carefully searched, failed to show more than two such titles.

PERIPHERAL SPINAL DEGENERATION REVEALED ONLY BY LONGITUDINAL SECTIONS OF THE CORD AND AN AXIS CYLINDER STAIN.

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(From the Department of Neurology and the Laboratory of Neuropathology in the University of Pennsylvania.)

This woman, aged forty, and married, had an illness of three weeks which began with inflammation of one joint, followed by inflammation and tenderness of another, the pain leaving one joint as it attacked the next. Her temperature ranged about 103° F, pulse 120, and as she grew steadily worse the pain became very intense, with joints swollen and red.

The patient had no disturbance of motor function or change in sensibility indicating involvement of her nervous system. Three days before her death she became delirious and had to be restrained; she said during the course of the delirium that she had been drinking prior to admission, but this dated two days before and could hardly be the cause of the delirium. The fact of her history of drinking suggests the possibility of a gonorrhoeal infection, though that does not necessarily follow. She developed complete suppression of urine after the delirium and remained in this condition until her end.

The notes taken at the autopsy are: "Pachymeningitis and leptomeningitis, and edema of the brain; acute nephritis in addition to chronic nephritis, fatty infiltration of liver, acute splenitis, subpericardial hæmorrhages, fatty degeneration of heart, subpleural hæmorrhages, with congestion and slight edema of lungs; chronic aortitis. Dura adherent throughout the cranium. Pia, whitish, especially over occipital and parietal lobes."

A microscopical examination of brain and cord showed a moderate degree of meningitis, especially of the cord. There were no cultures taken from meninges at the autopsy, so we are forced to judge from the clinical symptoms, which would seem to indicate a rheumatic or gonorrhoeal affection of the joints, the same ætiological factor extending into the spinal membranes. Microscopical sections in hæmatoxylin and eosin showed a meningitis about the entire periphery of the cord extending somewhat into the longitudinal fissures, but limited in amount in these parts. There was a moderately thick, peripheral, fibrinous accumulation, within which there were many round cells.

The interest of the case centres about the fact that there were no lesions within the cord demonstrable with the Weigert-Pal stain by cross section, but with the Bielschowsky stain for neurofibrils when the sections were cut longitudinally there was a band of degeneration and breaking up of axones about the entire periphery of the cord. Marchi stains showed nothing.

It is fair to assume from the normal condition of the nerve roots on examination that the cord condition was due to the meningitis; there was no infiltration of leucocytes in the degenerated area and the condition would seem to be a toxic change.

The nerve cells in the cord were markedly altered in all groups of cells in the anterior horn. There was no congestion of arterioles in the gray matter, and the changes noted in the cells were those of an acute change, that is, a fine granular breaking up of neurofibrils. There was, in addition, a deposit of yellowish pigment in the majority of the cells, due to the life of the patient having been a hard one and hence showing the results in a presenile condition of the cells in the cord.

The cells in the cortex, notably the Betz cells, were in some instances normal, and others were markedly degenerated. All showed a more or less accumulation of yellow pigment, and those degenerated showed an acute breaking up of neurofibrils. These changes were sufficient to cause the nerve cells to resemble the delirious, though it must also be taken into consideration that the changes might have been produced by the fever.

The effort to examine the intermediolateral column and the column of Clarke was without decisive results, as all the cells in the gray matter in the cord were changed in equal amount.

We have in this case a process of degeneration encircling the cord varying in depth and probably

occurring as a result of contiguous meningitis. The variation in depth showed the greater amount of degeneration in the region of Gowers's tract, and this is the region shown by Marie to be the place of anastomosis of the posterior and anterior vessels of the cord.

Marie advocated the opinion that system diseases of the cord were delineated by the anatomy of the circulation and were not necessarily neurone system diseases. The fact that, with a stain coloring axis cylinders, the greatest degeneration to an influence equally surrounding the cord was in the region of anastomosis, and that this is the region noted by Marie as the boundary of the degeneration found in posterior lateral sclerosis is worthy of notice, for it shows that either the anterior or posterior arteries being the seat of disease, the anastomosis would be barely sufficient to overbalance any deficiency in nutrition in the diseased portion and in toxic states of the cord that is the part most affected.

1728 CHESTNUT STREET.

ÆTIOLOGY AND TREATMENT OF THROMBOSIS,

*Based upon Studies of the Coagulation Time of Blood.**

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AND

G. MORTON ILLMAN, M. D.,

Philadelphia,

Lecturer on Clinical Medicine, Medical Department of the Temple College.

Thrombosis is a subject of no little importance to the general surgeon, gynecologist, obstetrician, internist, and ophthalmologist.

As a complication following operation, especially celiotomy, after delivery, and during the convalescent period of many infectious diseases, it is somewhat common. Anders says 1 per cent. of typhoid fever cases are complicated by thrombosis. Dodwell says 3 per cent. of all cases of tuberculosis are complicated by thrombosis. In pneumonia, despite the increased fibrinosis, it is rare. The percentage varies with different operators. It is said rarely to occur after even extensive operations on the perineum, vagina, cervix, or rectum, but it is far from being rare in laparotomies. In 1,140 sections Albanus noted thrombosis in 4.64 per cent.

Within the last decade much has been written concerning the prevalence of thrombosis, particularly following laparotomy, in typhoid, tuberculosis, influenza, appendicitis, and pneumonia. To the ætiology was paid by far the greatest attention.

Dr. J. G. Clark, writing of thrombosis following celiotomy, says it is not due to sepsis, because it usually occurs in clean cases, it develops late, it is not preceded by the temperature and pulse of sepsis, and does not have the high mortality which such a sepsis would have. He says it is caused by traumatism to the deep epigastric arteries.

In the first volume of Keen's *Surgery*, Frazier says thrombosis is the result of sepsis. Fowler's *Surgery*, published in 1906, gives the impression that Dr. Fowler thought many cases were caused by slow blood current in the veins.

*Read before the Philadelphia County Medical Society, at the meeting of October 20, 1909.

That low blood pressure and prolonged stay in bed are marked ætiological factors is held by Mayo, Murphy, and others. From recent publications of Riese, Boldt, Chanler, and Brothers, in which they advocate early mobilization and the getting of section cases out of bed within a few days to a week after operation as prophylactic treatment against thrombosis, we may infer that these authors lay stress upon sluggish heart action and retarded blood current as causes of thrombosis.

Krusen has noted a tendency to the formation of thrombi after operations in which much blood has been lost, also in cases of malignant disease accompanied by anemia and cachexia.

Cordier notes that 213 out of 232 cases of thrombophlebitis following abdominal and pelvic operations occurred in the left saphenous or femoral vein. Neither local sepsis nor injury can account for such a circumstance. Only some anatomical cause determines the location, and some general cause the condition of the blood which permits the thrombosis to form.

Retarded blood current meets these conditions, but we are not willing to believe that normal blood will clot in the vessels, even though it be greatly retarded. It is a well known fact among physiologists that a vessel filled with blood may be ligated above and below and excised, and the blood remain in a normal state of fluidity indefinitely. Have any experiments proved that a retarded blood current will produce thrombosis? If such was the case, surely the much talked of Bier treatment of *Stauungs Hyperämie* would prove a dangerous procedure.

In a series of more than 400 observations of blood coagulation made within the last year we found a decided predisposition to thrombosis in cases of anæmia, more especially secondary anæmia accompanying fibroids, carcinomas, ulcers, etc.; also in patients who had suffered loss of blood from operation or internal hæmorrhage, as hæmorrhage in typhoid. It was also noted in 120 cases of infectious diseases that the blood during the period of convalescence coagulated *twice* as quickly as during the active course of the disease.

These observations led us to the conclusion that thrombosis in typhoid and other infectious diseases and in surgical cases suffering loss of blood is due to increased coagulability of the blood. A series of healthy, plethoric individuals were next observed and the coagulation times of their blood taken. They were then bled from twelve to sixteen ounces and the coagulation times again taken. In each instance the time was decidedly shortened.

Why should the blood clot more quickly after hæmorrhage? Why does the blood clot at all? Because it contains fibrin ferment, calcium, and fibrinogen, and these elements produce clotting when brought in contact with the air or foreign bodies, is the usual answer. But blood may be received in a glass lined with paraffin, and if the technique is carefully carried out so that none of the body juices are mixed with the blood it will not clot. This can be done by exposing a vein and introducing a canula. Blood received from a prick wound is mixed with the juices of the injured tissues and will clot readily. The coagulation time will be even shorter if the blood is squeezed from the wound

and thus mixed with a larger proportion of tissue juices. We have been able to hasten the time of coagulation of blood, abnormally long in time, by adding a small amount of serum taken from a blis-

paper they reported seven cases of typhoid—three of them complicated by thrombosis—which were treated by the administration of citric acid. Briefly, the history of their cases is as follows:

Case I.—Typhoid and thrombosis.....	4th week,
Case II.—Typhoid and thrombosis.....	14th day, any
Case III.—Typhoid and thrombosis.....	35th " "
Case IV.—Typhoid.....	29th " "
Case V.—Typhoid.....	21st " "
Case VI.—Typhoid.....	14th " "
Case VII.—Typhoid.....	21st " "

coagulation, 1.45.....	citric acid, 5 days, coagulation, 7.5—
" 2.00.....	" 12 " " 15 "
" 1.30.....	" 11 " " 11 "
" 1.10.....	" 12 " " 20th "
" 3.15.....	" 11 " " 14th "
" 9.00.....	" 11 " " 20th "
" 9.30.....	" 11 " " 20th "

TABLE I.

ter produced for the purpose on one of us. For instance, in the case of a patient whose clotting time was eight minutes, when the tubes of Wright's coagulometer were simply moistened with the serum by drawing it into the tubes and immediately blowing out just before receiving the blood the time was reduced to almost three minutes.

It would seem that absorption of the body juices into the blood might account for the increased coagulation time of the blood. It is not difficult to imagine that this is just what occurs after a severe hæmorrhage. In the infectious diseases, the volume of blood is depleted by high fever, profuse sweating, diarrhoea, internal hæmorrhages, and here again the body juices are absorbed into the general circulation. Almost every delivery is accompanied by at least a slight loss of blood, often quite a decided loss. This is especially true of the primipara, where lacerations are more apt to occur.

Personal observation has led us to believe that the delivery of a primipara is more apt to be followed by thrombosis and phlebitis than that of a multipara. We have been unable to collect any statistics on this point, but several prominent obstetricians have given it as their opinion that such is the case. Operation not only provokes absorption of body juices by the hæmorrhage, but also by the preliminary preparation of the patient. Before operation the patient is purged and denied water and other liquids. This is most carefully carried out in celiotomies. Also, in abdominal sections, for days after the operation liquids are denied. Every writer on thrombosis mentions hysterectomy for fibroid uterus as an operation most frequently complicated by thrombosis. It is known that more or less blood is lost during such an operation, and that these patients usually are quite anæmic from prolonged and severe uterine hæmorrhages.

In all that has been written on thrombosis very little has been offered in the way of treatment, either preventative or active. From the literature we may infer that in abdominal sections we must exercise care not to injure the deep epigastric vessels, and in obstetrics to prevent sepsis, but in the infectious diseases almost no preventive treatment has been offered. Recently Boldt, Riese, and others have advocated early mobilization and the getting of celiotomies out of bed within a week as prophylactic treatment for thrombosis. Surgeons will surely adopt such measures very slowly, for it is not an uncommon event to have a laparotomy patient die suddenly from pulmonary embolism following removal from one bed to another, sitting up to eat the first meal, etc.

The first scientific effort to determine some form of treatment to prevent and cure thrombosis was carried out by Wright and Knapp. In their original

They were unable to show a corresponding diminution of calcium salts in the blood.

Now, with Wright and Knapp's report before us, and believing as we do that quick coagulation of blood is responsible for most cases of thrombosis, it has been our endeavor to administer drugs under observation, which drugs are known to prolong the coagulation time of blood *in vitro*.

If calcium salts are essential to coagulation, as stated by Arthus and Pages and most physiologists, then some drug which neutralizes the calcium should lengthen the clotting time. Experiments prove that the coagulation of blood can be greatly delayed by mixing it with ammonium oxalate, or fruit acids, the time of delay depending directly on the strength of the oxalate or acid used. Citric acid, the drug used by Wright and Knapp, is one of the drugs which will delay coagulation *in vitro*.

By measuring the calcium content of the blood, i. e., the amount of calcium salts in the blood used in clotting, we have endeavored to discover how much effect is produced on the calcium of the blood by the administration of decalcifying agents.

The coagulation time is determined by drawing the blood up into a series of glass tubes of small equal calibre, noting the time at which each tube is filled, keeping them at a known temperature, and again noting the time of blowing them out, blowing out in the same order, until one is reached that shows a coagulum when its contents are deposited on white filter paper. The calcium content is found by mixing the blood with solutions of ammonium oxalate of varying strengths and noting that strength of solution which just prevents coagulation for one hour. Thus our calcium content is expressed in terms of ammonium oxalate.

In each case a white blood count has been made. They were not affected, despite the usual statement that they play a part in coagulation—very likely by furnishing the fibrin ferment and fibrinoplastin. It is asserted that leucocytosis can be increased by drugs and coagulation thus hastened.

In performing any experiment it is essential to the success of the experiment to eliminate all unknown factors so far as possible. Citric acid has been used alone except for the necessary use of some purgative, always choosing some mild laxative which will not drain away the watery elements of the blood. So far as possible the diet has been manipulated to further our object, and since it is known that milk contains calcium salts and is said to increase coagulation it has been eliminated from our last series of cases.

In these twenty-four cases where decalcifying methods were employed we were able to confirm a former observation, viz., that a high calcium content does not always mean a quick coagulation time, and

per contra, a low calcium content does not imply a long coagulation time.

Because thrombosis is not an uncommon complication of typhoid we have selected most of our cases from the typhoid wards, choosing convalescent patients when the dangers of hemorrhage have been passed. In the following cases citric acid was given in drachm doses, *t. i. d.*:

Case	Diagnosis	Coagulation, min.	Citric acid, gr.	Days	Coagulation, min.	Remarks
I.	Plethora	2.15	citric acid	3 days	1.30	nose bleed
II.	Thrombosis	2.55	"	9	"	6.15
III.	Typhoid	2.30	"	4	"	3.00
IV.	"	3.39	"	4	"	1.15
V.	"	2.45	"	2	"	2.30
VI.	"	2.10	"	2	"	3.10
VII.	"	1.57	"	11	"	4.60
VIII.	"	4.00	"	10	"	4.00
IX.	"	3.45	"	2	"	1.00
X.	"	2.10	"	1	"	3.30
XI.	"	2.00	"	3	"	4.10
XII.	"	1.35	"	1	"	3.00
XIII.	"	2.30	"	7	"	2.40
XIV.	"	2.15	"	10	"	3.45
XV.	"	2.15	"	16	"	2.50
XVI.	"	1.50	"	14	"	3.00
XVII.	"	2.00	"	10	"	2.40
XVIII.	"	1.45	"	3	"	2.10
XIX.	"	1.30	"	3	"	2.35
XX.	"	2.05	"	23	"	2.45
XXI.	Pleurisy	2.10	"	3	"	2.20
XXII.	Auto-intoxication	1.20	"	12	"	3.00
XXIII.	Typhoid	1.30	"	6	"	2.20
XXIV.	Pulmonary tuberculosis	1.10	"	6	"	2.30

TABLE 2.

The coagulometer, with three exceptions, shows a lengthening of the clotting time, but not so marked as in the cases of Wright and Knapp. It is doubtful whether this rude instrument shows all the change produced by the administration of citric acid. Many of these cases were observed to bleed easily and freely. Some of them experienced spon-

In all medical or surgical conditions, where hemorrhage proves a factor, the coagulation of the blood should be carefully observed, and at the first indication of increased coagulability prompt prophylactic treatment should be instituted. Keep the bloodvessels well filled by encouraging such patients to drink freely of water, by hypodermoclysis

Case	III.—Calcium content	1-1600	4 days, citric acid	calcium content	1-1600
IV.	"	1-1600	4	"	1-1600
V.	"	1-1800	11	"	1-1800
VI.	"	1-3200	11	"	1-1600
VII.	"	1-1600	11	"	1-2000
VIII.	"	1-2000	19	"	1-2000
IX.	"	1-1800	2	"	1-2000
X.	"	1-3200	1	"	1-2400
XI.	"	1-1600	7	"	1-2800
XII.	"	1-1600	10	"	1-2000
XIII.	"	1-1600	10	"	1-2000
XIV.	"	1-1600	10	"	1-2000
XV.	"	1-1600	14	"	1-2000
XIX.	"	1-1600	23	"	1-1000

TABLE 3.

taneous nose bleed for the first time in many years. We certainly would advise against the use of citric acid before an operation.

In our efforts to prove that the citric acid was absorbed into the blood stream and the calcium salts neutralized we were not successful, as Table 3 shows.

and enteroclysis, and by the administration of citric acid in some palatable form.

For the privilege of using cases in their wards in the Samaritan Hospital we are indebted to Dr. Wolfe, Dr. Snively and Dr. Krusen, and to Dr. W. E. Robertson, of the Episcopal Hospital.

Case	III.—White blood corpuscles	10600	citric acid, 4 days	5800
IV.	"	8800	4	9800
V.	"	8400	11	7600
VI.	"	2400	2	6200
VII.	"	6000	2	12400
VIII.	"	5400	10	6600
IX.	"	5800	2	6000
X.	"	11000	1	10600
XI.	"	5200	1	8800
XII.	"	3400	7	5800
XIII.	"	1400	2	5000
XIV.	"	6200	10	5600
XV.	"	12000	10	11200
XVI.	"	5800	3	6000
XVII.	"	2800	3	10600
XVIII.	"	12000	23	10600
XIX.	"	7400	3	5600
XX.	"	9600	3	8400
XXI.	"	9000	3	8200

TABLE 4.

QUININE SULPHATE.

BY JAMES Y. SHEARER, A. M., M. D.,

Sinking Spring, Berks County, Pa.

This paper is not intended as a vituperation or criticism of anything heretofore said on the subject of quinine, but is based in its entirety upon bedside and clinical experience extending over a period of about forty years. Quinine in some of its phases I have used for at least forty-five years, while other uses I have evolved within the past few years. I wish further to state that from a standpoint of tabulation of facts, the use of blood pressure apparatus and of various other clinical contrivances, I have absolutely no information to give. But in conditions of disease, where I have used the drug, as I feel to the best advantage, in these cases I have carefully noted the results. I have also seen, and not passing by either, many cases in which this very drug, according to my belief, was wrongly administered, and hence the results very often were in direct opposition to the results desired, i. e., curing patients of disease. I have seen hæmorrhage, fever, delirium, etc., aggravated by the use of quinine, while with this very same drug I have accomplished directly the opposite by checking the hæmorrhage, lowering the temperature, relieving delirium, etc.

My subject, quinine sulphate, does not necessarily mean that the pure alkaloid properly administered, or any other salt base of the alkaloid, would not give like results as I shall enumerate, but my experience has been entirely directed to the use of quinine sulphate, hence that was in preference used.

I wish also to acknowledge a great deal of information on the subject from Dr. Samuel D. Gross, who often told me to study quinine, and from him I gleaned a few points which up to this time I have never seen stated in any textbook on therapeutics, practice, or in any current medical literature.

The symptoms of various conditions to which I may refer are abbreviated, and often omitted, also as much superfluous matter as possible, and on the whole, facts with which I feel that we are all familiar have been entirely disregarded in this paper.

The subject of quinine sulphate itself I wish to introduce by giving first the antidote, which I discovered twenty years ago to be large and not small doses of morphine sulphate. Let me cite a few of the toxic symptoms of quinine: (1) Dilatation of the pupil, with vision disturbed; (2) deafness and ringing in the ears; (3) power of locomotion partly lost, and (4) general depression of all faculties, especially mental, heaviness of the head, and drowsiness.

When these are apparent, as was the case repeatedly in my experience, I gave gr. $\frac{1}{2}$ morphine sulphate at bedtime, and repeated every day until all symptoms disappeared. Morphine in large doses contracts the pupil and dilates the arterioles, while quinine in large doses dilates the pupil and contracts the arterioles. Morphine sulphate has opposite actions in large and small doses; the large counteract quinine, while the small augment its toxicity.

In the administration of quinine sulphate I have always adhered to these rules, which have worked out to my thorough satisfaction.

Quinine sulphate may be given as (1) a tonic, (2) a stimulant, and (3) an antipyretic or depressant.

1. The tonic action of quinine is accomplished by from one half to one or two grains. The therapeutics of this dosage is simply that of tone to the whole human economy, no specific action on any one part or parts, but simply acting on the human system as a whole.

2. I firmly maintain that in doses of from three to five grains, every three or four hours, the action of quinine is distinctly that of a stimulant. In this administration of quinine you have a stimulating action upon the circulation, the heart, and the whole blood system, which stimulation is directed to the ganglia of the heart and vasomotor nervous system.

I might say in this connection that legion are the examples of my competing brethren in my own community who intensified febrile conditions by this administration of the drug, and upon my being called in to attend these patients, the third or antipyretic administration of quinine at once subdued every semblance of fever.

That quinine administered thus is a stimulant I further maintain for this reason: Should you find one of your patients bleeding severely, whether from post partum or other hæmorrhage, and you would give quinine in four or five grain doses, the result would unquestionably be, that hæmorrhage would be increased, while on the other hand, as you shall see later, by a different administration of the drug hæmorrhage can be checked. In my summary of cases I shall again refer to this feature of quinine with examples.

3. Reantipyretic or depressant action of quinine I regard as the most important by all odds. Dr. Samuel D. Gross, whose memory we all revere, once asked me the question: "Doctor, how much quinine must be given to attain its full therapeutic action?" I then replied that ten grains would suffice. So you see that we are not groping around in absolute darkness concerning quinine. Gross knew already how to give it. As an antipyretic, quinine sulphate should be given in from ten to forty grain doses. I have repeatedly given twenty, often thirty, and even forty grains in this use of the drug.

Therapeutically speaking, what is the therapeutic action of quinine in large doses? At this juncture I wish again to emphasize the fact, that my views are purely theoretical. Clinical material I have had in abundance; but the time to follow up, and the necessary paraphernalia to make blood pressure curves, charts, tracings, blood counts, and the like, have not been at my command, simply due to the fact that I could not possibly have used these had I had them.

Quinine in large doses acts on the vasomotor nervous system, and brings the whole circulation to a normal condition. I do not mean absolute equilibrium.

Here one might question the question, How does malarial fever? That question I would refer with another. What is a malarial fever? In speaking of malarial fever you will say, at times when the

specific organism *Plasmodium malariae* sporulates and doubtless produces a toxine, that this causes the chill. Then, on the other hand, how about the chill introducing pneumonia, and infinite other chills, when we have no *Plasmodium malariae*?

I believe that we have two distinct forms of chills—the nervous chill, and the chill due to an irregularity of the lumen in the vascular system. I further believe that the latter is more or less interlaced or dependent upon the former, and this condition I maintain is reached by the administration of quinine in large doses.

Take now the symptoms of fever—rise of temperature, tachycardia, headache, highly colored, scanty urine, etc. In summer we perspire freely, thus radiating our superfluous heat; in fever the heat is retained; but does not the blood go to the surface of the body for heat radiation? And do not all your patients complain of “burning up,” as they express it? If this is the case, as it undoubtedly is, the peripheral circulation must be overtaxed, and hence in a marked state of dilatation, which is well evidenced by your “hectic flush.” Also, must not the action of the heart be accelerated to accomplish this peripheral strain? Now, by giving quinine in large doses the blood is evenly distributed by direct action on the vascular walls themselves, bringing the circulation to an equilibrium, and thus, the normal being accomplished, all the symptoms of fever disappear.

Again, why does quinine not reduce temperature below the normal? My explanation is simply that when the circulation is equalized, quinine has spent its usefulness, and its power ceases as an antipyretic.

When quinine is administered in doses of ten grains and upwards, for the purpose of reducing fever, and that treatment is continued, by the time the temperature is reduced to normal, the arterioles will be closed, and in that condition, no matter how much quinine is given, the effect cannot change the condition of the arterioles, as they are rigidly fixed for a time, and therefore it cannot change or affect the blood circulation, as that is perfectly equalized, and it logically follows that it cannot further reduce the temperature.

In one section of my territory of practice, along one of the Schuylkill's tributaries, the prevalence of the various forms of malaria is very marked during the Summer and Fall of each year. It is in this region that my experience has been very extensive.

In treating these conditions I have experimented with all the recommended remedies, but have always had to resort to my old standard of quinine sulphate in good and lusty dosage. In the intermittent form I give ten to thirty grains on retiring, and ten grains in the morning; this is modified often in proportion to the severity of the condition, but never less than ten grains. During the day spirit of nitrous ether is given every three or four hours with water.

In the remittent form of malaria I at once give thirty or forty grains on retiring, repeat on the second day with from twenty to thirty grains, and so on, until, as I have observed, the remittent form is converted to the intermittent form, when the treatment already cited is applied.

Thus, from this rather brief outline of the possibilities to which quinine sulphate may be subjected, it is very apparent that there are, I think, a few points involved and elucidated that, at least, to my knowledge, have never been heretofore made the property of the profession generally.

I wish now to consume a little space in enumerating cases. I will dwell more on classes of conditions than on individual cases, since what is applicable to one specific condition will apply equally to that same condition if regarded as a class. Hence let us turn from what is purely theoretical to a more practical consideration of the subject at hand:

First—Let us consider pneumonia, which, as I have noticed in some of our publications, has been touched upon to some extent by one or two practitioners by applying quinine sulphate. My application of quinine sulphate in pneumonia dates back about forty years; I then applied it in exactly the same way as to-day and with precisely the same results as at present, viz.: Ten to thirty grains are given at noon, since the temperature curve rises so characteristically toward evening, and then this is followed with a large dose, thirty or forty grains, on retiring. By this means, I wish to emphasize the fact that repeatedly, though not invariably, I have forestalled the crisis, and convalescence at once followed this application of the drug. In those virulent and severe cases where the first application of this treatment fails, I repeat these drastic measures until I am successful, and it is a rarity that I have to wait the requisite nine or eleven days for the crisis to pass by lysis. These measures I institute at any stage of the disease, and the nearer the onset the more favorable the outlook.

Second—Take for example hæmaturia. In this condition I have repeatedly given from ten to forty grains of quinine sulphate at bedtime, depending upon the severity, and by a little careful manipulation cured this condition beyond any shadow of doubt. Hæmaturia is sometimes quoted as arising from or occurring in malarial fever. I want to state that beyond any question I have never noted such a state of affairs, except in the more or less neurasthenic, and then only when small doses of quinine sulphate had been previously administered. This was always relieved by the application of a large dose of the drug.

Third—I have seen where small doses of quinine sulphate, often repeated, had produced convulsions. And in every case, by the administration of the very same drug, only in thirty or forty grain doses, the condition was at once thwarted.

Fourth—In one case of which I have a record a woman had been bleeding profusely from some uterine cause, superinduced no doubt by the application of quinine sulphate in two grain doses for malarial fever accompanied by pregnancy of six months' duration. This case, too, I promptly relieved by forty grains of quinine sulphate, and further I remained at the bedside to see the outcome.

Hæmorrhages of whatever nature, post partum especially, and the like, I have checked repeatedly, simply by the administration of quinine sulphate in sufficient dosage to be of some consequence. The poor old threadbare ergot I shelved, in this connection at least, twenty-five years ago, and I have

been rigidly abiding by the results obtained from quinine sulphate, gr. xxx to xl. Quinine sulphate contracts the womb with absolute uniformity, but ergot causes irregular contractions, giving the womb an irregular, uneven surface. In the checking of a uterine hæmorrhage, quinine sulphate promotes involution so naturally that a woman will have no bad effects, such as are always present after giving ergot; besides, in many cases when the administration of ergot is withdrawn the hæmorrhage returns; however, a demonstration of this effect following a thirty or forty grain dose of quinine sulphate I would like to see.

Fifth—Let us now return to a surgical condition which is very amenable and kindly disposed to ten or twenty grains of quinine sulphate. I refer to gastric ulcer. My first case with this treatment proved beyond doubt was about forty years ago, when I was called in to see a woman vomiting blood, severe pain in the gastric region, etc., and ten and twenty grains of quinine sulphate every evening alternating cured her, and perfectly, within four months.

Sixth—Chronic diarrhoea has followed the same course; the most obstinate cases, some of years and years standing, yielded without even as much as a waver, and again quinine sulphate, ten and twenty grains alternating every evening for ten days, then ten grains every evening, then ten grains every other evening, for equal periods, and finally ten grains once or twice a week, then eat and drink what tasted best.

Seventh—In that dreaded and scourging disease syphilis I always add to the regular specific treatment quinine sulphate, the dosage depending upon the stage of the disease, thus: Primary stage, ten grains three times a week for two months, then twice a week for four months; secondary and tertiary stages, ten grains every evening for one month or six weeks, then twice a week for four months. In this way I alternate during the entire specific treatment, with quinine sulphate for six months and rest for an equal period intervening.

By this means I am able to overcome the depression of the vital forces and at the same time maintain equilibrium of the entire economy, both so readily and characteristically upset by the inroads of this disease.

CONTRIBUTION TO THE PATHOLOGY OF ICTERUS NEONATORUM

By A. GRANET, M. D.

New York.

Icterus neonatorum is a benign, idiopathic, self limited affection that appears on the second or third day after birth in from 30 to 80 per cent. of the new born.

It is characterized by a yellow discoloration of the skin that appears first on the face, then rapidly spreads over the whole tegument, mucosæ, and conjunctivæ.

Only very seldom is it associated with gastro-intestinal disturbance; this being limited to eructations, constipation, and occasional vomiting. The stools are not acholic, nor does the urine stain the

diapers with bile, facts which have left in doubt the hepatic origin of this jaundice, by obstruction of the bile ducts. Some authors, only after using special tests, assert to have detected biliary pigments in the urine, others have discovered yellow corpuscles similar to those found in bile.

Opinions have been divided as to the origin of this jaundice, whether it is hepatogenous or hæmatogenous. Autopsies have failed to reveal obstructions of the biliary ducts or any particular lesions of the liver; on the other side, hæmatological researches by such authorities as Quincke and Haven have shown a marked disintegration of maternal red corpuscles in the blood of the new born, that results in storing the iron chromatic substances in the liver. This fact induced some to ascribe the icterus to the direct or indirect dissolution of the blood pigment in the plasma, without giving, however, a satisfactory explanation.

We believe that both the liver and the disintegration of the maternal erythrocytes are responsible for this peculiar kind of jaundice, which is quite physiological.

We know that soon after birth the hæmatopoietic function of the infant continues on its own account with the characteristic potential energy of the embryonic cell functions. New nucleated erythrocytes are formed in great number, that continue their evolution to maturity.

This very active hæmatopoiesis calls for a considerable supply of iron chromatin. As milk normally contains but a very low percentage of iron, Nature has provided for the infant that this iron chromatin be furnished through the disintegration of the maternal red cells that are present in its circulatory system at birth. Therefore, the disintegration of the maternal erythrocytes is not a mere accident, but a physiological necessity. This disintegration again is accomplished in the following manner: In the hæmatopoietic organs of the new born, along with the formation of erythroblasts, some special body is formed, a cytolysin or hæmolysin, which dissolves in the plasma and imparts to the latter globulicidal properties for erythrocytes other than those elaborated by himself, thence the total disintegration of maternal red cells. The presence in the blood of this cytolysin is revealed by our failure with blood transfusion; it is a fact that the plasma of one individual possesses a globulicidal action for the blood cells of another individual, be he of the same or of a different species.

Now, if the formation of this globulicidal substance goes on at a normal rate, the disintegration of maternal red cells will go on at the same rate and the liver will not be suddenly overcharged with hæmolytic pigment; but should the formation of this cytolysin go on with unusual rapidity, the contrary will happen, the liver will be overloaded with pigments derived from the disintegrated blood cells, the activity of hepatic cells will be overtaxed, and they will elaborate a surplus of biliary pigments.

Thus the question is really reduced to a disturbance of the equilibrium between metabolism and anabolism in this particular function of blood making.

Through some cause, so far unknown, the cytolysin becomes very abundant, more red cells are de-

stroyed at a time, more hæmochromatin is stored in the liver than can be used up in the process of blood making, and the surplus actuates the hyperactivity of the liver cells which transform more blood pigments into bile pigments.

As to the absorption of the surplus of bile pigments which finally causes the jaundice, three possibilities are present: First—As the terminal capillaries which surround the hepatic cells constitute a portal system, the intravascular and perivascular pressure equals zero. Now, if the hepatic cells are overfilled, the pressure within the bile capillaries will forcibly raise after a time, and the biliary pigments will penetrate into the lymph spaces and reach the general circulation through the thoracic duct. Second—Should we assume an increase in the viscosity of the bile due to a state of saturation with biliary pigments, the possibility of temporary plugging of the bile capillaries might be considered. In this case the chances of absorption of the bile through the lymph spaces are evident. Third—Another way of absorption, peculiar to the new born, is through the ductus venosus, as pointed out by Quincke: The flow of bile into the intestines not being impaired in icterus neonatorum, but rather increased, part of it is reabsorbed, gathered into the portal vein, and partially poured into the vena cava through the ductus venosus which remains unobstructed during the first few days of extra uterine life.

We believe thus to have explained the complex pathogeny of icterus neonatorum through a logical interpretation of a series of physiological phenomena that succeed themselves in the organism of the new born when this is called upon to establish his physiological independence.

65 SECOND STREET.

Correspondence.

LETTER FROM TORONTO.

The Staff of the Toronto General Hospital.—Smallpox and Vaccination in Ontario.—The Sale of Cocaine.
—The Toronto Academy of Medicine.

TORONTO, December 16, 1907.

On the afternoon of the 6th of December the present medical staff of the Toronto General Hospital was invited to meet the board of governors and the special committee appointed over a year ago to take up the question of the best way to proceed in the reorganization of the hospital services. It has been decided to have three heads in medicine and three in surgery. Each head will be assigned a certain number of beds and one or two house surgeons under his control, with associates and assistants from the members of the staff of the University of Toronto Medical Department. The heads of the medical and surgical services shall confine their work to the hospital and to consultation work. All appointments shall be made annually, there shall be no remuneration to members of the visiting staff, sex shall be no bar in making appointments, and the members of the visiting staff shall not be allowed to serve on the staff of any other general hospital. In medicine there shall be three coordinate services, including dermatology and neurology; in surgery three; in obstetrics one;

in gynaecology one; in ophthalmology one; in otology, rhinology, and laryngology one. Each service shall include both indoor and outdoor patients. The heads of surgery shall retire at the age of fifty-five; those of medicine at sixty. The board of trustees may, however, by a majority of the whole board, extend the age limit to sixty and sixty-five years respectively. The age limit for surgeons shall apply to the heads of obstetrics, gynaecology, ophthalmology, rhinology, otology, and laryngology. The term of service for the heads shall be ten years, but may be increased five years for special reasons if a majority of the whole board so decides. The three heads of medicine shall not engage in general practice, but shall confine their work to the hospital and consultation work; so with the three heads in surgery, who shall do surgery alone. The head of the service in obstetrics shall practise only obstetrics and pædiatrics. The head of the service in gynaecology shall confine his work in the hospital to that subject, shall not do any general practice, but may do general surgery in private work. The head of the service in ophthalmology shall confine his work in the hospital to that specialty, but in private practice may do rhinology, otology, and laryngology; so with the head of the service in otology, etc. There shall be a department of pathology and bacteriology and a department of pathological chemistry. These two shall be in charge of professors of Toronto University, and the university will pay salaries to these professors. The department of anaesthetics shall be under one head. All public ward patients shall be entered under the care of heads of services, and shall be available for clinical instruction of students of the medical faculty of the University of Toronto. Members of the medical profession who are not on the staff of the hospital shall have the privilege of attending patients in the private, semiprivate, and semipublic wards. There shall be a medical board, the work of which shall be advisory only. This board shall consist of the heads of the various services.

Neglect of vaccination and resultant smallpox make for much expense in the Province of Ontario. Dr. C. A. Hodgetts, secretary of the Ontario Board of Health, estimates that the neglect on the part of municipalities throughout the Province to enforce the vaccination act has in the last ten years cost \$2,000,000. At the present time Ontario is a largely unvaccinated Province, simply because the municipal authorities, although given the power by the legislature, fail to enforce the act. Dr. Hodgetts states that ninety-nine per cent. of the cases in the Province for the last ten years have occurred among the unvaccinated.

The College of Pharmacy of Ontario will petition the Ontario legislature at its coming session to prohibit the sale of cocaine by druggists except on the production of a physician's certificate, it having been alleged that citizens of New York State come into Ontario on trips solely for the purpose of buying cocaine.

The portraits of Dean Reeve, of the Medical Department of Toronto University, and a past president of the British Medical Association, and of Dr. R. B. Nevitt, formerly dean of the Woman's Medical College, have been hung in the Academy of Medicine of Toronto, the former being the gift of the British Medical Association, and the latter given by

the former confrères of Dr. Nevitt in the Woman's College. Another portrait which will soon be presented to the Academy is that of W. B. Geikie, LL. D., formerly dean of Trinity Medical College.

Therapeutical Notes.

Treatment of Suppurative Parotiditis.—Morestin reported to the Académie de médecine (*La Clinique*, November 1, 1907) the case of a woman, who, after vaginal section for the relief of pelvic abscess, suffered two days later with parotid inflammation, which soon developed purulent foci. Before deciding to operate, Morestin made an attempt to empty the glandular *culs de sac* by expression and massage of the parotid and of Stenon's duct. These manoeuvres were repeated several times daily, and at the end of two weeks the patient was cured. In three other cases the reporter had similarly succeeded, and was much pleased with this treatment.

Digestive Albuminurias and Their Treatment.—Castaigne and Chiray, in a communication read before the recent French Medical Congress, held at Paris in October (*Le Bulletin médical*, November 9, 1907), discussed the different forms of digestive albuminuria. Under this title is comprised a series of functional albuminurias, either appearing after meals, or as a consequence of eating certain aliments, the white of egg in particular. This form of albuminuria has been attributed either to disturbances of the renal circulation, consecutive to diarrhoea or vomiting, or to the absorption of toxins which form in the intestines in certain cases of dyspepsia, associated with excessive and abnormal fermentations in the intestines. The reporters think that digestive albuminuria is susceptible of quite a different explanation from this. In their opinion, it is produced by albuminous substances which, not having been subjected to proper digestive elaboration, nevertheless pass through the intestinal mucosa. Arriving in the blood, these albumins remain heterogenous, are rejected as strangers, and are excreted by the kidneys. The latter are slightly injured in permitting them to escape, and there is, at the same time, the escape of a certain quantity of serum albumin into the urine in consequence. This view is supported by the following series of propositions, which the authors have demonstrated experimentally: 1. Every foreign albumin introduced into the circulatory current is at once eliminated, with a certain quantity of serum. 2. Successive and progressive injections of strange albumin into the blood excite presently renal lesions and gravely affect the general health. 3. A strange albumin, without having undergone complete digestive elaboration, may traverse the intestinal mucosa and pass into the blood. The conception of the aetiology of digestive albuminurias leads the authors to give the following description of this affection. They think that the albuminuria of Bright's disease is in a certain measure also of digestive origin. In fact, in this group of cases the quantity of albumin almost always is found to be increased after meals. On the other hand, it has been observed that in certain cases of Bright's disease, which cannot digest milk, we may obtain a marked diminution of the albumin by

instituting a vegetarian diet. The therapeutical conclusions are that the best régime for albuminuric patients is that which ensures the most complete digestive elaboration of the introduced albumin. In the presence of a case of Bright's disease, physicians should study the state of the digestive functions. The milk should be reduced if found necessary, and the whites of eggs, either raw or poorly cooked, should be entirely omitted in albuminuric cases, following the old practice, which has lately fallen into desuetude.

Eczema of the Nose.—Menier advises in acute cases starch poultices to remove the crusts, and also tampons of gauze dipped in starch may be inserted into the nostrils, or simply absorbent cotton moistened with warm boric acid solution may be applied until the surface is clear. At the time a thick layer of the following ointment may be applied:

R	Zinc oxide,	5.0 grammes;
	Sterilized wool fat, }	
	Petrolatum,	10.0 grammes;
	Oil of bitter almonds, }	
	Oil of roses,	aa gtt. ii

M.

or this simpler formula:

R	Zinc oxide,	5.0 grammes;
	Bismuth subnitrate, }	
	Benzoinated lard,	50.0 grammes.

M.

If there is much itching of the nose, a little menthol (0.50 gramme) may be added to the first formula, or salicylated lard (1 per cent.) may be applied.

Lassar's paste is reserved for the subacute cases:

R	Salicylic acid,	0.40 gramme.
	Zinc oxide, }	
	Starch,	10.0 grammes;
	Neutral petrolatum,	30.0 grammes

M.

If the eczema is dry, ointments containing tar are useful:

R	Norway tar,	1.5 grammes;
	Salicylic acid,	0.6 gramme;
	Lard,	30.0 grammes

M.

or

R	Oil of cade,	4.0 grammes;
	Neutral petrolatum, }	
	Wool fat,	10.0 grammes;
	Oil of lavender,	gtt. v.

M.

Acute eczema often ceases spontaneously when the accompanying rhinitis is cured. The chronic form is often obstinate. Lermoyez advises linear scarification of the skin of the vestibule; but before this applications should be made of silver nitrate (10 per cent.), or of tincture of iodine. Fissures are cured by the application of a plaster of salicylic acid soap, or by the application of fine pointed stick silver nitrate, or by the following ointment:

R	Oil of cade,	0.40 gramme;
	Tannin,	1.20 grammes;
	Glycerate of zinc,	10.0 grammes.

M.

The diet should be regulated. The patient should use no alcohol, no spices, no meat, especially salt meats, and no thyme. Laxatives are useful, especially a decoction of sodium sulphate, given dissolved in a mineral water, each morning. *Bulletin médical de l'Association.*—October 14, 1907.

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DECEMBER 21, 1907.

NEW YORK'S NEUROLOGICAL HOSPITAL.

It is a hopeful sign of the times that, amid the many spasmodic efforts that have been made in the past to offer to New York a coordinated scheme for hospital facilities for the poor, there are evidences tending to show that the splendid example shown to us by the century old organizations of Europe are not to be passed by unheeded.

It is a matter for considerable congratulation that the Hon. Robert W. Hebbard, who has shown himself a progressive and solid administrator of public charities, by appointment of Mayor McClellan, who has so ably supported the efforts of the commissioner, has established a neurological hospital on Blackwell's Island, which is practically the first of its kind in this country.

Recognizing the needs for segregation of certain classes of patients suffering from disease of an organ or organs allied in their physiological functions, the commissioner has taken the first step in the consummation of a comprehensive plan which is in the direction of progress. Those who have seen the magnificent hospital facilities in Vienna and in Paris, where hundreds of patients suffering from similar diseases are grouped in appropriate and adjacent structures, recognize the needs for a like concentration of material if medical science, from the clinical and pathological aspects, is to advance. A like opportunity is now projected for the neurologists of New York, and probably at no remote time similar arrangements may be carried out for the grouping of heart cases, of kidney cases, and of cases of dis-

ease in the various specialties. Such a broad plan of development would readily make the city home a worthy rival of the Salpêtrière or Bicêtre in Paris within a short time.

The details of hospital organization have just been completed and a medical board has been formed. The new hospital is to be known as the Hospital for Nervous Diseases of New York City. It is located on Blackwell's Island in detached pavilion wards near the City Home. The present capacity of the hospital is 250 beds. Buildings for the further accommodation of one hundred patients are in process of erection. The medical staff will be divided into ten services. Each service will consist of a senior attending physician and two assistants. The services are to be continuous and permanent. The general hospitals of the city already possess more than a thousand neurological patients awaiting admission to the service. The hospital will be provided with thoroughly equipped laboratories for diagnostic and therapeutic research. Ample facilities for giving special lectures and demonstrations in neurological science will be provided.

The medical board is composed of the following: Dr. Francis A. Scratchley, Dr. Pearce Bailey, Dr. Smith Ely Jelliffe, Dr. Joseph Fraenkel, Dr. William B. Pritchard, Dr. J. Ramsay Hunt, Dr. Graeme M. Hammond, Dr. William M. Leszynsky, Dr. L. Pierce Clark, president, and Dr. E. L. Hunt, secretary.

The consultants are Dr. C. L. Dana, Dr. E. D. Fisher, Dr. George W. Jacoby, Dr. B. Sachs, Dr. Joseph Collins, Dr. Frederick Peterson, and Dr. M. Allen Starr.

THE CHEMISTRY OF COMBINATIONS OF
METHYLENE BLUE AND EOSIN.

In a paper entitled *The Chemistry and Staining Properties of Certain Derivatives of the Methylene Blue Group when Combined with Eosin*, Dr. Thomas M. Wilson (*Journal of Experimental Medicine*, November) describes some experiments with preparing polychrome stains from methylene blue and eosin. He opens his article with the statement that the only reason for writing about this subject is that something new has been discovered. While this is always a desirable feature among those that lead to the writing of a scientific article, we fear we shall have to disagree with the author and give it as our opinion that the fundamental facts about the chemistry of the aniline dyes as used in microscopical technique are not well understood, and that it would be a good thing if more were written about them. We do not hesitate to say that the majority of persons who use methylene blue and eosin daily in histological work do not know the chemical facts involved in obtaining the results.

The literature on the subject, as is shown in Dr. Wilson's article, is almost entirely German, and is to be found in the more technical chemical journals which are inaccessible to many histologists.

The experiments recorded by the author show that the derivatives of methylene blue essential for a good stain may be different in their composition and varied in their mode of production. He makes a stain by boiling a one per cent. methylene blue solution, containing five tenths of one per cent. of sodium bicarbonate and at least five tenths of one per cent. of freshly precipitated silver oxide, for twenty minutes. At the end of this time one third of the material is removed; after a second twenty minutes' boiling a second third is removed, and after a third period of twenty minutes' boiling the three products are united, made up to the original volume with distilled water, and the precipitate allowed to settle. A half per cent. filtered solution of eosin is next added to an equal volume of the prepared mixture. The precipitates, after standing an hour or so, are thrice filtered, washed with distilled water or with a solution of sodium chloride, and dissolved in methylated spirit by adding the filter and its contents to the alcohol and keeping the mixture in a bottle for several hours. The saturated solution thus formed is diluted with an equal volume of methylated spirit, thus making a half saturated solution. There are at least seven compounds in this stain: eosinate of methylene blue, methylene azure, methylene violet, eosinate of thionine, eosinate of thionoline, eosinate of thionol, and some methylene orange. Directions are given for the use of this staining solution.

The article has some of the defects which are so often seen in those devoted to the description of new methods. The chief of these is that the directions for preparing the staining mixture are mingled with the discussion of the results, so that the formula is somewhat hazy. Every article of this kind should have the formula for the preparation of the solutions set forth in a separate paragraph, in the nature of a summary, so that one who wishes to follow the method may have no doubt as to quantities and manipulations. The neglect of this precaution has led to the discarding of many good methods in the past because only the originator could make the method work as it should. For example, in the article under consideration, the author directs that the precipitate formed by the boiling and the mixing of the three portions of the solution be allowed to settle. But he does not say what to do with the precipitate after it has settled. We presume he means to stir it up again when he adds his eosin solution; but, if so, he let it settle in the first place. Again, he says "wash the precipitate

with sodium chloride solution. How strong? A variation in the strength of this solution might make a difference in the results. Even if it would not make a difference, the person who tried the method and failed might reasonably suppose that a variation of this kind would have something to do with his failure.

A NOTABLE ADDRESS.

It is often the case that the prolegomena attract an attention altogether separable from the interest that may attach to the body of a discourse. This seems to have been true of an address delivered by the learned and genial Dr. J. George Adami, of Montreal, before the Canadian Medical Association at its recent annual meeting. It was entitled *On Twins and Double Monsters and Sundry Other Topics*, and it is published in the December number of the *Dominion Medical Monthly*; that is to say, the author's remarks on the "sundry other topics" are given in full, while the embryological exposition is condensed, on account of its having "consisted so largely of a demonstration, by means of the lantern, of different orders of twins and double monsters that, without abundant illustration, it would be impossible to render his remarks clear to the general reader."

The value of the address does not, indeed, depend wholly on its embryology; the "sundry other topics" are handled in a manner so characteristic of the author that in themselves they furnish us with much material for wholesome reflection. In the first place, Dr. Adami identifies himself thoroughly with the laboratory workers, to whose labors a section of the association is now devoted. Admitting that the laboratory men have at times been bores with their "lengthy and precise descriptions of minutiae," lacking in the "oratorical edification that should prevail at general meetings," and dismissing the *tu quoque* argument as of no virtue, he has his little retaliation on the clinicians in these words: "We ourselves have come to make a fundamental diagnosis of the nature of the wood constituting the seats on which we sat while listening to the trivial ups and downs, day after day, through, it has seemed, long months, of the patient who has not been allowed to die in peace."

Dr. Adami adequately recognizes the welcome with which Canadian physicians meet in the special medical societies of the United States and the readiness shown by our journals to publish their communications. But, he adds, though it is well that the scientific work done in Canada should be published broadcast, nevertheless there should be some central opportunity offered in a month or the best work of the year to be brought forward and given to the

world as a home product. The indications are now that the association will soon establish a journal of its own, and that will be the appropriate vehicle for the home publication of matter of a high order of merit. The Canadian Medical Association is sure to grow rapidly in importance and in influence.

THE INSANE ASYLUMS OF NEW YORK STATE.

While he is journeying in a foreign land one of the first features that attract the traveler interested in the care and the treatment of the insane is the great diversity of conditions under which this unfortunate class of the sick are looked after. At home as well as abroad, one finds the unmistakable evidences of lack of uniformity in the care of the mentally diseased. In one province or county or subkingdom the best of modern equipments and the most intelligent scientific modes of investigation and treatment are in use, while across the invisible line separating one minor jurisdiction from another the conditions are absolutely the reverse. Squalor, ignorance, indifference, and callousness are the portions allotted to these sick in other counties where outward signs of prosperity are not lacking in the general population.

Out of the lowest grade of care for the insane, the county systems, have been evolved those more enlightened and coordinated attempts at general state care which are carried to such excellence in Bavaria, in England, and Scotland, and in New York State, but with all the advances that have been made, and no one can deny that they are everywhere about us, certain of the defects of the earlier steps of development still cling to the systems. These defects, however, have nothing in common with the reports which we so frequently hear concerning the cruelty and maltreatment of patients. This canard is a perennial one; it is spread broadcast every once in so often by ignorant if not malicious yellow journalists, and as physicians, we are to expect it as one of the evil things reported of us which go back to the days of the Pharaohs.

The very condition which makes asylums necessary, namely, the loss of the individual's mental adaptation to his environment, whereby these patients become cross and irritable, faultfinding, troublesome, deluded, and dangerous, is that which, when not appreciated, keeps alive the feeling in people's minds that this class of persons are badly treated. Their faulty adjustments, which their immediate environment cannot longer endure, when seen by the untrained observer out of that environment, are sure to be misunderstood, and a false sympathy is aroused which, when it seeks to modify the conditions, is sure to do mischief.

The popular conception of the mental disorders constituting the broad generalization "insanity" is so totally inadequate that one despairs of ever hoping that the lay mind can appreciate the narrow line that often only separates crankiness from certain forms of insanity. It is these "cranks" who have stepped over the border, these who have become disintegrative to society, rather than those valuable cranks who are constructive and productive, that are largely responsible for the crop of misinformation which we had given to us some months ago in Washington, and more recently concerning Ward's Island. When to these are added the discharged employees, the disgruntled grafting contractors, and the whole army of petty politicians looking for jobs for their gentlemen friends as clerks and their lady friends as stenographers and nurses, we find an army of interested individuals who are willing if not anxious to whip the small spark into an active flame.

We are convinced that, notwithstanding the many difficulties which economic conditions seem to impose upon the administration of our New York State hospital system for the insane—in spite of the low wages available for employees, the nagging inconveniences of the petty tyrannies of labor unions, the real difficulties in making good food taste good when cooked as it must be cooked *en masse* for the thousands—in spite of all these setbacks, among which particular emphasis should be laid on the fact that the insane are difficult to take care of far and above the knowledge or even imagination of any who have not had to have the experience, not for an hour or a day, but week in and week out, month by month, and year by year—in spite of all these and a host more of sometimes insuperable obstacles, we are convinced that the results obtained in these hospitals are to be most highly praised, and that the men whose lot it is to direct them are entitled to our highest honor and esteem. They are doing a work that is little appreciated by the public at large, and we feel it an outrage that they should be traduced by malicious scandal mongers, the evidence of whose incapacity and utter mendacity stands revealed in the very statements they give to a yellow press.

MORE NEWSPAPER MEDICINE.

The newspapers of New York devoted considerable space in the early issues of the week—we believe that news is generally scarce on Mondays—to somewhat hysterical accounts of the wonderful results achieved in the production of anaesthesia by the intradural and subcutaneous injection of solutions of magnesium sulphate. The discovery of the fact that anaesthesia could be produced by magnesium sul-

phate solution was spoken of as though it had been only recently made, and in fact the newspaper reporters said that Dr. Samuel J. Meltzer, who had carried on the experiments in the Rockefeller Institute for Medical Research, declined to give any information to the lay press in advance of the publication of the official reports of the institute. As, a matter of fact, Dr. Meltzer made public his experiments and their results at a meeting in the New York Academy of Medicine, held Thursday, December 7, 1905, and his paper was commented on at some length in the *New York Medical Journal* for the following week, while numerous references to it have appeared in domestic and foreign medical journals since that time. One of the evening papers seems to have found that the matter was not an entire novelty, but apparently fearing that its contemporaries might be looked upon as having scored a "beat," devoted nearly a column to a rehash of what had appeared in the morning papers, but said that the suggestion was not looked upon as entirely novel by medical men, though still generally unknown to the public. The essays in medicine of the daily press are generally laughable, if not culpable, for their errors are sometimes of a character which might prove dangerous. In this case the reporters seem to have kept well within the bounds of fact, for the possibilities of this method of anesthesia are most alluring, though the method must be worked out with great caution before it can be generally adopted. It would seem that as a rule newspaper medicine when new is not true, when true is not new.

Obituary.

FARQUHAR FERGUSON, M. D.,
of New York.

Dr. Ferguson died on Saturday, December 14th, in Atlantic City, where he had spent much of his time for the last few years on account of ill health. At the time of his death he was about sixty years old. He was born and reared on Cape Breton Island, and his native language was Gaelic. He was of Scotch descent. He came to New York in his youth, and speedily learned to speak English with unusual precision. He was graduated from the Long Island College Hospital, in the class of 1880. For several years he served with distinction as pathologist to the New York Hospital.

"Frank" Ferguson, as for some unknown reason he was generally called, was a notable figure in the New York profession until his health gave way, some seven or eight years ago, when he abandoned active work. Besides being an excellent gross pathological anatomist, he was a skilled micro-

scopist and bacteriologist. But he was more than a laboratory man; he was a clinical diagnostician of unusual acumen. As a man, he was of a lovely nature, and everybody was his friend.

MR. WILLIAM H. S. WOOD,
of New York.

The death of Mr. Wood, which took place at his home, in New York, on Wednesday, December 11th, removes an honored and conspicuous personality from the medical book publishing business. For many years he had been the senior member of the firm of William Wood & Co., and it may be said that to his efforts almost entirely was it due that the house was raised to its present prominence. The creditable and successful conduct of the *Medical Record* and the *American Journal of Obstetrics* has in great part been attributable to Mr. Wood's personal interest in those periodicals. Personally he was a man of agreeable presence, and his commercial reputation was such that several years ago he was made president of the Bowery Savings Bank. He was sixty-seven years old.

News Items.

Changes of Address.—Dr. H. U. North, to 6033 Market street, Philadelphia; Dr. G. Bolling Lee, to 30 West Fifty-ninth street, New York.

Diphtheria at the Naval Academy.—It is reported that the marine quarters of the Academy and its residents have been put in quarantine on account of an outbreak of diphtheria.

The Medical Jurisprudence Society of Philadelphia.—At the regular meeting of this society, held on Monday, December 10th, Dr. Henry Lefman delivered an address on the Bar as Seen from the Witness Box.

The Society of Physicians of the Village of Canandaigua, N. Y., held a meeting on Thursday, December 19th. The paper of the evening was read by Dr. P. M. Davenport on the Uses and Abuses of Some of Our Best Drugs.

Typhoid Fever in Trenton, N. J.—The epidemic of typhoid fever in Trenton still continues in spite of the efforts of the State Board of Health and the State Sewerage Commission to discover and remove the cause of the disease.

A Tuberculosis Conference of Colored Physicians was held in Macon, Ga., on November 4th. There was a large attendance and an intelligent discussion of the factors involved in the campaign against tuberculosis among the colored race.

Uniform Medical Laws.—The legislative conference of the American Medical Association has endorsed a plan to secure the passage of uniform laws in all States regulating the practice of medicine, in order to create reciprocity in the licensing of physicians.

State Hospital for Tuberculosis in Vermont.—The first State hospital in Vermont for the treatment of tuberculosis exclusively was opened to receive patients on December 14th. The hospital is situated at Portland, and is now receiving patients from the State and patients from other States.

Buffalo Academy of Medicine.—The regular meeting of the Buffalo Academy of Medicine was held on December 10th. The address was by Dr. Allen Ashby, M.D., on a paper on the Physiological Transmission of Tuberculosis, and illustrated by the means of lantern slides.

Donation to Johns Hopkins Hospital.—The board of trustees of this hospital has announced the receipt of a gift of \$6,000 made by Mr. Henry Phipps, of Pittsburgh, to aid in carrying on research work in the tuberculosis dispensary of the hospital, which was founded by Mr. Phipps about two years ago.

Women Nurses in the Navy.—A bill for the establishment and organization of a corps of women nurses in the Navy has been recommended to Congress. The bill provides that women nurses be employed in naval hospitals on shore in time of peace, and on hospital and ambulance ships in time of war.

No Yellow Fever in Cuba.—We learn from press dispatches that the last yellow fever patient in Havana was discharged on December 16th, and that there is now no case under observation nor any suspected case of yellow fever on the island of Cuba. The raising of the quarantine has given great satisfaction in Cuba.

The William Pierson Medical Library Association of Orange, N. J., has made arrangements for a course of lectures to be delivered before the association during the winter. The first of the series was given on Tuesday evening, December 10th, by Dr. M. Allen Starr, of New York, on the subject of Modern Anatomy and Localization of the Brain.

South Boston Antituberculosis Society.—The second monthly meeting of this society was held on Wednesday, December 11th. Dr. Herbert J. Keenan, medical inspector of the schools, presided, and the question of how tuberculosis is acquired and how it should be treated was fully discussed by Dr. Edward A. Tracy, Dr. John S. McDonald, and Dr. John J. Lane.

The West Philadelphia Medical Association.—At the annual meeting of the association the following officers were elected for the ensuing year: President, Dr. Henry D. Jump; vice president, Dr. Arthur Bogart; recording secretary, Dr. George Mills Boyd; financial secretary, Dr. C. E. Price; treasurer, Dr. E. L. Graf.

Medical Society of the County of Kings, N. Y.—The eighty-second regular meeting of the Section in Paediatrics of this society was held on Wednesday evening, December 18th. Dr. Le Grand Kerr reported a case of Intussusception, and Dr. J. Eddy Blake reported a case of Compound Fracture of the Finger. A paper on Appendicitis in Children was read by Dr. John E. Jennings.

The Portland, Me., Medical Club held its annual meeting and banquet on Thursday evening, December 12th. Officers for the year 1908 were elected as follows: President, Dr. C. W. Bray; vice president, Dr. J. W. Bowers; secretary and treasurer, Dr. P. W. Davis. Dr. C. R. Burr, the retiring president, read a paper on Physical Economics, and the annual oration, which was delivered by Dr. E. E. Holt, dealt with the same subject.

Scientific Society Meetings in Philadelphia for the Week Ending December 28, 1907.—*Monday, December 23d*, Mineralogical and Geological Section, Academy of Natural Sciences. *Tuesday, December 24th*, Philadelphia Neurological Society. *Thursday, December 26th*, Pathological Society; Entomological Section, Academy of Natural Sciences; Section Meeting, Franklin Institute. *Friday, December 27th*, South Branch, Philadelphia County Medical Society; Northern Medical Association.

The Syracuse Academy of Medicine.—The annual meeting of this academy was held on Tuesday evening, December 17th. The principal business of the evening was the election of officers for the ensuing year, after which the meeting adjourned in order that the members might attend the smoker of the Chamber of Commerce. At this function addresses were made by Dr. Eugene H. Porter, Commissioner of Health of the State of New York; Dr. John L. Heffron, Dr. B. W. Sherwood, Dr. R. C. McLennan, and Mr. H. W. Jordan.

Rhode Island Medical Society.—The quarterly meeting of this society was held in Providence on December 5th. There was a good attendance of prominent Rhode Island physicians, and an interesting programme was presented. Dr. Bernard L. Towle read a paper entitled, Who Shall Marry? and the last scientific paper of the late Dr. Clarence T. Gardner, on the subject of Autointoxication, was read by Dr. W. L. Monroe. Dr. Helen Putnam read a report on Dr. A. E. Wright's London Clinic, and Dr.

William E. Wilson, of Pawtucket, read a paper on Diabetes Mellitus.

The Medical Society of the Woman's Hospital of Philadelphia.—At the regular meeting of this society, held on Monday evening, December 16th, Dr. Jacobina S. Raddie reported a case of Puerperal Streptococcus Infection and demonstrated the uterus obtained at autopsy. Dr. Lida Stewart-Cowgill read a paper on Antistreptococcic Serum in Puerperal Infection. Dr. Clara T. Dercum reported two cases of Puerperal Infection Treated with Collargol. Dr. Adelaide Ward Peckham read a paper on the Opsonic Index. Dr. Anne H. Thomas demonstrated Bier's Vacuum Apparatus for Mastitis and Endocervicitis.

Personal.—Dr. Paul Osterhout, of Bocas del Toro, Panama, and Dr. H. P. Delton, of Georgetown, Ohio, are registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

Prof. C. A. Ewald has announced his intention of retiring from the editorship of the *Berliner klinische Wochenschrift* on January 1, 1908.

Dr. Frank H. Parker, of Malden, Mass., has given up a lucrative practice to become superintendent of the leper colony at Penekese Island. He will leave on December 27th, and will be accompanied by his wife.

Infectious Diseases in New York:

We are indebted to the Bureau of Records of the Health Department for the following statement of new cases and deaths reported for the two weeks ending December 14, 1907:

	December 7.—		December 14.—	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid Fever	71	18	62	21
Smallpox	2	..	10	1
Varicella	167	..	400	1
Measles	472	19	471	20
Scarlet fever	372	19	397	21
Whooping cough	8	1	12	2
Diphtheria	376	33	369	34
Tuberculosis pulmonalis	422	180	390	188
Cerebrospinal meningitis	15	5	13	10
Totals	1,801	275	1,848	298

Lord Kelvin Dies.—Lord Kelvin, who attained fame as a physicist under the name of William Thomson, died in Glasgow, on December 17th, at the age of eighty-three years. He was knighted for his services in connection with the laying of the transatlantic cable and raised to the peerage under the title of Lord Kelvin in 1902. He was a graduate of Glasgow University and St. Peter's College, Cambridge. He was president of the British Association in 1871, and of the Royal Society from 1890 to 1895, professor of natural philosophy in Glasgow University from 1846 to 1890, and was elected chancellor of the university in 1894. He was the author of many papers on mathematics and physics, and in conjunction with Professor P. G. Tate, published a well known treatise on natural philosophy. He held honorary degrees in numerous universities both in America and Europe.

Charitable Bequests.—By the will of Susan A. Rorer, St. Joseph's Home for Homeless Boys, Philadelphia, receives \$200, and St. Mary's Hospital of Philadelphia receives \$200 and all clothing.

By the will of Miss Zela Gibbs, St. Luke's Hospital, New York, will receive \$200,000.

By the will of Emily Dunlop, the Children's Protestant Hospital, St. Louis, will receive \$300, and St. Luke's Hospital, St. Louis, will receive \$500.

By the will of Lyman F. Rhoades, of Boston, the Boston University will receive \$20,000, the Massachusetts Institute of Technology will receive \$6,000, and the Lynn Hospital \$5,000.

By the will of Michael Fenton, of Lynn, Mass., the Lynn Hospital will receive \$5,000.

By the will of Mrs. Emma J. Sanborn, of Dover, N. H., the Wentworth Hospital will receive \$5,000.

The Mortality of Chicago.—According to the report of the Department of Health for the week ending December 7, 1907, there were during the week 546 deaths from all causes, as compared with 584 for the corresponding week in 1906. The annual death rate in 1,000 of population was 13.51. The principal causes of death were: Apoplexy, 13; Bright's disease, 43; bronchitis, 69; consumption, 69; cancer, 20; convulsions, 8; diphtheria, 8; heart diseases, 19; influenza, 1; total diseases, acute, 22;

measles, 1; nervous diseases, 20; pneumonia, 74; scarlet fever, 10; suicide, 12; typhoid fever, 13; violence, other than suicide, 44; whooping cough, 1; all other causes, 123. During the week ending December 6, 1907, cases of contagious diseases were reported to the department as follows: Diphtheria, 117 cases; scarlet fever, 95 cases; measles, 45 cases; chickenpox, 29 cases; whooping cough, 18 cases; typhoid fever, 12 cases; tuberculosis, 31 cases.

Society Meetings for the Coming Week:

MONDAY, December 23d.—Medical Society of the County of New York.

TUESDAY, December 24th.—New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); New York Medical Union.

THURSDAY, December 26th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Brooklyn Pathological Society; New York Celtic Medical Society; Hospital Graduates' Club, New York; Brooklyn Society for Neurology.

FRIDAY, December 27th.—New York Society of German Physicians; New York Clinical Society; Academy of Pathological Science, New York.

SATURDAY, December 28th.—West End Medical Society, New York; New York Medical and Surgical Society; Harvard Medical Society, New York; Lenox Medical and Surgical Society, New York.

A Neurological Hospital in New York.—A new institution, which is to be known as the Hospital for Nervous Diseases of New York, has been established on Blackwell's Island by the commissioner of public charities. This is America's first public hospital for the treatment of nervous diseases. The present capacity of the hospital is 250 beds, and buildings for the further accommodation of 100 patients are in process of construction. The medical staff will be divided into ten services, each to consist of a senior attending physician and two assistants. The services are to be continuous and permanent. The hospital will be provided with laboratories for diagnostic and therapeutical research, and with ample facilities for special lectures and demonstrations in neurological science. A medical board has been formed, with the following well known neurologists as members: Dr. L. Pierce Clark, president; Dr. E. L. Hunt, secretary; Dr. Smith Ely Jelliffe, Dr. Francis A. Scratchley, Dr. Pearce Bailey, Dr. Joseph Fraenkel, Dr. William B. Pritchard, Dr. J. Ramsay Hunt, Dr. Graeme Hammond, and Dr. William Leszynsky. The consultants are Dr. C. L. Dana, Dr. E. D. Fisher, Dr. George W. Jacoby, Dr. B. Sachs, Dr. Joseph Collins, Dr. Frederick Peterson, and Dr. M. Allen Starr.

The Health of the Canal Zone.—In the report of the Department of Sanitation of the Isthmian Canal Commission for the month of October, 1907, the total population of the Canal Zone, including Panama and Colon, is given as 110,075, among whom there were 277 deaths, corresponding to an annual death rate of 30.19 per 1,000 population. There were 4 deaths from typhoid fever, 41 from malarial fever, 8 from aestivoautumnal malaria, 1 from malarial cachexia, 1 from hemoglobinuric fever, 1 from dysentery, 7 from amoebic dysentery, 2 from beriberi, 2 from purulent infection and septicæmia, 36 from pulmonary tuberculosis, 1 from general tuberculosis, 2 from cancer, 1 from chlorosis, 2 from acute embolism, 1 from bronchopneumonia, 27 from pneumonia, and 2 from purulent septicæmia. There were 12 deaths among the white employees of the commission, exclusive of Americans, and 5 deaths among persons from the United States. There were 3 deaths among the white women and children. The death rate among the white employees was 17.16 per 1,000, the mortality rate was 20.00 per 1,000 of all employees, black and white. The incidence of malaria has been decreasing all over the Zone. During the year, 6,466 cases of fever, only 0.29 per cent of the employees were sent to the hospital with malarial disease.

Hospital Reform Demanded.—A special committee of the Charities Organization Society, consisting of Dr. Edward L. Dwyer, Dr. L. C. Drury, Dr. S. L. Hallock, and Homer Folger, have just completed a commission and submitted a report on December 19th regarding the administration of municipal hospitals to the Hospital Commission appointed by the Mayor of New York. This report was severe in its arraignment of the methods now followed in

hospital administration. It favored placing in the hands of a single commissioner, who should be a physician, authority over all the hospitals and over the work that is now under the supervision of the Charities Department. The report says that the medical administration of the city hospitals, with the exception of Bellevue, is so far behind the times as to be the laughing stock of the country. The committee recommended that a paid medical staff be substituted for the present volunteer staff, and that the staff be composed of graded positions, so that a surgeon entering the service might have something to look forward to. The committee advocated the establishment of a number of small hospitals, and suggested that the new Bellevue be erected with a capacity of 1,500 instead of 2,000 patients, as was now contemplated. The committee signified its willingness to draw up a plan for an affiliation of the city hospitals and the three university medical schools, and was requested to do so by the commission.

Philadelphia College of Physicians.—At the regular meeting of the Section in Otolaryngology of the college, held on Wednesday evening, December 18th, Dr. George B. Wood read a paper on the Treatment of Subacute Inflammation of the Nasal Mucosa; Dr. A. A. Bliss read a paper on Some General Considerations in Regard to Mastoid Operations; Dr. B. H. Potts reported a case of Extradural Abscess Simulating Brain Abscess; Dr. B. A. Randall and Dr. Ralph Butler reported four cases of Extradural Abscess, one with Consecutive Sphenotemporal Abscess.

The regular meeting of the Section in Ophthalmology was held on Tuesday evening, December 17th. Dr. G. Oram Ring exhibited a case of microphthalmos with coloboma of the optic nerve, and a case of growth at the sclerocorneal margin; Dr. S. D. Risley exhibited a case of sclerocorneal growth; Dr. C. W. Le Fever exhibited a case of keratoconus; Dr. George E. deSchweinitz and Dr. C. M. Hosmer exhibited cases of ocular lesions caused by cerebrospinal meningitis, a case in which cicatricial ectropion had been corrected, and a case of the result of x-ray treatment of epithelioma. Dr. deSchweinitz and Dr. Hosmer also read a paper on the Pathological Histology of the Eneucleated Eyeball of the First Case. Dr. Frederick Krauss reported a case of recurrent vitreous hemorrhages occurring in adolescence; Dr. Howard F. Hansell exhibited a case of miliary tubercle of the palpebral conjunctiva, and Dr. William Zentmayer exhibited an unusual affection of the Meibomian glands and a rare form of hereditary cataract.

Meetings of Sections of the New York Academy of Medicine.—A stated meeting of the academy was held on Thursday evening, December 19th, under the auspices of the Section in Ophthalmology. The paper of the evening was read by Dr. Thomas R. Pooley on the Induction of Premature Labor in Amaurosis and Amblyopia in Albuminuria from Pregnancy.

The regular meeting of the Section in Medicine was held on Tuesday evening, December 17th. After a discussion of interesting cases presented by Dr. M. G. Schlapp, Dr. N. B. Potter, and Dr. Morris Manges, Dr. Harlow Brooks reported a case of Marked Pulmonary Arteriosclerosis, and a case of Typhoid Fever in Pregnancy was reported by Dr. B. S. Oppenheimer and Dr. S. M. Brickner.

At a meeting of the Section in Laryngology and Rhinology, held on Wednesday evening, December 18th, the following papers were read: Radiographs Illustrating the Normal Topography of the Pneumatic Sinuses of the Face, by Dr. Sinclair Tousey; Intranasal Drainage of the Frontal Sinus, by Dr. E. Fletcher Ingals, of Chicago; Vincent's Angina, by Dr. H. Arrowsmith. After a discussion of the papers, there was an exhibition of anatomical specimens demonstrating some variations in the frontal sinuses, through the kindness of Dr. M. H. Cryer, of Philadelphia.

The Section in Orthopaedic Surgery held a clinical meeting on Friday evening, December 20th. After the presentation of a number of cases, the following paper was read: Some Observations Regarding Spinal Deformity, was read by Dr. George R. Elliott.

The Section in Obstetrics and Gynecology will meet on Friday evening, December 21st. Six papers will be presented by Dr. H. C. Gray and Mr. H. J. Leitch, and the following cases will be read: The Etiology and Treatment of Puerperal Pyrexia, by Dr. J. N. West; and the Management of Febrile Conditions after Abortion and Labor, by Dr. A. Brothers.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

December 12, 1907.

1. Verrucae Plantares; Their Prevalence in Boys and in Young Men, and Their Pathology. By JOHN T. BOWEN.
2. The Correction of Malocclusion, and Its Relation to Rhinology. By ALFRED P. ROGERS.
3. A Case of Suprapubic Cystostomy on a Prostatic; with Remarks on the Technique and Indications of this Operation. By CHARLES GREENE CUMSTON.

1. **Verrucae Plantares; Their Prevalence in Boys and Young Men, and Their Pathology.**—Bowen reports thirty-four such cases and remarks that he has had experience with quite a number of different modes of treatment in this affection. In many instances it was not possible, on account of the prejudice of the patients or their parents, to institute as radical methods of treatment as seemed advisable. In a considerable number of cases salicylic acid in collodion in ten per cent. strength was sufficient, after some time, to remove the lesions. It was painted on daily, and the foot soaked every other day for twenty minutes in hot water, then pumice soap used to remove as much of the lesion as possible, and then the painting was renewed—much the same treatment that is used in the case of corns. Many cases, however, will not respond to this treatment, and he says that he has had some success with chrysarobin, which was added, in ten per cent. strength, to the salicylated collodion. In other cases success was attained by covering the lesions constantly with a sixty per cent. salicylated gutta percha plaster. It is his impression that almost all of these lesions will yield to this treatment, if it is persisted in long enough, but it may take many weeks, and the necessary patience has not been found in all persons. Dubreuilh considers curetting the most radical and rapid treatment, which he performs under cocaine anesthesia. The late Dr. Warren, of Groton, who had treated a large number of these cases in the boys of Groton School, wrote to the author that he had formerly excised these lesions, but had given it up; that he had tried salicylic acid, corrosive sublimate, chromic acid, nitric, and lactic acids; he had also used electrolysis, but had come to the conclusion that the Paquelin cautery was the best, surest, and quickest method. He first cocaineized the wart, and with the round point of the Paquelin cautery thoroughly cauterized, beginning at the centre and sweeping round the whole periphery of the wart. This method he considered almost painless, produced the smallest possible scar, and needed but one sitting, if carefully done. With regard to excision, it has to be thoroughly done, and is practised with success at the Stillman Infirmary in Cambridge. Even, however, when apparently thoroughly done, the lesion may reappear in the cicatrix. Electrolysis has been effective in the author's hands, but without thorough local anesthesia it is very painful, and the same may be said of strong caustics. Some practitioners advise the wearing of plates in order to remove the weight from the part affected by the wart, but the author has rarely seen a cure produced by this mode of treatment alone.

3. **A Case of Suprapubic Cystostomy on a Prostatic; with Remarks on the Technique and**

Indications of this Operation.—Cumston observes that suprapubic cystostomy should be resorted to in those cases where the patient is too feeble to undergo a radical cure of his prostatic hypertrophy and where the accidents of prostatism are serious. The operation is indicated when it is impossible to pass a catheter where there is acute retention in a mechanical prostatic; but this condition of affairs is rarely met with in practice. Usually, after suprapubic aspiration of the bladder, catheterism becomes possible and the permanent catheter will be sufficient. Pain, difficulty in catheterism, or the impossibility of the patient's tolerating the permanent catheter might also be indications for this operation. In acute and superacute infections, when the permanent catheter does not do away with the phenomena of infection, cystostomy should be undertaken in order to save the patient's life. In the chronic form it occasionally is indicated when the permanent catheter does not influence the infection, or improve the general condition of the patient, or when accidents of sepsis reappear each time the catheter is removed. In old prostatitis, the cystitides, rebellious to every treatment, require cystostomy, because the bladder pains cease as soon as the organ is opened. Abundant or repeated vesical hæmaturia places elderly patients' lives in danger, and suprapubic cystostomy may frequently be of great service. In cases where calculi are present, especially when the bladder is infected, suprapubic cystostomy becomes both a curative and palliative operation. Temporary cystostomy should usually be the end to be obtained, and one should endeavor to reestablish the functions of the urethra as soon as the serious accidents have disappeared in cases of complete retention, hæmorrhage and acute infection. The bladder pain, incomplete chronic retention, the permanent catheter which does not empty the fundus of the bladder, are all conditions which may be benefited by this operation.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

December 14, 1907.

1. Influence of Food and of Epithelial Atrophy on Manifestations of Saccharobutyryl Intestinal Putrefaction (*To Be Continued*). By G. A. HERTER.
2. The Ophthalmotuberculin Diagnostic Test. Some Clinical Observations. By EDWARD R. BALDWIN.
3. Urinary Infection in Children. By I. A. ABT.
4. Essential Insufficiency of the Heart in Childhood. By ARTHUR WILLARD FAIRBANKS.
5. Malformations of the Rectum and Imperforate Anus. By SAMUEL W. KELLEY.
6. Cystocele. By CHARLES P. NOBLE.
7. A Simplified Cystocele Operation. By D. TOD GILLIAM.
8. The Staining Method for Spirochete in Section. By FREDERICK PROESCHER and WILLIAM CHARLES WHITE.
9. Experimental Lymphatic Spirillosis in Guinea Pigs. By WILLIAM CHARLES WHITE and FREDERICK PROESCHER.
10. Some Important Surgical Relations of the Temporal Bone. By GEORGE E. SHAMBAUGH.
11. Parasitic Uterine Myomata. By THOMAS S. CULLEN.

2. **The Ophthalmotuberculin Diagnostic Test.**—Baldwin says that the early diagnosis of tuberculous has so recently seemed to be appreciated as of vital importance that there has barely been time to extend the use of means other than physical examination into general use. The tuberculin test,

applied subcutaneously in small doses, is one of the most valuable confirmatory measures when a positive reaction is obtained, yet it still has terrors for those unfamiliar with it. Although rapidly coming into wider use, it is an unpleasant method and almost comparable to general anesthesia when employed for diagnosis. Moreover, when used carelessly or in overdoses it is as capable of doing harm as any of the poisonous alkaloids. These facts need not deter the general practitioner from its use when other means of diagnosis fail, yet it will doubtless not become popular. Any modification of the test which would do away with its unpleasant or dangerous features would, of course, be exceedingly welcome, provided it were equally reliable. Such is hoped for the method simultaneously proposed by Professor Calmette, of Lille, France, and Wolff-Eisner, of Berlin, during the spring of the present year. This method is the instillation of a drop of weak tuberculin solution (one per cent.) into the eye, whereby a conjunctival hyperemia is induced in infected individuals. This is due to the increased sensitiveness of the tissues of tuberculous as compared with nontuberculous persons, who should exhibit no signs of irritation from the same procedure when the dose is small. The author has used a filtered sterile normal saline solution of two strengths, and a measured drop (0.025 c.c.) was considered advantageous to insure accuracy of dosage. The latter was accomplished by the use of the throttled eye dropper, with a calibrated mark to 0.025 c.c. The throttle permits the easy control of the liquid when it is filled to the mark. The two solutions of 0.5 per cent. and one per cent., respectively, were employed successively in each eye. When the first failed to react the stronger was instilled into the other eye after forty-eight hours. By this method severe reactions may be avoided in cases of suspected tuberculosis, though if time failed the stronger solution might be used without serious discomfort being anticipated should a marked reaction follow. In order to avoid any danger of contamination the solutions were sealed in glass tubes containing three or four drops and then boiled. These can easily be broken in a piece of gauze or cotton at a file mark. The eye dropper is then inserted, after being cleansed with alcohol and sterile saline solution. Care is used to prevent spicules of glass getting in, which would be inexcusable carelessness should it occur. The solution should be warmed in cold weather. The lid of one eye is pulled down and the measured drop instilled as with any other fluid by holding the eye dropper parallel to the eye, but care should be observed that it does not overflow on the cheek; this is easily accomplished by holding the lid down until the drop is distributed about the sac.

3. Urinary Infection in Children.—Abt observes that as a prophylactic measure nurses and mothers and all who are entrusted with the care of young children should be told of the importance of careful cleaning of the buttocks and the region of the genitalia. It is possible to conceive how faces which for a considerable time are in contact with the vulva may cause an infection of the bladder. The treatment depends on the particular cause of the disorder. If a stone or a foreign body is the

causal factor of the cystitis, it is evident that surgical intervention is indicated. If, on the other hand, the condition is due to an infection, particularly with the colon bacillus, the treatment should consist in the abundant administration of fluids, especially of water. The excessively high temperature should be treated hydrotherapeutically. The infant may sometimes be quieted by the application of an ice bag to the head or cool compresses to the body. Medicinally, urotropine is by far the most valuable remedy; this may be given in one grain doses, four times daily, to infants from one to two years of age. If the drug is well borne the dose may be gradually increased. Salol may be given either alone or in combination with urotropine. Children from one to two years of age may be given one grain of salol four or five times daily. It may also be said that pure guaiacol has been recommended in cases of tuberculous cystitis and pyelitis. During the febrile stage the nourishment should be largely liquid; it should be nonirritating, and should be diluted so as to meet the digestive ability of the infant. It has been variously advised to irrigate the bladder with boric solutions, protargol, argyrol, etc. Originally Escherich advised the use of lysol irrigations in his cases; this plan of treatment is not called for and is likely to do more harm than good. The ordinary urinary antiseptics in one form or another, used internally, will usually bring about the desired result. In the severe forms of streptococcus or staphylococcus infection vesical irrigation may be indicated. In other respects the treatment is purely expectant and symptomatic. The pain and restlessness may require the use of antispasmodics and sedatives.

8. The Staining Method for Spirochætae in Section.—Proescher and White give their method as follows: 1. Harden in alcohol or formalin; the length of time is unimportant. 2. Embed in paraffin and cut in usual way to make frozen section. 3. Stain in picric acid and acid fuchsin solution ten minutes. This solution is composed of saturated aqueous picric acid solution, 99 c.c., and saturated aqueous acid fuchsin solution, 1 c.c. 4. Distinguish in twenty per cent. solution of picric acid in ninety-six per cent. alcohol, five to ten minutes. 5. Dry with filter paper on slide. 6. Clear with xylol, or oil of origanum, and mount. The spirochætae are distinguished beautifully stained in deep red color. The other tissue, except the fibrous tissue and reticulum, is stained yellow. This method can be used for staining spirochætae in all parenchymatous tissue.

MEDICAL RECORD.

December 14, 1907.

- The Heart Reflex and the Mechanism of Angina Pectoris. By ABRAHAM ABRAMS.
- The Reactive Power of the Wrist Reflex in Tissue Implantation: A Preliminary Communication. By I. AN LEVIN.
- Notes on Early Diagnosis of Pulmonary Tuberculosis. By HERBERT MAXSON KING.
- On Coma and the Value of the Ocular Signs Observed Therein. By EUGENE CHANCE.
- Experimental Arterial Degeneration. By PHILIP FRANK.
- The Art of Gargling. By GEORGE REUTHER.
- Gradual Atrial Dilatation by a New Method. By DOUGLAS ROBERTS.
- 1. The Heart Reflex and the Mechanism of Angina Pectoris.**—Abrams observes that pericard-

sion of the heart, or, for that matter, any other organ adjacent to the lung, is associated with many errors, unless one takes into consideration the lung reflex. Percussion of the heart, as executed ordinarily, yields an absolute or superficial, and a deep or relative dullness. Practically little or no value can be attached to the superficial dullness in estimating the size of the heart, as it varies with the position of the overlapping lung borders. Even the lightest percussion blow will provoke sufficient cutaneous irritation to induce the lung reflex of dilatation, i. e., an acute dilatation of the lungs which may diminish the area of superficial cardiac dullness, even to obliteration. Cabot, in his classical book, makes the following observation: "Any one who has demonstrated an area of percussion dullness to many students in succession must have noticed occasionally that the more we percuss the dull area the more resonant it becomes, so that to those who last listen to the demonstration, the difference which we wish to bring out is much less obvious than to those who heard the earliest percussion strokes. Abrams has referred to this fact under the name of the 'lung reflex.'" Sahli, in his *Diagnostic Methods*, refers to the same fact. The mere influence of room temperature materially changes the results of percussion. Let any one, after percussing the areas of superficial dullness, direct a current of cold air, e. g., from an atomizer, over the regions percussed, and the result will be a diminution or obliteration of the areas in question. It is evident that, while the heart reflex can always be determined by the x rays, after cutaneous irritation of the præcordium, mere percussion of the superficial area of cardiac dullness cannot determine its existence, because the irritation necessary to evoke the heart reflex will also induce the lung reflex, which must necessarily mask the heart reflex. Thus the observations of Schott and others, who seek to demonstrate the effects of carbonated baths on the heart by percussion of the latter organ, are evidently erroneous unless such percussion takes into consideration only the deep or relative cardiac dullness. Heitler perpetrates the same error by failing to take into consideration the coincident lung reflex when making cutaneous irritation. He seeks to determine the sufficiency of the heart muscle by a series of percussion blows over the heart region. If, thereafter, the cardiac dullness is much diminished, it is an evidence, he argues, that the cardiac musculature is sufficient, for the tendency of the normal muscle tonus of the heart is to maintain a limited patch of dullness. The heart reflex can be observed directly with the x rays, but if strong percussion is employed, so that reliance is alone placed on the deep or relative cardiac dullness, the reflex in question may be determined by percussion.

3. Notes on Early Diagnosis of Pulmonary Tuberculosis.—King states that the opsonic index as applied for the purpose of diagnosis in pulmonary tuberculosis and its application to the treatment of the disease has of late been to a considerable extent discredited by many. But from a study of considerable accumulated data in the laboratory, extending over a period of more than a year, there is much to lead him to believe that in early initial pulmonary tuberculosis, and during the period

when the disease is, correctly speaking, localized and before constitutional symptoms are manifest, the opsonic index is universally low, sometimes so markedly depressed as to justify a diagnosis even in the absence of all other evidence of the disease; and even where such marked depressions are not present a continued, though slight, subnormal opsonic content, when taken in connection with a suspicious history, should, in his opinion, be sufficient to justify the assumption of the presence of incipient tuberculosis.

4. On Coma and the Value of the Ocular Signs Observed Therein.—Chance thinks it is our duty in studying cases of coma to attend to the careful examination of the ocular fundus. Except in the case of acute narcosis following the ingestion of well known poisons, there are distinct arterial changes to be seen; and as transient visual disturbances may arise from an interference in the nutrition of the cells of the retina, so, in like manner, cerebration, psychic and physical, may be interrupted through nutritional changes. Again, as the extremity of arterial changes in the eye may culminate in the rupture of the vessels, whereby areas of the retina are blotted out, so may there be rupture of the cerebral vessels whereby not only may regions of the brain be affected, but life itself may be blotted out.

7. Gradual Anal Dilatation by a New Method.—Roberts describes an apparatus he uses for gradual anal dilatation. It consists of an inner bag of rubberized cloth, the ends made bulbous to prevent slipping inward or outward when distended. To this bag is attached a tube of like material, on the end of which is fastened a small stopcock; a hand bulb, valved to prevent the backward passage of air, is attached to the stopcock. Within the bag and extending through a portion of the tube is a slender metal rod with bulbous ends; this is a simple means of giving the collapsed bag sufficient rigidity during introduction. Outside the strong dilating bag is a thin elastic cover free from seams, which gives a perfect smoothness to the bag at all stages of dilatation. The seams and wrinkles of the inner bag are not perceptible through this cover. The method of use is exceedingly simple and few directions are necessary. The condition of the valves in the hand bulb must be determined, as back leaks make dilatation impossible. The number of slight squeezings necessary to fill the bag is a matter of individual experimentation. The feel when the bag is full and further distention impossible, is likewise to be determined. The bag is well dusted with talcum powder or covered with an emollient, the elastic cover is then slipped on and turned around to completely lubricate apposed surfaces. Two thirds of the length of the bag is introduced, the bulbous portion protruding from the anus, and slow dilatation is started. As soon as discomfort is felt the stopcock is turned and a few minutes allowed to elapse in order that voluntary and involuntary spasm may be relaxed. Gradually the dilatation is continued, and when as much as possible has been done the bag is left in place for ten to fifteen minutes. The patient is instructed to lie flat on the back and relax completely. Successive treatments follow and each time dilatation is found to be easier,

until a normal condition is established. The advantage of this form of instrument in the treatment of the strictures of the rectum above the anus is well seen. Through a speculum the bag is introduced and placed in the desired position, when stretching to the necessary degree is readily accomplished.

BRITISH MEDICAL JOURNAL.

November 30, 1907.

1. Acute Generalizing Peritonitis and Its Treatment, By T. CARWARDINE.
2. The Determinants of Abortion and How to Combat Them, By J. OLIVER.
3. A Case of Tubal Abortion, By F. A. NYULASY.
4. Hysterectomy and Appendicectomy Performed on a Patient Aged Seventy-four: Recovery, By J. D. MALCOLM.
5. The Correlation of the Ovarian and Uterine Functions, By E. S. CARMICHAEL and F. H. A. MARSHALL.
6. Movable Kidney from a Surgical Standpoint, By W. BILLINGTON.
7. A Note on Cryoscopy of Urine, By W. R. G. ATKINS.
8. Suppurative Appendicitis in a Patient with Transposed Viscera, By H. HEBBLETHWAITE.
9. Report CIII. The Haldane-Smith Method of Estimating the Oxygen Tension of Arterial Blood, By W. A. OSBORNE.
10. Report CIV. A Clinical Method of Estimating the Coagulation Time of the Blood, By J. P. MCGOWAN.

1. **Acute Generalizing Peritonitis.**—Carwardine uses the term "generalizing peritonitis" to cover all those cases of rapidly spreading peritoneal infection, usually from a primary focus. The common sites of origin of such spreading peritonitis are the vermiform appendix, the uterine appendages, and the gastroduodenal region by reason of infection or perforation. Within the peritoneal cavity there are certain potential spaces which may become converted into pools by accumulation of fluid therein. Which of these spaces is primarily involved depends upon the site of origin, the effect of gravity, and the guiding direction of the viscera and omentum, both static and peristaltic. The accumulation of the infective fluid occupies the true pelvis; the omentum becomes fixed to the diseased focus, and tends to localize the fluid by forming an omental roof. The writer commends the practice of draining serous collections as well as the purulent ones, and if there be any apprehension of subsequent infection of any proximate favorite site, to anticipate this by putting a drainage tube into that area, the favorite pools being pelvic, right and left lumbar, and right and left subphrenic. Two recent improvements in the treatment of these cases deserve notice. The Fowler position consists in placing the patient in the upright sitting position as soon as possible at the time of or immediately after operation, so that the peritoneal exudation may gravitate to the lower abdomen, where drainage is provided for, far away from the more dangerous epigastric areas. Murphy's treatment consists of (1) rapid removal of the focus of infection, with little disturbance of the peritoneum, and closure of the hole in the gut; (2) drainage (a) suprapubic, (b) through the operation incision; (3) rapid operation, preferably through the rectus, and no sutures are put in; (4) no food is given by the mouth for two or three days; and (5) continuous saline infusions by the rectum. The object

of these last is not to cause the bowels to act, but merely to keep a supply of a few inches of saline fluid always in the rectum.

2. **Abortion.**—Oliver defines abortion as the act whereby an immature and nonviable product of conception is dislodged from the maternal body. External hæmorrhage is not only the most important, but the most common premonitory symptom of abortion, and although it may be induced, atony of the uterus is its most frequent cause. Under such circumstances it may appear as early as the sixth week of pregnancy, about the time when the serotinal vessels begin to undergo rapid enlargement in response to the stimulation of the placental chorion. Hæmorrhage may also be due to deficiency of calcium and potassium in the muscular substance of the uterus, or to the presence of some toxic material impairing the tone and responsive power of the organ. In such cases potassium iodide and calcium chloride are given to remove deleterious substances or to supply those which are deficient. When the muscular energy of the uterus is impaired there is often enfeeblement of the nerve energy also, and strychnine, arsenic, digitalis, or phosphorus may be given with benefit. Pain is the other all important prodromal symptom of abortion. It may be noted when the uterus does not adequately respond to and fails to expand correlatively with the developing ovum. The uterine tissues, again, may be responsive enough, but they may be restrained by adhesions. Abortion not infrequently results from physical or mental shock, or a combination of both influences. After the tenth or twelfth week of pregnancy the uterus may be injured directly by a blow on the lower abdomen, and abortion may more or less quickly ensue. But usually there is extravasation of blood from rupture of the functionally active maternal vessels; the blood may never make its escape externally, and pain may be the only symptom. No drugs should be given in such cases; absolute rest is the best treatment. Necrosis of the amniochorion is a very rare cause of abortion, and it determines this event by allowing the amniotic fluid to escape.

5. **Ovarian and Uterine Function.**—Carmichael and Marshall, as the result of their experiments on rabbits and rats, have arrived at the following conclusions: 1. The removal of the ovaries in young animals (rodents) prevents the development of the uterus and fallopian tubes. These remain in an infantile condition. The subsequent growth and general nutrition of the animals seems to be unaffected. 2. The removal of the ovaries in adult animals (rodents) leads to fibrous degeneration of the uterus and fallopian tubes (most marked in the mucous membrane). The animals' subsequent health and nutrition remain good. These observations, for the most part, support the evidence obtained clinically in the human subject after surgical operation. 3. The removal of the uterus in a young animal has no influence in preventing the further development of the ovaries. These are capable of ovulating and forming corpora lutea after adult life has been reached. 4. The removal of the uterus in an adult animal does not give rise to any degenerative change in the ovaries if the vascular connections of the latter remain intact. These latter observations do not

support the contentions of those surgeons who advocate subtotal hysterectomy, believing that the functional activity of the ovary is in some way dependent on the presence of the uterus.

LANCET

November 30, 1907.

1. The Diagnostic Value of the Visual Acuity, By J. H. PARSONS.
2. Notes on Leprosy, By J. A. THOMPSON.
3. The Value of Blood Pressure Determination in the Diagnosis of Aneurysm of the Thoracic Aorta, By O. K. WILLIAMSON.
4. A Contribution to Bacteriological Analysis of Materials Polluted with the Bacillus Typhosus, By E. KLEIN.
5. A Fatal Case of Chorea Associated with Double Optic Neuritis and Hypopyrexia in a Child, Aged Three and a Half Years, By G. CARPENTER.
6. Is Bubonic Plague Still Lurking in the City of Glasgow? By T. COLVIN.
7. A Note on the Morphology of Spirochaeta Duttoni, By J. E. DUTTON and J. L. TODD.
8. On a Very Successful Method of Treating Acute and Chronic Suppurative Otitis Media and Other Forms of Otorrhoea. With a Series of Cases, By A. F. B. RICHARDS.
9. On Change of Type in Leucæmia and its Significance, By S. G. SCOTT.
10. Two Cases of Diabetic Gangrene of the Foot; Amputation through the Thigh; Recovery, By S. WHITE.

1. **Visual Acuity.**—Parsons states that every case of headache in which the refraction is investigated should also be thoroughly examined with the ophthalmoscope. In most cases of papillitis other than those due to intracranial pressure central visual acuity is early depressed, and this is particularly the case. In albuminuric neuroretinitis the visual defect may be the first sign of disease, although the nephritis is already far advanced. Central vision may remain intact for a long time in retinitis pigmentosa, and also in early cases of primary optic atrophy. Allied to these cases are the early cases of primary glaucoma. The diseases in which the central visual acuity is depressed in spite of the absence of refractive error or its correction and in spite of the absence of gross disease, whether in the fundus or other parts of the eye, belong to two groups—those under the general heading of retrobulbar neuritis, and those in which there is disease of the higher visual nervous centres or tracts. The toxic amblyopias are usually included in the class of retrobulbar neuritis. The group of diseases with good central vision and no fundus changes dependent upon disease of the higher visual tracts or centres differs clinically from the retrobulbar cases in the persistence of normal pupil reactions. Blockage of the visual impulses in the optic radiations or destruction of the cortex of the occipital lobe will produce the characteristic visual defects. The amaurosis of uræmia is probably an unknown toxic product of metabolism acting upon the higher visual centres, since in most of these cases the pupil reactions are normal.

3. **Blood Pressure in Thoracic Aneurysm.**—Williamson has investigated the value of blood pressure determination in the diagnosis of aneurysm of the thoracic aorta and arrives at the following conclusions: 1. The arterial blood pressure in most cases of aneurysm of the thoracic aorta or innominate is either normal or slightly above normal. It is as a rule, however, much higher in cases of mere dilatation of the aorta, and this fact is of some value

in the differential diagnosis of these two conditions. 2. A distinct difference (at least 5 mm.) between the arterial blood pressures in the two arms is the rule in the majority, and in about the same proportion of cases, on the one hand, of both aneurysm of the arch or ascending portion of the aorta and aneurysm of the innominate, and, on the other, of dilatation of the aorta; and a marked difference (at least 10 mm.) is equally common in both. Such differences are therefore of no value in the distinctive diagnosis between these conditions. A great difference (at least 20 mm.) seems to be likewise about equally common in these two classes of case, but a difference of upwards of 30 mm. speaks strongly in favor of aneurysm as against mere dilatation of the aorta. 3. Whilst distinct (at least 5 mm.) or marked (at least 10 mm.) differences are the rule in a far larger proportion of cases of aneurysm of the arch or ascending portion of the aorta or innominate than in cases, on the other hand, of arteriosclerosis or mediastinal tumor, yet such differences are sufficiently frequent in the latter conditions to lead to the conclusion that their presence in a particular case affords but little help in the differential diagnosis between these conditions on the one hand and aneurysm of the arch or ascending portion of the aorta or innominate on the other. Differences of pressure between the two sides greater than 20 mm. afford, however, strong evidence in favor of aneurysm of the arch or ascending portion of the aorta as against the two other conditions. 4. A distinction between the pressures on the two sides is the exception in cases where none of the above pathological conditions are present. 5. Digital examination of the pulses in cases of aortic aneurysm is a far less sensitive method than instrumental, frequently gives results directly at variance with those obtained by the latter means, and hence is of much less value in diagnosis.

8. **Treatment of Otitis Media.**—Richards has had great success in the treatment of acute and chronic otitis media and other forms of otorrhoea with a concentrated solution of boric acid in alcohol and glycerin. The formula is boric acid one drachm, alcohol two or three drachms, and glycerin up to one ounce. The solution is nonirritant and nontoxic and can be used for long periods without producing any unpleasant effects. It is prolonged in action owing to the large amount of boric acid present and also to its solution in glycerin. Its powers of penetration are great, it flows readily and will readily percolate through even a small perforation. Its penetration is greatly aided by its high specific gravity—about 1.200. The treatment is painless, even when the solution is freely instilled into the middle ear. In chronic cases the ear should be first syringed out with a warm aqueous solution of boric acid. The head is then held so the affected ear is uppermost and the drops, previously warmed, are freely poured in.

9. **Leucæmia.**—Scott reports the case of a boy who at first presented the features of a somewhat atypical myeloid leucæmia, and five weeks later had the blood picture of a large lymphocytic leucæmia. Clinically the case was one of acute myeloid leucæmia. From his observations the writer draws the following conclusions: 1. The large lymphocyte

is present in the blood in all leucæmia. The large mononuclears and lymphocytes are frequently increased in myeloid leucæmia. Myelocytes are usually present in lymphadenoid leucæmia. 2. Between the extreme types, ordinary myeloid and ordinary small celled lymphadenoid (chronic lymphatic) on the one hand and the undifferentiated, usually acute, large lymphocytic on the other hand, all gradations have been found. 3. Both myeloid and lymphadenoid leucæmia may become large lymphocytic. 4. Simultaneous myeloid and lymphadenoid leucæmia is not known. The writer thinks that it is unjustifiable to look upon leucæmia as an infective disease. For the leucocytosis differs from that of known infective diseases, and fever is not necessarily bacterial in origin. The fever occasionally met with in myeloid leucæmia and so frequently in acute leucæmia may be due to the presence of albumoses and peptones in the blood plasma, for it has been shown that proteolytic ferments are liberated by the destruction of neutrophil cells and large lymphocytes in the blood. These ferments are present in myeloid leucæmia in easily recognizable amounts and albumoses have been found in the blood plasma. Yet, on account of its clinical picture, acute leucæmia is frequently spoken of as if it were an acute infection. That secondary infection takes place in acute leucæmia is not to be wondered at, since there is little or no formation of defensive leucocytes. What is to be wondered at is that sufferers from a large lymphocytic leucæmia keep free from infection so long as they often do.

LA PRESSE MEDICALE.

November 23, 1907.

1. Atropine of Disease of the Liver Due to Disease of the Heart. By EMIL GERAUDEL.
2. Human Adenoma. Experimental Adenoma and Suprarenal Capsules. By JOSÉ.
3. Practical Value of the Antituberculous Vaccination of Cows. According to Behring's Method. Experience at Leipsic According to Professor Eber.
4. Intestinal Autointoxication and Protection of the Organism by the Intestine. By R. ROMME.

1. **Disease of the Liver Due to Disease of the Heart.**—Geraudel believes, contrary to the theory advanced by some authors, that the systematized lesions of the liver due to disease of the heart do not possess a regional variation of the cause productive of the trouble, but a regional variation of the resistance of the organ.

3. **Behring's Antituberculous Vaccination of Cows.**—De Jong says that Eber has concluded from his studies into this subject that even though the vaccination of cows according to Behring's method may perhaps, under certain circumstances, aid in the fight against bovine tuberculosis, one cannot hope to obtain the best profit from the point of view of the practical contest against bacillary infection of the cows.

4. **Intestinal Autointoxication.**—Romme gives as the result of the experiments carried out by Eber, that the putrefaction of albuminous substances does not play the part that has been attributed to it in the pathogenesis of intestinal autointoxication, and that the protection of the organism against poisons of intestinal origin is secured less by the liver than by the intestine itself.

November 27, 1907.

1. Tuberculosis of an Old Flat Foot. By A. BROCA.
2. The Cell of Kupffer and its Evolution toward the Giant Cell. By MARCEL NATHAN.
3. When and How Should an Injection of Antitetic Serum Be Given? By R. HARDOUIN.

1. **Tuberculosis of an Old Flat Foot.**—Broca gives the history of a case in which a flat foot became tuberculous as a demonstration that while flat foot might perhaps be largely dependent on tuberculosis there are cases in which the flat foot was dependent on another cause.

3. **When and How Should an Injection of Antitetic Serum be Given?**—Hardouin answers this question thus: 1. In every case where, on account of a tortuous wound, one is not certain of his ability to obtain a rigorous disinfection, particularly when the patient has been specially exposed to contamination. 2. This injection should be made as soon as possible after the accident, but if one is called to a patient with a suppurating tortuous wound forty-eight hours or three days after the accident the same injection should be made, because, even if the effect upon the toxines is not so great, less cells will be destroyed. 3. The injection of the antitetic serum should be repeated two or three times at an interval of eight days if the wound should continue to suppurate. 4. Finally he recommends that the antitoxic injection should be made in every case in which the practitioner has the least doubt.

LA SEMAINE MEDICALE.

November 27, 1907.

Local Applications of Arsenic in Septicæmia Following Wound Infection. By S. CERNY.

Local Applications of Arsenic in Septicæmia Following Wound Infection.—Cerny alleges that beneficial results follow this form of treatment, which he attempts to explain chemically, and seems to think that the advantages afforded appeal to the country practitioner. He adds that the local applications of arsenic are equally efficacious against bacterial toxines and the venoms of serpents and other animals.

BERLINER KLINISCHE WOCHENSCHRIFT.

November 28, 1907.

1. Specific Hemolysis of the Blood Composites Fixed with Osmium. By S. H. NOLAN and G. W. W.
2. Concerning the Adrenal Glands. A Study of the Serum of Animals With Kidney Disease From Which the Adrenal Glands Have Been Removed and of Persons with Kidney Disease. By H. H. FISCHER.
3. The Adams-Stokes Symptom Complex. By MICHAELIS and BENTHEIM.
4. Precipitin Reaction in Syphilis. By L. MICHAELIS.
5. The Pathology of the Adrenal Glands. By H. H. FISCHER.
6. Concerning the Pathogenesis of the Adrenal Glands. By H. H. FISCHER.
7. Concerning the Adrenal Glands. By H. H. FISCHER.
8. Concerning the Adrenal Glands. By H. H. FISCHER.
9. Gout and Cardiac Disease. By H. H. FISCHER.

2. **Adrenaline Like Action of Serum of Animals That Have Had Their Kidneys Removed and of Persons with Kidney Disease.**—Fischer has found that the serum obtained from such animals and persons produces mydriasis in the eye of the frog, the same as adrenaline, and in some cases produced con-

traction of the vessels and increase of the blood pressure.

3. **The Adams-Stokes Symptom Complex.**—Michaels and Beuttenmüller distinguish pathogenetically two classes of cases of this disease. In one class the brachycardia arises from the vagus or the medulla oblongata, the neurogenous form, in the other, the cardiac form, experiments seem to show that there is a primary injury of the transition bundles followed by an altered behavior of the refractory period in the individual segments of the heart.

4. **Precipitin Reaction in Syphilis.**—Michaelis asserts that a precipitate is formed from a mixture of syphilitic serum with syphilitic liver extract and salt solution, but not when other serum is used. He gives the following formulæ: Syphilis serum, 0.2; syphilis liver extract, 0.2; salt solution, 0.9; *precipitate*.—Normal serum, 0.2; syphilis liver extract, 0.2; salt solution, 0.9; *no precipitate*.

5. **Pulsations of the Auricles Visible on the Chest Wall.**—Rautenberg reports a case in which he was able to observe a visible pulsation of both auricles on the chest wall of a girl, fifteen years of age, suffering from mitral and aortic insufficiency, which was well compensated, and a relative tricuspid insufficiency. He also mentions a few cases in which he has been able to observe the pulsation of one or other of the auricles. His conclusions are: 1. In the swinging motion of the heart the right chest wall shows not only a systolic impulse, as has been heretofore assumed, but may present all phases of the auricular pulse. This may be, in young individuals, the first sign of tricuspid insufficiency. 2. The pulsation of the left auricle may, under certain circumstances, such as dilatation of the left auricle, or contraction of the upper lobe of the left lung, be visible on the outer wall of the chest. 3. There are valvular troubles in which one can see the pulsations of all four parts of the heart on the external wall of the chest.

8. **Experiments with Marmorek's Serum.**—Wohlberg obtained excellent results in cases of scrofula and glandular tuberculosis, including a case of ulcerative keratitis. In cases of bone and joint tuberculosis the results obtained were less brilliant, but the general condition of the patients was improved. The histories of five cases are given.

9. **Goitre and Cardiac Diseases.**—Gittermann found among 895 patients with myogenous disease of the heart (651 men, 244 women) 121 with evident goitre (21 men, 100 women) in 11, exophthalmic goitre was present; in 110 there was a goitre which had lasted many years and to which in the course of time a disease of the cardiac muscle had been added. While in the cases of exophthalmic goitre the disease had begun in early life, of the others 6 had begun to suffer between the ages of twenty and thirty, 19 between thirty and forty, 27 between forty and fifty, 43 between fifty and sixty, and 15 over sixty. In 71 there was a myocarditis with concentric hypertrophy of the heart, with no signs of Basedow's disease; in 29 there was an acceleration of the pulse with arrhythmia; in 11 regular greatly accelerated pulse; in 24 arrhythmia without great acceleration; in 7 attacks of tachycardia,

with otherwise normal action of the heart. In 8 cases there were evident signs of arteriosclerosis; in 15 cardiac murmurs could be heard; 3 had valvular trouble due to rheumatism; 1 severe arthritis deformans, and in 1 there was great emaciation from the use of thyreoidin. Twelve patients had fainting spells, 4 had serious stenocardic attacks with pulmonary oedema; only three times were slight circulatory disturbances and oedema found. In 31 there was simple dilatation of the heart; 23 of these had trembling of the hands and general nervous symptoms, with rheumatic pains, and 8 had a slight exophthalmos. Five had heart murmurs, 13 had acceleration of the pulse, usually regular, and 18 had attacks of tachycardia. Many more symptoms are likewise mentioned.

MUENCHENER MEDIZINISCHE WOCHENSCHRIFT.

November 19, 1907.

- Recent Investigations Concerning the Diagnostic Signification of the Pupillary Symptoms, By BUMKE.
- Concerning Hæmolysis through Serpent Venom, By VON DÜNGERN and COCA.
- The Permanent Results of Sanatoria for Pulmonary Diseases, By CROISSANT.
- Flatfoot and Tuberculosis of the Tarsus, By EWALD.
- Ophthalmia Neonatorum, By SCHANZ.
- Concerning the Inconstant Appearance of the Spriochæta of Syphilis, By VÖRNER.
- Aneurysm of the Aorta after Acute Aortitis, By BUTTERSACK.
- Transient Oedema of the Optic Papilla of an Eye, a Localization of Quinke's Acute Circumscribed Oedema, By HANDWERCK.
- Photomicrographs in Various Colors, By HOFFMANN.
- Specialty Constructed Tape Measure for the Accurate Measurement of Circumferences, By WAHL.
- A New Spectroscope, By SCHUMM.
- Treatment of Dysmenorrhœa through the Breast Glands (A Reply to an Article under the Same Title by H. W. Freund), By POLANO.
- The Function of the Auricle, By GEIGEL.

1. **Diagnostic Signification of Pupillary Symptoms.**—Bumke sketches the part played by pupillary symptoms in the diagnosis, first of organic diseases of the nervous system, and second, of functional troubles, with very full reference to the literature on the subject.

2. **Hæmolysis through Serpent Venom.**—Von Dungere and Coca say that the peculiar appearances which we have learned to recognize with cobralecithin hæmolysis can also be produced by an entirely different mechanism, as when it is caused in the blood solution by immune bodies and complement. They recount a considerable number of experiments and draw the conclusion that the antitoxine produced by immunization acts against the native cobra poison contained in the hæmolysin alone, but not against the finished cobralecithin hæmolysin. They also say that they have obtained from various ovolecithin preparations without cobra venom a hæmolytic substance which behaves the same as regards proportionate solubility in water, alcohol, ether, and acetone, as the hæmolysin with cobra poison.

3. **Permanent Results of Sanatoria for Pulmonary Diseases.**—Croissant believes that the results of the sanatorium treatment of tuberculosis are less brilliant than expected, but that this form of treatment must not be condemned on that account.

4. **Flatfoot and Tuberculosis of the Tarsus.**—

Ewald reports three cases which seem to support the theory that there is an ætiological relation between flatfoot and tuberculosis of the tarsus.

6. Inconstant Appearance of the Spirochætæ of Syphilis.—Vörner reports a case in which a number of examinations were made of syphilitic lesions. In the first series of sections a very small collection of spirochætæ alone was found. Three days later another series of sections contained no spirochætæ. At the patient's next visit a papule was secured and almost all the sections found to contain spirochætæ. Another series of sections revealed only two small places in which the spirochætæ were present. It would appear, says the author, as though the quantity of spirochætæ is in no way proportionate to the duration of the efflorescence.

8. Transient Œdema of the Optic Papilla.—Handwerck reports a case in which a woman, seventy-three years of age, who had had at previous times swelling in the neck and of the tongue which were diagnosed as attacks of Quincke's acute circumscribed œdema, developed an œdema of the right optic nerve which improved in the course of a week. Handwerck believes that this was Quincke's acute circumscribed œdema localized in the optic papilla; so far as he knows, the only case on record.

10. Tape Measure for Accurate Measurement of Circumferences.—Wahl has adjusted a catch through which the tape measure passes and is then placed about the limb the circumference of which it is desired to accurately determine. The tape is drawn firmly about the limb and the catch marks the measurement.

REVUE DE CHIRURGIE.

November, 1907.

FRENCH SURGICAL CONGRESS, October 7 to 12, 1907.

Subjects for General Discussion.

1. Influence of the Röntgen Rays upon Malignant Tumors, By BÉLIER and MANSOURY.
2. Transplantations of Nerves, Muscles, and Tendons in the Treatment of Paralysis, By GAUDIER and KUMISSON.
3. Chronic Surgical Affections (Tuberculosis and Cancer) in Their Relations with the Accidents of Labor, By JEANBREAU and SEGOND.

Pathology and General Therapeutics.

4. Injections and Implantations of Firm Paraffin, By ECKSTEIN, BROCKMERT, BRÜGL and MOESTLIN.
5. The Limitations of the SATOCHI CLASS. Nature of Sarcomatous Tumors, By MALHERBE.
6. Two Cases of Melanotic Tumors Treated Locally with Arsenic by Czerny's Method, By J. REVERDIN.
7. Mode of Action of the Different Methods of Treating Cancer, By DOVEN.
8. Statistics of Spinal Cocainization and Stovainization, By LARABENDI.
9. Use of Scopolamine as a General Anæsthetic, By CAZIN and MARTIN.
10. The Possibility of Surgical Intervention Sleep Induced by Electricity, By JARREY.

Surgery of the Head and Face.

11. Remote Results of the Treatment of Trigeminal Neuralgia by Resection of its Branches and Excision of the Gasserian Ganglion, By DOLLINGER.
12. Treatment of Sacral Focal Neuralgia, By VIDAL.
13. Nasopharyngeal Fibromata, By LÉONARD.
14. Arteriovenous Aneurysm of the Cavernous Sinus Cured by Direct Compression, By JACQUES.
15. Cancer of the Floor of the Mouth, By MORESTIN.

16. The Application of Prothesis to Staphylopharyngeal Symphysis, By C. MARTIN and F. MARTIN.

Surgery of the Neck and Trunk.

17. Treatment of Papillomata of the Larynx, By RAUGE.
18. Treatment of Ten Cases of Cicatricial Narrowing of the Œsophagus by Ordinary Methods and Removal of Three Foreign Bodies, By GUISEZ.
19. Wound of the Lung, Contused Wound of the Heart, Pulmonary Hæmostasis, Pericardectomy, Recovery, By E. REYMOND and J. REVERDIN.
20. Cardiac Wounds, By A. DE ZAWADSKI.
21. Cancer of the Breast and Uterovarian Castration, By REYNÉS.
22. Recent Improvements in Pleuropulmonary Surgery, By TUFFIER, J. REVERDIN and MOTY.
23. Surgical Treatment of Hydatid Cysts of the Lung, By VAUTRIN.
24. Cancer of the Breast and Uterovarian Castration. History of a Case Four Years after Operation, By L. IMBERT and PSALTOFF.

Surgery of the Abdomen and Digestive Apparatus.

25. Laparotomy by Pfannenstiel's Method, By CHAVANNAG.
26. Operative Procedure to Prevent Eventration if Abdominal Drainage Is Indicated, By RASTOUL, JONNESCO and MONPROFIT.
27. Wounds of the Abdomen. Results of Operative Intervention, By IMBERT.
28. Treatment of Acute Peritonitis by Immediate Peritoneal Aspiration, By VILLARD.
29. A Symptom of Subphrenic Abscess in the Left Hypochondrium, By GUYOT.
30. Dermoid Cysts of the Umbilicus, By SOUBEYRAN.
31. Solid Tumors of the Mesentery, By MONPROFIT.
32. Exclusion of the Pylorus, By JONNESCO and MONPROFIT.
33. Stenosis of the Pylorus, Complete Inanition, Gastroenterostomy, Cure, By VORONOFF.
34. An Unfortunate Case of Postoperative Gastric Dilatation after Abdominal Hysterectomy for Fibroids, By PÉRIEUX.
35. Infracolic and Antiperistaltic Volvulus of the Stomach, By DELANGRE.
36. Contribution to the Study of Tetany and of Gastric and Intestinal Contractures, By SCHWARTZ.
37. Surgery of the Biliary Ducts. Drainage of the Liver, By PAUCHET.
38. Surgery of the Biliary Ducts, By MAIRE.
39. Hydatid Cyst of the Liver Opened through the Bile Ducts. Icterus from Obstruction. Secondary Operation. Cure, By VILLAR.
40. Congenital Malformation of the Anus and Rectum and its Surgical Treatment, By PRINETEAU.
41. Radical Cure of Strictures of the Rectum by Scrotal or Vaginal Autoplasty, By BROQUHAYE, WALTHER and BRUNSWIE-LE BIHAN.
42. Abdominal Hysterectomy as a Preliminary Step to Ablation of the Upper Rectum for Cancer, By TRXIER and REYMOND.
43. Abdominoperineal Amputation of the Rectum for Cancer, By GOTTLEIB.
44. Psoriasis and Appendicitis, By LARDENNOIS.

Surgery of the Urinary Passages.

45. Lipoma of the Pelvis on the Right Kidney. Hematuria; Enucleation; Recovery, By M. CROSIER.

Surgery of the Genital Organs.

46. Two Cases of Uterine Malformation, By DU JON.
47. Statistics of 180 Cases of Vaginal Hysterectomy for Fibroids, By LE BEE.
48. Retroperitoneal Cysts of the Ovary, By BOURDIER.
49. Remarks on a Series of Laparotomies for Disease of the Uterus and Appendices, By LAVEY.
50. Diagnostic Tubercle in Ovarian Disease in Young Girls, By BOUDET.
51. Results of local Indication for Vasectomies in Tuberculosis of the Male Genital Organs, By RAUBET.

Surgery of the Limbs.

52. Results of Osteoplastic, By DUPAGE.
53. Effects of Radioactivity in the Study of Fractures, By L. DE CHAMPIGNOUL.

54. Treatment of Tuberculosis of the Bones and Joints with Carbolic Acid and Phenopuncture, By MENCÈRE.
55. Conservative Operations for Malignant Tumors of the Stump of the Shoulder, By GIRARD.
56. Extirpation of the Shoulderblade for Osteosarcoma in a Sufferer from Trichinosis, By RÉMY.
57. Mixed Osteoma of the Elbow Following Reduction of its Luxation Backwards, By TOUSSAINT.
58. Section of the Entire Left Hand Minus the Flexor Tendons and the Skin of the Palm. Restitution by Suture of the Osseous Tendinous and Cutaneous Planes with Excellent Functional Result, By ANDRÉ.
59. A Case of Pollex Varus, By MILLS.
60. Luxations Following Osteomyelitis of the Hip in Early Childhood, By KIRMISSON.
61. Congenital Luxations of the Hip, By FROELICH.
62. Treatment of Congenital Luxation of the Hip in the Aged, By REDARD.
63. Treatment of Congenital Luxation of the Hip, By CALOT.
64. Treatment of Congenital Luxation of the Hip by Orthopaedic Measures, By JUDET.
65. Transrotation Arthrotoomy of the Knee, By THIERY.
66. Atrophic Elongation of the Bones of the Lower Limb in Connection with White Swelling of the Knee, By BARBARIN.
67. Tuberculosis of One of the Anterior Tarsal Bones. Reduction of External Dorsal Luxation of the Astragalus, By DELBET.

Letters to the Editors.

THE ULTRAVIOLET RAY.

616 MADISON AVENUE,
NEW YORK, December 1, 1907.

To the Editors:

In a very interesting article entitled *The Ultraviolet Ray and High Frequency Currents in Phlebitis*, by Dr. Sinclair Tousey, which appeared in your valued journal for November 30th, I notice the following statements:—

"A glass electrode exhausted to about 0.001 of an atmosphere and yielding *ultraviolet* rays and visible violet colored light, when traversed by a high frequency current, is applied directly to the affected limb." "*The ultraviolet ray itself may be demonstrated in the light given off by these tubes.* A piece of willemite becomes fluorescent when held near such a tube in operation."

It has been advanced as a positive fact by many able and careful investigators that the ultraviolet ray cannot pass through glass, and it is for this reason that ultraviolet lamps are supplied with quartz instead of a glass front piece.

The following simple experiments will, I think, prove that glass is a very serious obstacle to the passage of the ultraviolet ray: If a piece of willemite is held (in a darkened room) in front of an ultraviolet lamp (Piffard's spark gap lamp, for instance), the willemite assumes a brilliant green fluorescence. If a piece of glass is now interposed between the lamp and the willemite, the latter will cease to fluoresce. A close inspection, however, will show that the mineral still shines and may possess a dull green color. The character of this fluorescence (if it may be termed such) is totally different from the one first mentioned and in all probability is due to the effect upon the willemite of the visible chemical rays (blue, violet, etc.) which are able to pass through the glass, and very probably the color pro-

duced is a reflection of these rays combined with the production of a complementary color.

If a thin glass electrode containing the Geissler type of vacuum is excited by a strong high frequency current, the effect produced will be the same as obtained by Dr. Tousey's technique. Now, if the sparks from such a tube are allowed to touch a piece of willemite, the latter will assume the typical greenish fluorescence of the ultraviolet ray. But if the mineral is held just far enough away from the tube to prevent its contact with the sparks, one will notice the same phenomenon as when the ultraviolet ray is blocked off by glass, as mentioned in one of the foregoing observations. If glass is now inserted between the tube and the willemite, no change is noticed. Again, if a piece of paper or wood is coated with petrolatum, one half of which is covered with glass, and the whole surface exposed to the Piffard spark gap lamp (ultraviolet ray), the petrolatum not covered by the glass will be seen to fluoresce a bright blue or purple. If this same experiment is tried with the high frequency glass vacuum electrode, the petrolatum will assume a shiny appearance quite different from the bright fluorescence, and furthermore, the glass does not make a particle of difference.

These observations are certainly very significant, and to my mind, especially when combined with the findings of many reliable workers, they prove beyond a doubt that the ultraviolet ray is not contained in the light given off from a high frequency glass vacuum electrode, no matter how it may be excited or how thin the glass is. The ultraviolet ray will not pass through glass to any appreciable extent, but it will pass through a quartz crystal which looks like glass.

That the high frequency spark, no matter how produced, contains invisible ultraviolet rays as well as visible actinic rays has, of course, been well established. This will account for the fact that willemite will assume the typical ultraviolet fluorescence when allowed to come in contact with the sparks from the electrode. In fact almost any electrical spark contains these rays, and it is upon this theory that Piffard's spark gap lamp, his hand arc lamp, and other ultraviolet lamps are based.

GEORGE M. MACKEE.

Book Notices.

Materia Medica and Pharmacy. By REYNOLD WILCOX, M. A., M. D., LL. D., Professor of Medicine at the New York Postgraduate Medical School and Hospital, etc. Seventh Edition, Revised. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. ix-490. (Price, \$2.50.)

This book should be considered as a second volume to the *Pharmacology and Therapeutics* by the same author. When Dr. Wilcox undertook the sixth American edition of White's *Materia Medica and Therapeutics* he found it necessary to divide this well known book into two parts, the matter having so increased. It is therefore only a natural consequence that a new edition of one will necessitate the same labor and revision in the other. The book shows a great deal of condensation without endangering its clearness.

A Textbook of Physiology for Medical Students and Physicians. By WILLIAM H. HOWELL, Ph. D., M. D., LL. D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company, 1907.

Scientific medicine is to-day more intimately connected with physiological methods than at any time in the past, and the indications are that the greatest practical advances of the near future in the treatment of disease are to be looked for from research workers in the domains of pathological physiology and biochemistry. The necessary groundwork for these important sciences is the physiology of normal function, and in this admirable textbook of Professor Howell's will be found an exposition equally satisfying to the physician, the teacher, and student, and we believe it to be easily the best work of its kind extant in English.

This second edition is noteworthy for the amount of new material it includes without unduly increasing the bulk of the volume, and for its judicious treatment of matters which are still doubtful or the subject of conflicting views. Among these topics of special interest are the functions of the ductless glands and the internal secretions, the neurone theory, the intricacies of carbohydrate oxidation in the organism, the vexed question of the significance of the purin bodies, and the elusive chemistry of proteid metabolism. In connection with the last it is interesting to note that the writer is extremely conservative in his attitude toward the practical deductions of Chittenden and less scientific diet reformers, who would greatly diminish the nitrogenous elements of the daily food allowance. There is also a temperate, careful summary of the physiological action of alcohol which is upon the whole unfavorable to its ordinary use as a food or beverage, and would indicate a much restricted field for its employment as a medicine. There is an excellent chapter on the physiology of reproduction, and the sections dealing with the special senses are unusually full and are treated in a manner which will sustain the interest of the medical reader. The work is a valuable addition for any progressive physician's library.

Tracheobronchoscopy, Oesophagoscopy, and Gastroscopy. By CHESTER JACKSON, M. D., Laryngologist to the Western Pennsylvania Hospital, etc. With Five Colored Plates and Many Illustrations. St. Louis: The C. V. Mosby Company, 1907. Pp. 199. (Price, \$4.)

To Dr. Jackson credit must be given for having written the first book published in the English language pertaining to the rapidly developing departments of surgery, tracheobronchoscopy, oesophagoscopy, and gastroscopy.

The book is divided into three parts. After a short historical sketch the author describes the necessary armamentarium, the technique, and the best mode of acquiring the necessary skill in tracheobronchoscopy. He then takes up direct laryngoscopy, i. e., direct inspection of the larynx without reflection of the image. This is followed by the anatomy and pathology of the tracheobronchial tree. Tracheobronchoscopy in diagnosis, treatment, and extraction of foreign bodies closes the first part.

Oesophagoscopy is the subject of the second part, which is rather condensed, so as to avoid iteration

in the third part, gastroscopy, the author describing the anatomy of the oesophagus, the technique, the diseases and anomalies, and the removal of foreign bodies. Part III is arranged on the same lines as part one.

For examination of the bronchi the author prefers chloroform, except in dyspneic patients, considering morphine with its prolonged abolition of the cough reflex unsafe. But in oesophagoscopy and gastroscopy he considers chloroform dangerous; ether is his choice here, and the anaesthesia is preferably started with nitrous oxide gas.

The book is very well illustrated, giving pictures of instruments, topography, Röntgen photographs, position in operations, etc. Five colored plates contain thirty-five specimens, the colors being very true to nature. The bibliography cites 358 essays and books, a testimony to the industrious labor of the author, who can be congratulated upon producing such a book.

The Development of the Human Body. A Manual of Human Embryology. By J. PUNYFAIR McMURRICH, A. M., Ph. D., Professor of Anatomy in the University of Toronto. Third Edition, Revised and Enlarged. With Two Hundred and Seventy-six Illustrations. Philadelphia: P. Blakiston's Son & Co., 1907. Pp. 528. (Price, \$3.)

In this third edition of Professor McMurrich's textbook will be found a concise and thorough exposition of the main facts in the development of the human embryo, revised and brought down to date. Besides its interest for the laboratory worker and biologist, the medical student will find it helpful and suggestive for its illumination of the dry facts of descriptive anatomy. Appended to each chapter is a bibliography of the most important literature, and where necessary to elucidate the text there are excellent illustrations, some in colors, for the most part taken from the larger authoritative works on human and comparative embryology.

Some Points in the Surgery of the Brain and Its Membranes. By CHARLES A. BALLANCE, M. V. O., M. S., F. R. C. S., Royal Prussian Order of the Crown, etc. With Illustrations. London: Macmillan & Co., Limited; New York: The Macmillan Company, 1907. Pp. xv+405.

This monograph includes the Lettsonian lectures which were delivered before the Medical Society of London in 1906, the first lecture reviewing some points in the surgery of the cerebral membranes, the second describing some points in the surgery of abscess of the brain, and the third considering some points in the surgery of brain tumor.

The author urged in his first lecture a more prompt resort to operative measures where frontal and ethmoidal suppuration had developed, and he has had recovery result even when suppurgants had shown itself. He adopts Killian's operation in the management of these cases, though to obviate the slight depression in the forehead he may follow it he makes use of Desormeaux's osteoplastic flap. He considers that operative interference by bilateral craniotomy is justified in general suppurative meningitis, though it would seem that the meningeal cystic crumpling of the brain (that is, so likely to ensue would leave a mental or physical cripple who would be a constant source of anxiety to friends and relations or of expense to the state.

Most surgeons will agree to the author's plea, in the lecture on abscess, to operate as early as possible. If, however, the patient is not seen until the condition is far advanced, the operation should still be performed.

In surgical intervention the victim of brain tumor has his only hope, and the author records many important cases that are most illuminative. We may be permitted to acknowledge his expression of appreciation of the symposium on cerebellar tumors that appeared in the *Journal* in 1905.

The book is splendidly illustrated, and is likely to be most helpful both to the surgeon and to the neurologist.

Practical Diagnosis. The Use of Symptoms and Physical Signs in the Diagnosis of Disease. By HOBART AMORY HARE, M. D., B. Sc., Professor of Therapeutics in the Jefferson Medical College Hospital, etc. Sixth Edition, Revised and Enlarged. Illustrated with 203 Engravings and 16 Plates. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. xii-616. (Price, \$4.50.)

The author states truly that there is a great tendency at the present day on the part of practitioners who can command laboratory assistance to ignore the measures that had to be relied on before laboratories were developed, with the result that the various methods of physical diagnosis that involve refinement in touch, hearing, and observation are in danger of becoming lost arts. As has been humorously said, the method is one that results in "diagnosis while you wait." It is also true that practitioners who do not live near well equipped laboratories, or do not possess special instruments for diagnosis, are sometimes careless because of the omission of laboratory methods. It is the author's purpose to teach the diagnosis of disease by means of the symptoms presented by the patient, and laboratory methods are referred to only in those matters—such as examination of the blood or urine—in which they are essential to arrive at correct results.

Another good plan that has been followed in this book is the description of the symptoms useful in diagnosis, in the chapter on the part or organ that presents the symptoms, and then the diseases in which the symptoms occur are discussed.

That this practical method has met with approval is shown by the appearance of this sixth edition, and the useful character of the work is likely to lead to many new editions.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B. A., M. D., LL. D. (Yalen.), Professor of Surgery in Cornell University Medical College, New York, etc. Fifth Edition, Revised and Enlarged. With 352 Illustrations and 52 Plates. New York and Philadelphia: Lea Brothers & Co., 1907. Pp. xx-19 10 854.

The author has availed himself of the preparation of the fifth edition of his well known work to give it a thorough revision. He has continued to incorporate the valuable experience afforded by the service in the House of Relief of the New York Hospital, to which so many who have been injured in down town New York are taken. There he has observed not only all the usual or commoner forms of fracture, but also many that are rare and that have been described first in this work.

There has also been a constant accumulation of

data obtained by the use of the x ray, both in recent and in old cases, and important information has been obtained in fractures that involve the joints and the small bones. The results of these more extended observations are included in the sections on the fractures and dislocations of the ends of the long bones and the bones of the wrist and the foot. Forty-two new illustrations have been added.

The high standard established in the first edition of this work has been maintained, and it constitutes a most valuable and practical textbook.

Klinische Beiträge zur Lehre von den Degenerationspsychosen. Von Dr. K. BONHOEFFER, Breslau. Halle a. S.: Carl Marhold, 1907. Pp. 55.

In this, one of the latest of the monographic series of contributions to nervous and mental diseases, Bonhoeffer gives a résumé of the present tendency of thought relative to those mental diseases which develop on a degenerative basis.

Degeneration is such a cheap word after all, and, as abused by French writers, has lost entirely its significance! So much so that one at the present time finds it recklessly used as a term of dissent or reproach, apart from any other significance.

When, with Kraepelin, degeneration as a descriptive term almost went out of fashion, the entire foundation of much French psychiatry became undermined.

Bonhoeffer here presents a careful analysis of some 221 patients from the standpoint of mental diseases developing on a degenerative background. The first series of cases are paranoid types, in all of which the development of the mental trouble follows an acute or subacute course. The groundwork of hereditary taint, degenerative stigmata, and early antisocial character are all present in these cases. Many of the patients show marked ups and downs in their development, going in and out, as it were, of their paranoid states. Many of the cases agree with the acute paranoia of Friedmann and are not dementia præcox cases, nor yet manic-depressive cases, as Kraepelin is inclined to group them. This is an important group, and, as many of Bonhoeffer's patients were criminals, his deductions are of special value from the medicolegal point of view. A second group consists of the litigious and quarrelsome. A third group is founded on an abnormal liability of the consciousness of personality. These are cases in which simulation is often suspected, in which the pathological liars and swindlers are to be found.

We can recommend this little study to alienists, especially to the many who still are traveling the rut of French psychiatry, so popular fifteen years ago, and to whom words in psychiatry stand as the immutable symbols of things.

The Physician's Visiting List (Lindsay & Blakiston's). Philadelphia: P. Blakiston's Son & Co., 1908.

The Physician's Visiting List of Lindsay & Blakiston for 1908 is the fifty-seventh annual edition of this convenient and useful memorandum book. The publishers have wisely refrained from attempting to incorporate in it a compendium of materia medica, but have included brief and useful notes on incompatibility, the immediate treatment of poisoning, the metric system, thermometric equivalents, etc., and a dose table compiled by Professor Wilbur L. Scoville

in accordance with the U. S. Pharmacopœia VIII. The work is complete and compact, and will be most welcome to the physician who does not wish to burden himself with a voluminous account book. The book is prepared in different sizes, so as to be suitable for keeping the accounts of 25, 50, 75, or 100 patients, as may be desired.

BOOKS, PAMPHLETS, ETC., RECEIVED.

Modern Medicine. Its Theory and Practice in Original Contributions by American and Foreign Authors. Edited by William Osler, M. D., Regius Professor of Medicine in Oxford University, England, etc., Assisted by Thomas McCrae, M. D., Associate Professor of Medicine and Clinical Therapeutics in the Johns Hopkins University, Baltimore. Volume III. Infectious Diseases (Continued)—Diseases of the Respiratory Tract. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1907. Pp. 960.

Laboratory Guide for the Modeling of the Human Bones in Clay. By Vilray Papin Blair, A. M., M. D., Associate Professor of Anatomy, Medical Department, Washington University. St. Louis: Cooperative Association of the Medical Department of the Washington University. Pp. 69.

Mt. Sinai Hospital Reports. Volume V, for 1905 and 1906. Edited for the Medical Board by N. E. Brill, A. M., M. D. 1907. Pp. 575.

A Study of the Brains of Six Eminent Scientists and Scholars Belonging to the American Anthropometric Society, Together with a Description of the Skull of Professor E. D. Cope. Extracted from Transactions of the American Philosophical Society, N. S. Volume XXI, Part III. By Edward Anthony Spitzka, M. D., Professor of General Anatomy, Jefferson Medical College, Philadelphia. Philadelphia: The American Philosophical Society, 1907. Pp. 308.

The Semi-insane and the Semirresponsible (Demi-fous et Demi-responsables). By Joseph Grasset, Professor of Clinical Medicine at the University of Montpellier, etc. Authorized American Edition. Translated by Smith Ely Jelliffe, M. D., Ph. D., Clinical Professor of Mental Diseases, Fordham University, N. Y., etc. New York and London: Funk & Wagnalls Company, 1907. Pp. xix+415.

Miscellany.

The Late Dr. George F. Shrady.—At a meeting held December 10, 1907, the medical board of the Willard Parker and Riverside Hospitals, having learned with profound regret of the death, on November 29th, of Dr. George F. Shrady, consulting physician to the hospitals of the Department of Health of the City of New York, unanimously:

Resolved, That the board mourns the death of Dr. Shrady, an eminent member of the medical profession of this country. It recalls with pride his magnificent record as a physician, his pioneer work in medical journalism as editor of the *Medical Record*, his civic patriotism, which placed him always in the foremost ranks of those who sought the welfare of the community; his wisdom as a counselor, in former years, to the health authorities of this city, as well as those of the State and country.

Resolved, That the members of this medical board individually regret the loss to themselves of a charming, genial, loyal, broadminded, and cultured colleague, whose mental and social attributes endeared him to those whose privilege it was to be closely associated with him.

Resolved, That the medical board remembers with special satisfaction his unselfish benevolence, which prompted him, when in the height of his surgical reputation, to respond to the call for the perform-

ance of major surgical work upon persons suffering in the hospitals of the Health Department from contagious diseases.

Resolved, That the medical board extends to the widow and family of Dr. Shrady its esteem and deep sympathy in this affliction, and the assurance that it shares with them the sense of loss suffered in the death of one of whose character, work, and life they are so justly proud.

Resolved, That these resolutions be spread in full upon the minutes of this board and that they be transmitted to the family of Dr. Shrady, and appropriate publicity be given them in the medical journals of the city.

For the medical board,

{ JOHN W. BRANNON, M. D.
{ WILLIAM H. PARK, M. D.
(Signed) { LOUIS FISCHER, M. D.
{ S. A. KNOPP, M. D.
{ HENRY W. BERG, M. D.

Quarterly Report of the Bureau of Health for the Philippine Islands, Second Quarter, 1907.—

The second quarterly report of 1907 for the Philippine Islands has been received. The total population of the city of Manila during that period was 223,542, among whom there were 1,280 deaths, an annual average of 22.98 in one thousand of population. There were at the same time 1,816 births, corresponding to an annual average of 32.6 in one thousand. There were 16 deaths from typhoid fever; 31 from intermittent fever and malarial cachexia; 1 from smallpox; 1 from whooping cough; 11 from influenza; 30 from dysentery; 9 from leprosy; 39 from beriberi; 7 from septicæmia; 227 from pulmonary tuberculosis; 3 from general tuberculosis; 21 from other forms of tuberculosis; 14 from cancer; 2 from acute articular rheumatism; 9 from bronchopneumonia; 2 from pneumonia; 113 from acute and chronic bronchitis; and 96 from acute and chronic diarrhoea and enteritis in children under two years of age. There are 2,826 lepers; 3,449 insane persons; and 6,964 blind persons living in the various provinces of the Philippine Islands. The Board of Health made 138 laboratory examinations during the quarter and distributed 905,700 units of vaccine virus. An average of 53,473 persons in one thousand of population were vaccinated between September 1, 1906, and June 30, 1907, in the various provinces. In Manila there were 42 cases of smallpox, with 1 death. From August 23, 1905, to June 30, 1907, there were 1,103 cases of epidemic cholera in the city of Manila, with 970 deaths, a mortality of 87.94. During the same period there were 11,213 cases of epidemic cholera in the provinces, with 8,301 deaths, a mortality of 74.03 per cent. The absolute maximum temperature recorded at the Manila central observatory was 98.9 degrees on the second day of May. The maximum relative humidity was 90.9 on the twenty-fifth day of June. During April there was a total rainfall of 49 mm. on three rainy days. During May there was a total rainfall of 62.2 mm. on eight rainy days. During June there was a total rainfall of 146.7 mm. on fourteen rainy days. Malarial fevers in the city of Manila have been greatly reduced in number, probably on account of mosquito extermination work, which has been more

successfully prosecuted since it has been found that the stagnant water in sewers furnishes their principal breeding places. Smallpox is the only dangerous communicable disease occurring in the city of Manila, but tuberculosis, on the other hand, has claimed more than its share of victims. There were no cases of cholera or plague during the quarter. A district health officer was detailed to examine the character of the drinking water used in all public houses and offices. A model water cooler has been designed by the Bureau of Health for the purpose of lessening disease transmission, particularly amoebic infection, through the use of polluted ice. Daily inspection of dairy foods was systematically carried out. The new Philippine Medical School opened its doors to students on June 10th, with fifty-four men is taught along American lines. The medical department of the Santo Tomas University is improving its facilities to meet the competition of the new school.

The Sanitation of the Modern Camp.—Major Charles E. Woodruff, surgeon in command at the United States camp at the Jamestown Exposition, discusses this question very interestingly in the *Military Surgeon* for December. He cites the so called model United States camp at the Jamestown Exposition, which demonstrates how a camp should not be erected. The conditions said to have existed at the camp are really incredible, and great praise should be given to the medical officers on duty who prevented the outbreak of any dangerous epidemic. The Exposition Company promised to attend to many things, but failed in every instance. The worst of the matter is the fact that the bad conditions were foreseen and ample advice given, long before the militia came, but the advice was ignored. The author says: "Pine Beach district, just outside the grounds, was in a condition of sanitary anarchy, so foul as to be unbelievable. This was foreseen by Dr. Blue and myself, and in March we called a meeting of the health authorities, but they did nothing effective. It became necessary to exclude soldiers from this area by military orders, and at no time has it been safe to let them frequent this extended cesspool of filth and iniquity. Indeed the two soldiers who contracted typhoid probably got it by eating in this forbidden territory in violation of orders, and typhoid is endemic in Pine Beach. Inside the exposition grounds conditions were dreadful. Open cesspools had existed everywhere, some even long after the opening day. The sewer system was defective and occasionally backed up and overflowed. The Indians of the '101 Ranch,' or 'Wild West Show,' had no closet facilities and defecated all over their grounds, and a sewer built above ground leaked out its contents. Nearby was the Military Dining Tent swarming with flies fresh from the feces. To the west of our camp were the militia camps. These soldiers were supplied with defective, leaky trough latrines, but, as is the rule with new troops, seemed to prefer defecating everywhere else. At night they could not find the latrines. To the east was the freight station, and the railroad employees used all the surrounding country as one vast cesspool, in the midst of which an ambulance crematorium was established. We were continually surrounded with feces, and the sol-

diers and officers of the artillery complained bitterly of being compelled to live in a constant odor of defecations—though one published a letter saying he liked the duty, yet he got away on leave of absence and is still absent. . . . Now such a state of affairs is awful. An inexperienced layman, evidently ignorant of sanitation, sends out incorrect statements, contrary to what he had been officially informed at his own request, and he thus jeopardized the lives of militia, who should not have come even for a few days, as the risk was too great. Is it not selfevident that we need a law to prevent such actions in the future, a law making it a serious offense to do or say what sanitary law says is wrong? If such is not to be the rule in the conduct of armies, warfare is impossible."

The Purpose of Vital Statistics.—Comparatively few people seem to realize the purpose for which records of deaths and births are collected by public authorities in all civilized countries. It is a disgrace of many years' standing that the United States has lagged behind and possesses no reliable statistics for the country as a whole. There are only sixteen States the returns of deaths of which are accepted by the Bureau of Vital Statistics at Washington as ninety per cent. perfect, and not one of which the returns of births are full and trustworthy. In Europe registration has been practically perfect for many years, and the filing of the appropriate certificates is recognized as a duty which is fulfilled as a matter of course by all the people. That America is a young country is no excuse, for good registration is secured in the British colonies in South Africa, and some of the central American republics put us to shame in this regard. One reason for the backward condition of registration of vital statistics in this country lies in the fact that legislation on the subject has in many instances been ill advised and crude. And there is practically no uniformity in the methods or regulations adopted by the different States which make any pretense at all at collecting these data. Improvement in this respect is likely to follow the recent formation of a section on vital statistics in connection with the American Public Health Association. These records are of value in two ways, to the sanitarian working for the prevention of disease and the prolongation of life, and to the individual. Large sums of money are being expended annually in properly disposing of sewage, in filtering and protecting public water supplies, in disinfection, in carrying on the antituberculosis crusade by sanatoria, dispensaries, educational measures, etc. How can we determine if this money is being spent to the best advantage unless we can see their effect upon the death rate? How can we really judge the health conditions, the sanitary aspects of a community unless we have an accurate birth rate to compare with the death rate? To the individual directly, the registration of births and deaths is important. There is hardly a relation in life in which such a record may not be evidence of the greatest value. In the matter of inheriting property; in the administration of estates; as an insurance proof to establish the exact age of the insured; in determining whether individuals are of a legal marriageable age; in voting; in jury and military service; in many avenues of professional

and official life; in carrying out the provisions of laws relating to education and child labor, and in numerous other ways, records of this character are often of the highest importance. It would seem that there are but few people whose birth, marriage or death does not at some time, become a matter of official or legal cognizance.—*Monthly Bulletin, New York State Department of Health, November, 1907.*

Vital Statistics of the State of New Jersey, from October 16 to November 15, 1907.—The number of deaths reported to the Bureau of Vital Statistics for the month ending November 15, 1907, was 2902. By ages, there were 651 deaths among infants under one year, 241 deaths of children over one year, and under five years, and 774 deaths of persons aged sixty years and over. Pneumonia and diseases of the respiratory system show a slight increase which is usual at this season of the year. The average number of deaths from infantile diarrhoea for the previous twelve months was 206, and the number of deaths from this cause for the month ending November 15, was 201. The following table shows the number of certificates of death received in the State Bureau of Vital Statistics during the month ending November 15, 1907, compared with the average for the previous twelve months.

Death certificates received.

	Nov. 15, 1907.	Average for previous twelve months.
Typhoid fever	40	36
Malaria	10	16
Scarlet fever	10	16
Whooping cough	10	24
Diphtheria	40	57
Measles	10	10
Tuberculosis of lungs	11	10
Tuberculosis of other organs	4	8
Cancer	127	130
Cerebrospinal meningitis	21	29
Diseases of nervous system	150	187
Diseases of circulatory system	141	111
Diseases of respiratory system (pneumonia and tuberculosis excepted)	155	177
Pneumonia	109	94
Intestinal diseases	301	288
Diseases of the digestive system (Intestinal diseases excepted)	100	100
Bright's disease	111	100
Stroke	5	29
All other causes	607	578

11915

1198

Physicians' and Dentists' Fees in Constantinople.—In a recent issue of *Daily Constantinople and Trade Reports* reference is made to the high charges for services made by physicians and dentists in Constantinople. The consular reporting says: "Other constant charges are physicians' and dentists' fees. A physician never charges less than \$2.50 for a visit to his consulting room, and \$5 is the usual fee for his visit to one's home, or more if in the country. Dentists seem to vie with each other in to whom to make the heavier charges. It is nothing unusual to be charged \$4 for dentures for which one would pay \$1 in the United States. Although the charges of pharmacists are regulated by law, and by the Imperial School of Medicine, this is only a safeguard for the poor, and a prescription of a good physician sent to a reliable pharmacist to be dispensed will be charged for according to the rank of the patient in whose name it is issued."

Official News.

Public Health and Marine Hospital Service Health Reports:

The following cases of smallpox, yellow fever, cholera, and plague have been reported to the Surgeon General, United States Public Health and Marine Hospital Service, during the month ending December 15, 1907.

Places.	Cases.	Deaths.
California—Los Angeles	N	0
California—Sacramento	N	0
California—San Francisco	N	0
California—Albany	N	0
California—Oakland	N	0
Louisiana—New Orleans	N	0
Massachusetts—Fall River	N	0
Michigan—Grand Rapids	N	0
Michigan—Saginaw	Nov. 24-30	0
Minnesota—Winona	Nov. 24-30	0
Minnesota—St. Cloud	Nov. 30-Dec. 6	0
Minnesota—Duluth	N	0
Minnesota—St. Paul	N	0
Minnesota—Mankato	N	0
Minnesota—Rochester	N	0
Minnesota—St. James	N	0
Minnesota—Wadena	N	0
Minnesota—Brainerd	N	0
Minnesota—Cloquet	N	0
Minnesota—Hibbing	N	0
Minnesota—Marquette	N	0
Minnesota—Superior	N	0
Minnesota—Two Harbors	N	0
Minnesota—Vermilion	N	0
Minnesota—Wadena	N	0
Minnesota—Brainerd	N	0
Minnesota—Cloquet	N	0
Minnesota—Hibbing	N	0
Minnesota—Marquette	N	0
Minnesota—Superior	N	0
Minnesota—Two Harbors	N	0
Minnesota—Vermilion	N	0
Minnesota—Wadena	N	0
Minnesota—Brainerd	N	0
Minnesota—Cloquet	N	0
Minnesota—Hibbing	N	0
Minnesota—Marquette	N	0
Minnesota—Superior	N	0
Minnesota—Two Harbors	N	0
Minnesota—Vermilion	N	0
Minnesota—Wadena	N	0
Minnesota—Brainerd	N	0
Minnesota—Cloquet	N	0
Minnesota—Hibbing	N	0
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Public Health and Marine Hospital Service:

Official List of Changes in the Stations and Duties of Commissioned and Noncommissioned Officers of the United States Public Health and Marine Hospital Service, for the week ending December 14, 1907:

- BANKS, C. E., Surgeon. Directed to proceed to Tampa Bay Quarantine Station and assume temporary charge.
- BELL, J. M., Pharmacist. Granted leave of absence for twenty-two days from December 10, 1907.
- BERRY, T. D., Passed Assistant Surgeon. Leave of absence granted for one month and ten days from November 1st revoked, and two months' leave of absence granted from November 1st on account of sickness.
- CLEAVES, F. H., Acting Assistant Surgeon. Leave of absence granted for twelve days from November 18, 1907, amended to read for eleven days only.
- CUMMING, H. S., Passed Assistant Surgeon. Leave of absence granted for one month from October 1st, amended to be effective from October 7, 1907.
- DELGADO, J. M., Acting Assistant Surgeon. Granted leave of absence for eighteen days from November 27, 1907.
- FOSTER, M. H., Passed Assistant Surgeon. Directed to proceed from Danville, Pa., to Washington, D. C., for special temporary duty.
- GARDNER, C. H., Passed Assistant Surgeon. Granted leave of absence for one month from December 7, 1907.
- HUNT, REID, Chief of the Division of Pharmacology, Hygienic Laboratory. Detailed to attend meeting of the American Association for the Advancement of Science and the Society of Biologic Chemists, to be held in Chicago, December 30, 1907, to January 4, 1908.
- ONUF, B., Acting Assistant Surgeon. Granted leave of absence for twenty-four days from December 8, 1907.
- RANSOM, S. A., Acting Assistant Surgeon. Granted leave of absence for ten days from November 4, 1907, and excused without pay for twenty days from the expiration of said leave.
- RICHARDSON, S. W., Pharmacist. Granted leave of absence for thirteen days from December 16, 1907.
- ROBERTSON, H. MCG., Assistant Surgeon. Granted leave of absence for twenty-six days from December 9, 1907.
- ROSENAU, M. J., Passed Assistant Surgeon. Directed to attend the meeting of the local health officers of the State of New York, and that of the members of the Albany County Medical Society, January 2, 1908.
- SAFFORD, M. V., Acting Assistant Surgeon. Granted leave of absence for three days from December 5, 1907, under paragraph 210, Service Regulations.
- SOUTHARD, F. A., Pharmacist. Granted leave of absence for seven days from December 10, 1907, under paragraph 210, Service Regulations.
- STEARNS, H. H., Acting Assistant Surgeon. Granted leave of absence for fifteen days from December 16, 1907.
- STIMSON, A. M., Assistant Surgeon. Granted leave of absence for seven days from December 6, 1907, under paragraph 191, Service Regulations.
- WETMORE, W. O., Acting Assistant Surgeon. Granted leave of absence for two days from November 14, 1907, under paragraph 210, Service Regulations.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army, for the week ending December 14, 1907:

- ASHBURN, P. M., Captain and Assistant Surgeon. Ordered to Fort Banks, Mass., for duty.
- BROWN, H. L., First Lieutenant and Assistant Surgeon. Granted two months' leave of absence.
- COFFIN, J. M., Captain and Assistant Surgeon. Granted leave of absence for two months.
- DAVIS, W. R., Captain and Assistant Surgeon. Ordered to Fort Mason, Cal., for duty, and as attending surgeon, San Francisco, Cal.
- FORD, J. H., Captain and Assistant Surgeon. Ordered to Fort William Henry Harrison, Mont., for duty.
- PIERSON, R. H., First Lieutenant and Assistant Surgeon. Relieved from duty at Fort Mason, Cal., and as attending surgeon, San Francisco, Cal., and ordered to Fort Niagara, N. Y., for duty.
- SHILLLOCK, PAUL, Major and Surgeon. Granted fifteen days' leave of absence.
- SNYDER, C. R., First Lieutenant and Assistant Surgeon. Relieved from duty at Fort William Henry Harrison, Mont., and ordered to Fort McHenry, Md., for duty.

WINN, R. N., Captain and Assistant Surgeon. Ordered to Jefferson Barracks, Mo., for duty.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy, for the week ending December 14, 1907:

- BIDDLE, C., Surgeon. Ordered home to await orders upon completion of examination for promotion.
- DELANCY, C. H., Passed Assistant Surgeon. Detached from the Navy Yard, New York, N. Y., and ordered to the naval recruiting station, Chattanooga, Tenn.
- FITTS, H. B., Surgeon. Detached from the *Buffalo* and ordered home to await orders.
- FLINT, J., Assistant Surgeon. Detached from the Naval Hospital, Canacao, P. I., and ordered to the *Wilming-ton*.
- HATHAWAY, G. S., Assistant Surgeon. When discharged from treatment at the Naval Medical School Hospital, Washington, D. C., ordered to the Naval Hospital, Boston, Mass., for duty.
- LEACH, P., Surgeon. Detached from the *Hancock*, and when discharged from treatment at the Naval Hospital, New York, N. Y., ordered to the Army and Navy General Hospital, Hot Springs, Ark., for treatment.
- MOORE, J. M., Surgeon. Detached from the naval recruiting station, Chattanooga, Tenn., and ordered to the *Kansas*.
- NASH, F. S., Surgeon. Ordered to the Naval Academy, Annapolis, Md.
- NELSON, J. L., Passed Assistant Surgeon. Detached from the Naval Hospital, Newport, R. I., and ordered to the *Buffalo*.
- RIGGS, R. E., Passed Assistant Surgeon. Detached from the *Texas* and ordered to the Naval Academy, Annapolis, Md.
- TOULON, A. J., Assistant Surgeon. Ordered to the Naval Hospital, Boston, Mass.
- WELLS, H., Medical Director. Sick leave extended three months.

Births, Marriages, and Deaths.**Married.**

MUTSCHLER-PRICE.—In Media, Pennsylvania, on Saturday, December 7th, Dr. Louis Henry Mutschler, of Philadelphia, and Miss Lucy Brooks Price.

SEAMAN—HUNTINGTON.—In New York, on Thursday, December 12th, Dr. Louis Livingston Seaman and Miss Mary Stuart Huntington.

Died.

ARCHIBALD.—In Philadelphia, on Friday, December 6th, Dr. Henry C. Archibald, aged sixty-five years.

BEALL.—In Linwood, North Carolina, on Saturday, December 7th, Dr. J. F. Beall, aged seventy years.

BENNER.—In Philadelphia, on Sunday, December 8th, Dr. Henry D. Benner, aged seventy-four years.

BOULLAIS.—In Hartwellville, Vermont, on Thursday, November 21st, Dr. E. L. Boullais, of North Adams, Massachusetts, aged seventy-seven years.

CARPENTER.—In St. Louis, Missouri, on Tuesday, December 3d, Dr. Abram Miller Carpenter, aged seventy-three years.

FAY.—In Altoona, Pennsylvania, on Friday, December 6th, Dr. John Fay, aged seventy-seven years.

GORDON.—In Oshkosh, Wisconsin, on Tuesday, December 10th, Dr. William Alexander Gordon, Jr., son of Dr. William Alexander Gordon, Sr., aged thirty-one years.

HOADLEY.—In Washington, D. C., on Sunday, December 8th, Dr. Almer M. Hoadley, aged forty-five years.

LEVINGS.—In Milwaukee, Wisconsin, on Thursday, December 5th, Mrs. Annie L. Levings, wife of Dr. A. Hamilton Levings, aged fifty-four years.

O'NEIL.—In Elmira, New York, on Thursday, November 19th, Dr. William J. O'Neil, of New London, Connecticut.

POOLER.—In New York, on Thursday, December 12th, Dr. Hiram A. Pooler.

SUMMERS.—In Binghamton, New York, on Tuesday, December 10th, Dr. Arthur P. Summers.

WELCH.—In Los Angeles, California, on Monday, December 9th, Dr. Edwin A. Welch.

WENTWORTH.—In Chicago, on Friday, December 6th, Dr. William W. Wentworth, aged forty-five years.

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Original Communications.

NEURASTHENIA. ITS RELATION TO PERSONALITY.

By JOHN E. DONLEY, M. D.,
Providence, R. I.,

Physician for Nervous Diseases, St. Joseph's Hospital.

In a recent number of the *Journal of the American Medical Association*, the distinguished Professor of Neurology at Jefferson Medical College discussed hysteria, its nature, and its position in nosology.¹ During the course of his remarks, he did me the honor of referring to the hypothesis I have expressed² relative to the relationship that may obtain between neurasthenia on the one hand and hysteria and multiple personality on the other. This hypothesis he believes to be false and an evidence of the tendency upon the part of some recent writers to correlate neurasthenia and hysteria incorrectly. Because of the inherent complexity of the problem, because also of the very complete presentation of one viewpoint by Dr. Dercum, I have thought that its discussion from another aspect may prove to be, perhaps, not entirely valueless.

The problem to be solved is this: Are those conditions which are now labeled with the names hysteria, hypochondria, and neurasthenia to be regarded as distinct affections, presenting fundamental differences, or do they actually possess such close relationship as to warrant their description as different manifestations of the working of one underlying psychophysiological principle? Those who believe with Dr. Dercum subscribe to the first alternative; for myself, I feel that sufficient evidence of one sort or another is at hand to warrant at least a tentative allegiance to the second. Reduced to its lowest terms, the question becomes one of the interpretation of certain facts which are matters of common observation.

But before proceeding to any discussion of the main problem it is necessary to say a brief word concerning the logical nature of description and interpretation in general, for an understanding of this is, I believe, fundamental to a full comprehension of the hypothesis I have expressed.

In psychological science, then, there are two distinct points of view, which may, however, be confounded: First, that of the subject of immediate, concrete experience (that is, the individual who actually has the experience); and second, that of an

outside observer of this subject of experience. Now, experience in its immediate, concrete fullness, is strictly individual; it is incommunicable and hence cannot be adequately described, for it is bound up with a concrete, living whole of feeling, which passes away to be followed by further experience. When, therefore, the individual himself or an outside spectator attempts to describe this experience, this actual concrete process of willing, feeling, and doing, he abstracts from it certain more or less typical and general characters, and by an effort of thought he constructs a mental representation, which is neither the experience itself nor a direct copy of it, but merely an abstract symbol—a symbol whose truth and value will depend upon the success with which it represents and may be substituted for the original experience.

It is obvious that there may be several descriptions or symbols of the same concrete experience, each presenting a different aspect of it, and each true and useful in so far forth as it serves the interests and purposes of those who make it. There is no description of any experience which contains the whole truth about it in such absolute completion that all others are evidently erroneous. Again, as I have said, no description is a direct reproduction of objective reality; it is an abstract, symbolic device which we substitute in thought for the experience, and by the aid of which we are enabled to carry out successfully our various interests and purposes in everyday life. All the categories of physical science—such, for example, as those of matter, energy, force, space, time, as well as those of psychological, chemical and medical science—are of this character, abstract mental devices, derived from facts, it is true, and practically useful, but possessing *per se* no objective reality whatever. If we remember this we will be spared many a lengthy controversy.

To illustrate my meaning, let us take an example. A patient sits before me in my consulting room. He is directly conscious of two things: First, himself as the concrete subject of certain feelings, emotions, volitions, interests, and purposes which he is striving to carry to fulfillment; and second, an objective environment of things and persons whom he has constantly to take into account in the successful working out of these various interests and purposes. He is directly conscious, therefore, of a unity of experience in the duality of subject and object, which is merely the realized *concreteness* of a state of affairs that he always feels himself surrounded by and bound to some sort of environment which acts upon him and to which he reacts. How are we to describe, to symbolize in thought this concrete state of affairs?

I have used the term "personality," which I have

¹Hysteria, Its Nature and Its Position in Nosology. *J. A. M. A.*, Vol. LXXXVI, No. 26, December 28, 1907, pp. 1517-1520.

²Neurasthenia, Its Nature and Its Position in Nosology. *J. A. M. A.*, Vol. LXXXVI, No. 26, December 28, 1907, pp. 1521-1524.

employed as the *name* for the individual recipient or originator of experience in the relation of subject and object. Personality, therefore, I take to be the name for a concrete, individual, living unity of thinking, feeling, willing, doing in relation with an ever changing environment; and when I speak of neurasthenia as being a perturbation, disintegration, or instability of personality, I do not mean a disintegration of an abstraction, which is clearly absurd, but rather I intend to signify that, from one point of view, that condition which we label "neurasthenia" consists in a certain type of abnormality, a certain disharmony in this concrete, subject-object relation, which, as explained, is merely the philosophical way of saying that a particular living individual shows a special type of maladjustment to his environment. "Neurasthenia" and "disintegration of personality" are simply convenient ways of *naming and describing* this concrete process. I have used "disintegration of personality", as a more comprehensive description of what is named "neurasthenia," for I believe it to symbolize with reasonable accuracy the concrete reality inasmuch as it comprehends both the subject (patient) and the object (environment) in a unity of experience. Hence, it will be seen that I desire to regard neurasthenia not as a more or less rigid, static, and stereotyped disease entity, but rather as a continuous, dynamic, concrete *process* of greater or less maladaptation between an individual and his environment, this maladaptation manifesting itself to the subject's consciousness in constantly varying ways, and producing in his *direct* experience the symptoms of neurasthenia. And this direct experience *is* his neurasthenia, in whatever way we may choose subsequently to describe it.

To return to our patient. His being in my office at all is due to certain difficulties which he states somewhat in this fashion: "I feel absolutely fagged and weary, so that I am unable to carry on my daily work; I experience a sense of general discomfort and inefficiency; my head aches, I feel dizzy, I have no desire to eat, my memory is unreliable, my mind has lost its grasp upon reality, and I cannot concentrate attention for long upon what I am doing. Persons and things annoy me, while it seems to me I have not the interest in affairs nor the ambition which was formerly mine!"

Now, every one of these terms, be it noted, is psychological; every one of them stands for a direct, immediate experience of this particular patient. Again, this description is in terms of feeling, willing, thinking, doing—in a word, in terms of psychology.

Having given me a detailed account of his difficulties, my patient inquires: "Well, doctor, what is the matter with me?" "My dear fellow, you have neurasthenia." "And what is neurasthenia?" he asks. "Neurasthenia is a name to describe these various *things* you have experienced. What you have experienced is your neurasthenia." If, however, such a patient should require a more amplified description of his concrete experience, I should maintain that neurasthenia is another way of saying "disintegration of personality," taking "personality" in the sense I have explained.

So much for the *philosophical* description of neurasthenia. The *physiological* description is the direct, immediate

experience, that is, of the patient, which must of necessity be in terms of psychology.

Let us now consider the viewpoint of the spectator, namely, the physician. Obviously I cannot directly experience the sensations, thoughts, feelings and emotions of my patient, but I can and do examine his body. I find perhaps that his reflexes are increased, his pulse is rapid, perhaps his heart is irregular; there may be variations in blood pressure and changes in the chemical composition of the urine, or possibly the ergograph shows evidence of abnormal fatigability; or in the lower animals, nerve cells examined during fatigue give evidence of microscopic alteration. Having listened then to my patient's description of his *own* subjective experience and having made *my own* examination, I combine in thought what *he feels* subjectively and what *I discover* objectively—in other words, his experience and my experience—and then regarding this abstraction as situated inside his skin, I name it "neurasthenia," assert that he is suffering from it, and describe it as manifesting itself in mental, sympathetic, vasomotor, circulatory, alimentary, and various other so called objective and subjective symptoms. Accordingly, it may be seen how neurasthenia appears to be something inside of a man, for the reason that, through the fallacy of introjection, we have ourselves placed it there.

Moreover, one may understand how neurasthenia seems to be a distinct disease entity, for, having constructed our nicely rounded off abstraction, we clothe it with reality, introject it into the patient, and then proceed to discuss what relation this abstraction bears to two other abstractions, namely, hysteria and hypochondria. And again, it may be seen that such a conception is a confused mixture of physiology and psychology, surely possessing no warrant for taking on airs as the only true description of the facts.

While I believe that a very useful, and for certain purposes the most useful, description of neurasthenia is frankly psychological, in terms of the individual's direct experience—that is to say, in terms of thinking, feeling, willing, and doing—I by no means desire to overlook or underestimate the immense value of the data obtained through the study of the patient by an external observer. That physiological conditions profoundly influence psychological activity admits of no argument, for the simple reason that the concrete human being is a mind-body organism, and therefore his physical state demands the same study as his psychological attitude. But this is not the same as saying that neurasthenia is a condition compounded of a mixture of physiological and psychological elements. But these physiological conditions, I believe, should be looked upon in the interests of clear thinking as being the physical antecedents, determinants, or concomitants of the psychological instability. It would seem to be a fact that the psychological state of maladaptation to environment, to which I have applied the terms "neurasthenia" and "disintegration of personality," may from the physical side have different accompaniments or causes; such diverse things, for example, as gripe, a railroad accident, overwork, anxiety, cardiac disease, brain tumor, etc. While the psychological state follows more or less closely the

general type, the physiological conditions may and do vary. So far, then, we may state our hypothesis as follows: The frankly psychological description of neurasthenia is a description from the point of view of the patient and not of the physician. It endeavors to symbolize in thought the direct, concrete, immediate experience of an individual, which individual finds a certain type of difficulty in adapting himself to his environment for the purpose of carrying out his interests and purposes. Whoever presents this special type of maladjustment to environment we say is in a condition of neurasthenia. When studied by an outside observer, this neurasthenic person may present one or more known or unknown physiological conditions, which are properly termed the physical substrata of neurasthenia. According to this hypothesis, neurasthenia is not a definite, circumscribed, morbid entity, but rather a concrete, living *process* of personal maladjustment to a constantly changing environment. It is a conception with a certain elasticity about it, for the reason that the life it attempts to describe has the same elasticity.

Let us now turn to the views of Dr. Dercum and study them somewhat critically with the idea of testing their validity. First, it should be said that I have no quarrel with Dr. Dercum's description of neurasthenia, as a description; what I cannot concede is the contention that it contains so much of truth that no other method of describing the facts is also true and useful.

The symptoms of neurasthenia, Dr. Dercum observes, are essentially those of chronic fatigue, and for this reason he calls neurasthenia the "fatigue neurosis." The symptoms of neurasthenia are readily classified as sensory, motor, psychic, and somatic. The essential symptoms are always those of chronic and persistent fatigue, while the adventitious symptoms are the secondary outgrowths of this fatigue. The difference between these two groups can readily be illustrated in many ways. Thus the patient presents, as already stated, a "generalized sense of fatigue," which is usually very pronounced. Not infrequently there are present secondary symptoms, the indirect outgrowths of this generalized fatigue; for instance, the patient not infrequently presents a feeling of uncertainty in regard to his movements or in regard to his environment—that is, he sometimes complains of feeling giddy or dizzy without presenting any symptoms of objective vertigo. This dizziness is a secondary outgrowth of the primary fatigue, and must be regarded as a secondary and not as a primary symptom. For Dr. Dercum, then, the essence of neurasthenia consists in a "chronic, persistent fatigue," which manifests itself in primary symptoms and secondary outgrowths.

What is this "chronic, persistent fatigue" to which Dr. Dercum pins his faith? Assuredly it is nothing more than a general abstract *name* for certain concrete *things*, and hence we are landed in the midst of those very abstractions which Dr. Dercum believes to be the shortcoming of abnormal psychology. Let us observe how Dr. Dercum gets his abstraction clothed with the attributes and trappings of reality.

The living patient is not conscious of any distinct concrete reality corresponding to "chronic, persistent fatigue." He is, however, conscious that when he eats, his stomach doesn't work right when he

reads a book he can't stay at it; when he makes an appointment he doesn't keep it; when he walks a mile his legs will carry him no further; when his breakfast is five minutes late he gets angry with the cook; when he starts to cross a crowded street he trembles and is afraid, etc. Now, when Dr. Dercum seeks, as an outside spectator, to symbolize these concrete feelings, thoughts, emotions, and doings of his patient, he makes an abstract, mental reconstruction of them, and names it "chronic, persistent fatigue." Then, by the old fallacy of introjection, he places this mental abstraction inside the skin of his patient; spatially he "generalizes" it, chronologically he makes it "chronic," and then proceeds to describe it as manifesting itself in certain primary symptoms and secondary outgrowths. Hence, we are presented with primary symptoms and secondary outgrowths of a pure mental abstraction, the sum total of which symptoms and outgrowths Dr. Dercum regards as a distinct clinical entity, neurasthenia.

To invoke this abstraction, "chronic, persistent fatigue," as an adequate explanation of the fact that a man has "uncertainty in regard to his movements or in regard to his environment," in so far as he sometimes complains of feeling giddy or dizzy, would seem to be an example of the venerable rationalist habit of naming a thing and then putting the *name* back of the thing as its explanation.

That Dr. Dercum's method of describing neurasthenia as the "fatigue neurosis" is justifiable, it is not necessary to deny. But that it represents the whole truth, that it is the only logical description of the concrete facts, that as an abstraction it should command any greater respect than any other abstraction, personality, for example, assuredly cannot be maintained. In view of the recent researches of Mr. Horace Fletcher, Professor Chittenden, and others, who knows but some future physician may describe neurasthenia as the "excessive proteid neurosis"? He, too, may be right, and his description true for certain special interests and purposes. The description of a concrete reality from one point of view most certainly cannot be held to preclude its description from another; for were this the fact, one might as well argue that, because a painting may be properly and truthfully described as so much red, blue, green, and white paint, it may not also be properly and truthfully described as a landscape. The same may be said of neurasthenia. While from one point of view it may be called the "fatigue neurosis," from another it may be just as legitimately termed a "disintegration of personality," while from a third it may, perchance, one day be named the "excessive proteid neurosis." No description, explanation, or interpretation has the right to assume that it is absolutely and exclusively true, for whatever and wherever absolute truth may turn out to be, we certainly have not much of it on this planet.

From what has already been said it may very easily be seen that the position I have assumed is that of pragmatism. And, although this is not a paper on philosophy, nevertheless it may not be amiss to say a word about pragmatism, for it is, I believe, a method by the aid of which otherwise warring factions may be brought into harmony with one another. In this very matter of neurasthenia, the pragmatist is quite

willing to admit that several descriptions may have their justification. All he asks is that each of them be capable of fulfilling the pragmatic test, namely, that it "works" successfully.

If pragmatism were the philosophical creed of medicine, many a wordy controversy would never have seen the light of day. For a full presentation of the subject the reader must be referred to the writings of Professor William James, Professor Dewey, and Mr. Schiller. Pragmatism is a new name for an old method in philosophy. It is that method which "turns away from abstraction and insufficiency, from verbal solutions, from bad *a priori* reasons, from fixed principles, closed systems, and pretended absolutes and origins. It turns toward concreteness and adequacy, towards facts, towards action, and towards power."¹ Pragmatism is used also in a wider sense and means a certain *theory of truth*. It is of this I wish to speak. In confronting different hypotheses we naturally inquire, "Which of these is true?" The answer we give will depend upon what we mean by being "true." For the pragmatist any hypothesis is true which helps us to get about among concrete particulars, which enables us to deal with the realities of every day life in such a way as not to land us in contradictions and frustrations. In proportion to its power of doing this successfully, the hypothesis is so far true and hence good for *so much*. According to pragmatism, truth is not a property inherent in an hypothesis. The hypothesis *becomes* true, is *made* true, by events. The process of its becoming true consists in its getting itself verified—its verification. And when a truth gets itself verified, this means that this particular truth "works," that it enables me to handle my experience in such fashion as to lead me successfully into and among concrete realities. Now, if we apply this pragmatic test of truth to medical hypotheses, we will say that any hypothesis is true which will "work," which will correlate all previous truths and certain new experiences, and which will assist us in carrying out our individual interests and purposes.

Let us now measure by this pragmatic test the hypothesis that describes neurasthenia as a disintegration or dissociation of personality. Does it "work" pragmatically? I suppose no one will deny that the physician is interested primarily in bringing his patients, if possible, back to health. His purpose in studying them and in making a diagnosis at all is to give him a point of departure for treatment. Does the hypothesis of disintegrated or dissociated personality give him this point of departure? Is it, in other words, a general conception which will lead him about among his living neurasthenic patients? I think that it is; not, however, in the sense that it stands for the whole truth, but in the sense that it helps him to deal with concrete realities. And this is what pragmatism desires.

Regarding neurasthenia psychologically as a maladaptation of a thinking, feeling, willing, acting individual to his environment, it gives a rational basis for all the procedures of psychotherapy. Furthermore, by its inclusion of environment as an integral part of its conception, it suggests the benefi-

cial influence of changed outward circumstances, with the stimulation of diverse interests and purposes arising therefrom; for of the profound importance of environment students of comparative psychology are becoming increasingly aware.²

And again, insisting, as it does, that the psychological instability of neurasthenia is or may be bound up with or determined by diverse sorts of physiological change, this hypothesis makes a place for physiological chemistry, and demands a careful study and treatment of the physical substratum in every case.

Finally, although the systematic study of abnormal psychology by physicians is confessedly in its infancy, none the less this study has already borne fruit of such practical value that it should not be looked upon askance, because, like every science, it deals with abstractions. For surely, abstractions are quite useful, if only they be capable of pragmatic justification.

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TUBERCULOSIS OF THE BONES AND JOINTS OF THE LOWER EXTREMITY.*

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There has not been leisure for me to investigate even a small portion of the more recent literature of this vast subject. I must beg you, therefore, to listen to some personal observations and conclusions founded upon twenty-one years of hospital and private practice. No attempt has been made to cover any one part of the subject, but acting according to the wish expressed to me by your chairman, I have made these remarks merely suggestive.

The lower limbs bear the weight of the body and are the organs of locomotion. For these reasons derangements of function are apt to be early noted by the patient and his disability often drives him to seek timely medical aid.

To describe before this audience the well known clinical picture of chronic tuberculous bone and joint disease of the lower extremity is quite out of place, yet, in spite of the advance of medical education, very many practitioners fail to suspect tuberculosis until the diagnosis becomes selfevident. Indeed, the disease is often, I had almost said usually, not recognized until too late to prevent permanent and serious damage.

Careful and scientific methods of diagnosis must be followed here as in all other branches of medicine. Jumping to conclusions must be avoided, and the pernicious habit of making "snap" diagnosis should be discouraged, no matter how brilliant these exhibitions of medical pyrotechnics may appear to the beginner.

When I was a student working in the out patient department of the Massachusetts General Hospital, there came to the clinic one day a young girl who complained of pain in her right knee. A senior stu-

¹James, W. S., *Behavior of the Lower Organisms*. New York: Macmillan, 1906.

²Bohn, Georges, *Studies in Animal Behavior*, *Journal of Comparative Neurology and Psychology*, 331, 1910.

³Read before the Section in Orthopaedic Surgery of the New York Academy of Medicine at its regular meeting Friday, November 15, 1907.

¹Pragmatism, Wm. James, in *The Great Teachers*, I have used *materially*, and the same is repeated in the *Pragmatism*, James, to whom I refer in regard to the development of pragmatism.

dent who had been left in charge for part of the day, examined the knee with great care and demonstrated to his satisfaction and to the wonder and admiration of us juniors that the knee being perfectly normal and the girl apparently not very ill, the diagnosis of hysterical joint must be accepted by exclusion. The patient, intelligent above the average, burst into tears on hearing the doctor's opinion, this well known symptom of hysteria further confirming in our eyes his scientific acumen. Just then the surgeon in charge of the clinic arrived, learned of the brilliant diagnosis which had been made and heartlessly proceeded to examine the patient for himself. "She looks delicate," he said, "and anæmic. Have you examined the patient thoroughly? What about the lungs, the lymphatics, the other articulations, the clinical history of the trouble?" Then with the girl stretched supine upon the examining table he tested the motions of the right hip and brought out the sensitiveness and spasm characteristic of coxitis. We then learned not only that hip disease may cause pain in the knee through the influence of the obturator nerve, but also the much larger lesson of thoroughness and completeness in bedside examination; and I personally learned that hysteria should never be diagnosed until every other possible condition has been certainly excluded.

Another case comes to mind illustrating the delay caused by unscientific and superficial methods. A lady with a history of delicate health and lung trouble in her youth, began to suffer with pain in the region of one hip. "Rheumatism" was the first diagnosis; then, as the pain began to shoot down the thigh, therapy was directed toward a supposed "sciatica." After months of futile treatment accompanied by gradual physical deterioration, a suspicious fullness appeared behind the trochanter, and puncture revealed pus. Tuberculous coxitis was then recognized, and under surgical and hygienic measures the case seems to be making satisfactory progress.

Most cases of bone or joint tuberculosis show in a modified form the characteristic temperature of tuberculosis of the lungs. The degree of pyrexia may not be pronounced but if carefully observed is nearly always present. As Trudeau has aptly said, "there is nothing constant about the temperature in tuberculosis except its constancy."

Gradual deterioration in general health associated with bone or joint disease should always arouse suspicion. Then search for signs of the disease elsewhere.

Many a case of supposed rheumatism or even "growing pains" later developing tuberculosis might have been taken early under treatment to the great benefit of the patient had the physician remembered the value of a diagnostic tuberculin injection. The ocular tuberculin test of Calmette may prove of value; I have had no experience with it. The radiographic plate, too, under practical eyes, will demonstrate incipient stages of bone and joint pathology which may be of great importance, together with the history, in the early recognition of tuberculous disease. A fall or other injury with unusually long continued local disturbance and general lowering of vitality should certainly cause anxiety.

Antecedent acute illnesses, especially the exanthemata, form another link in the chain of evidence.

For example, measles followed by monoarticular rheumatism is very suggestive.

We should remember that repeated injury to the same structure in a predisposed individual is apt to determine a tuberculous infection at this "point of least resistance." Also, that acute bone or joint disease, operated on and then running a slow course, may easily take on a tuberculous character by infection from within.

A lad of fifteen, carrying a parcel for delivery, sprang upon a passing wagon to "steal a ride." He struck his knee and in a few days was desperately ill with acute osteomyelitis of the femur. Operation was performed for the evacuation of pus but no thorough bone drainage was attempted. (This part of the history dates in the early sixties.) The case became chronic, then tuberculous, and after years of suffering death came to the relief of the patient. Early radical operation would probably have saved him and later on, after years had shown the hopelessness of healing the wound, an amputation might have turned the scale, and restored the man to health. Indeed, I am quite certain that in these chronic cases of extensive destruction of tissue amputation might well be resorted to more often than it is. This does not refer to the disease as it occurs in children, for here amputation should be the last resort, only to be advised when life itself is directly threatened. But in adults, who have for years nursed a tuberculous ankle, knee, or hip which shows no tendency toward permanent recovery, the wonderful restoration to vigorous health which follows the ablation of the infecting member is truly marvelous.

It is my impression from work in hospitals not devoted exclusively to orthopædics that the disease attacks the knee and ankle much more frequently than it does the hip.

Treatment.—In the early stages of joint tuberculosis of the lower extremity this disease belongs strictly to the domain of orthopædics, physiological rest and the prevention of deformity being the objects to be attained. Whether this is accomplished by simple plaster of Paris fixation, with or without rest in bed, or by more or less elaborate and ingenious mechanical splints and braces will depend upon the bent of the surgeon, the station in life of the patient, and the rapid or slow character of the infection.

When there has been considerable destruction of tissue even without formation of fistulæ we must be satisfied with cure or latency without deformity even at the expense of joint mobility.

When in spite of orthopædic and hygienic treatment the disease progresses and the patient loses ground, operation is indicated. In the lower limb typical resection should, in the majority of cases, be reserved for adult patients. The wonderful recuperative power of children makes it better surgery to drain and curette even though numerous operations may be necessary before the cure is complete. This is particularly the case in infections about the knee and the ankle. Interference with the epiphyses in children may result in considerable arrest of growth, a matter of more importance in the lower limb than in the upper.

During the treatment of tuberculosis of the ankle, especially in children, the old-fashioned pegleg is

very valuable. The patient can, by wearing this inexpensive appliance, get plenty of exercise and move about with great freedom, walking upon his flexed knee, while the ankle is at rest or under treatment.

In adults typical resection gives excellent results. An ankylized hip or ankle may, indeed, be no great misfortune. A stiff knee, however, may be such a terrible annoyance that the patient may prefer amputation. This more particularly in tall individuals who cannot sit in a public conveyance without great discomfort and who must have seats on the aisle in church or in the theatre.

Bone tuberculosis of the lower extremity is purely surgical, operation being the proper treatment as soon as the diagnosis can definitely be made. It is successful in direct proportion to the thoroughness with which the disease can be removed. It is in this class of cases that closure by Schede's method of the organization of moist blood clot yields the best results, the wound often closing completely under a single dressing in from three to four weeks. Occasionally, however, these wounds refuse to heal under ordinary treatment, and then they tax the skill and ingenuity of the surgeon to the utmost. The nearer the joint the more urgently indicated is the operation. In older children and young adults the region of the epiphysis seems to be a favorite site for the development of tuberculosis. Radical removal of the focus before implication of the joint will give a far better result than can possibly be obtained after the synovial membrane has become affected.

The operative treatment which I have employed in tuberculous osteomyelitis is as follows: With the rubber constrictor in place an incision is made along the most prominent part of the bone; in the femur the incision is preferably on the outer aspect of the limb; the periosteum, usually thickened and succulent, is peeled away and held aside by retractors. With an ordinary carpenter's gouge the cortex over the suspected point is chiseled away. If the disease is extensive a large portion of the bone may be removed with the chisel in one piece like a trapdoor, exposing the infected medulla throughout a considerable portion of the shaft.

In cases in which the x ray has shown a single bone abscess I have been able to perform the ideal operation of complete excision of that part of the bone containing the collection of pus unopened. In any event it is best to remove as much as possible of the diseased bone leaving the resulting cavity boat shaped and without overhanging edges.

In approaching the neighborhood of the joint the bone curette may replace the chisel or gouge and great caution must be exercised to avoid spreading the infection. The medulla here is apt to be soft and yellow, working out easily with the sharp spoon. If by accident the articular cavity has been invaded and is seen to be healthy, the opening should at once be plugged by a strip of gauze not to be removed for eight or ten days. I have, by this procedure, retained the function of articulations which otherwise would doubtless have been destroyed.

If the disease has been very extensive the wound may now be rather firmly packed and the usual dry dressing with a splint applied. If, however, it has been possible to remove every vestige of the infected tissue the wound should be closed by a row of

interrupted sutures through the periosteum and another row of interrupted sutures in the skin. The dressing is made by covering the wound with a narrow strip of sterile rubber tissue and a dry dressing as usual. This may be left in place provided the patient has no signs of infection, for three weeks, when healing by primary union will probably have taken place, as stated. (Modification of Schede's method.)

In those rebellious cases in which without actual necrosis the bone cavity refuses to fill up, I can strongly recommend treatment by iodoformized wax. Under artificial anæmia the cavity is thoroughly scraped out and cleansed, then filled with wax (Iodoform 60 per cent., sesame oil and spermaceti aa 20 per cent.). This is applied in a soft but not liquid condition and is pressed firmly into place in much the same manner in which a dentist employs gutta percha in filling a tooth cavity. Interrupted sutures and wound dressing are applied as usual. This is the method of Mosetig-Moorhof modified. The wax may heal in and become absorbed or it may gradually be given off, healthy granulations appearing to push it out of the wound. In spite of the large proportion of iodoform in this mixture the drug seems to be so slowly absorbed that symptoms of intoxication do not occur.

I cannot close these remarks without referring to two methods of treatment which are, I fear, apt to be overdone by enthusiastic workers. First, the treatment by Bier's method of artificial hyperæmia. In cases of hip and knee tuberculosis the treatment must necessarily be extremely difficult, and its efficacy is doubtful since it must be coupled with the usual orthopædic therapy of splinting and rest. In the ankle, with the aid of the pegleg, I have had one satisfactory case treated by Bier's method, but I have lost sight of the patient so cannot give a report as to the permanency of the improvement noted. Here, too, however, it must be remembered that the joint was placed at rest. It is my opinion that this artificial hyperæmia therapy is much more likely to succeed in disease of the joints of the upper extremity than the lower.

One word as to the therapy by cold fresh air. There is no doubt that this treatment makes use of the most powerful general tonic known. The patient's health is improved, he gains weight, sleeps well, loses his fever, and such sinuses and fistulæ as do not depend on the presence of necrosis are apt to heal without operation, just as tuberculous pulmonary lesions are known to heal in the same circumstances. Surgery, however, must not be neglected simply because some patients get well without it. No amount of cold fresh air treatment can get rid of a sequestrum which is held in place by newly formed bone. Such a sequestrum must be removed by mechanical means. Abscesses must be drained and actual defects must be filled in. Cold fresh air, good food, and good nursing will do wonders, but, as in lung tuberculosis, so in bone and joint disease due to the same cause, *no one method* should be depended upon. And until we know how to use a specific vaccine for this plague—which we all pray may be soon—our hope must be in old fashioned medical practice which employs every means known to its art.

THE TENDENCY TO CONSUMPTION.*

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It has been well said that a man's life is the resultant of his heredity and his environment; here is expressed two-thirds of the truth, which would be complete if we were to add the human will. Heredity, environment, and will are the factors—the three fates, as it were—which determine the destiny of the individual; and I purpose in this paper to consider how they are related to the disease consumption.

It is a commonplace of experience that these agencies are almost never distinct in their influence; they are essentially complementary and interrelated. A bad heredity may be most happily modified by a good environment; and a will, no matter how strong, may be unable to throw off a vicious heredity, and may have to bend beneath the stress of a hard and uncongenial environment from which it cannot free itself. Before considering them in detail one must also premise that primarily they all deal with the cell, the unit or the basis of life. An abnormal heredity is inherent in the sperm and the ovum; an unfortunate environment affects first the tissue cells; an abnormal will reflects itself in cellular depravity; it is thus that a tendency to disease is developed.

It was the whimsical Hibernicism of Oliver Wendell Holmes that "a man should be careful in the selection of his ancestors"; it is often unfortunate that such is no one's privilege. The lives of most are begun healthfully enough; but many are born with a most grievous handicap. In tuberculosis the specific organism is almost never transmitted; therefore we cannot say that the infant is born tuberculous; for this disease is conditioned absolutely upon the presence of the Koch bacillus. What is oftentimes, though not always, transmitted by the consumptive parent is a vulnerability, a vitiated state of the tissues, a tendency to consumption. Roger has well termed such a condition as this the scrofulous temperament, which is not tuberculous, but upon which the tubercle bacillus easily engrafts itself.

We see children born listless, with pallid skin and flabby flesh, they are not ruddy, wriggling masses, as are infants healthily born. They are very prone to inflammations of mucous membranes, which become tedious and rebellious to treatment—coryza, congested and catarrhal throats, subacute bronchitis. The lymphatic system in such children soon becomes involved; adenoids and hypertrophied tonsils develop, and presently thereupon all the obstructive symptoms which tend to oxygen starvation; there appear adenitis and periadenitis in the cervical region, with early involvement of the bronchial glands. The lymphatics thus furnish ideal soil for the implantation, growth, and dissemination throughout the organism of the Koch bacillus. It is through such channels that the pulmonary parenchyma generally becomes involved. There is deficient nutrition in such children, so that the bone and joint tissues so often seen in the perituberculous become manifest. A torpid digestion char-

acterizes the scrofulous infant; and the whole alimentary tract is involved. Bacilli, which are ingested with impure food, and which are contained in the swallowed excreta from unhealthy upper air passages, if they do not excite a peritoneal tuberculosis, find their way from the abdominal lymphatics to the thoracic duct, thence to the right heart, and finally to the lung, that great respiratory sifter of impurities. Physiological metabolism is the right conversion of oxygen and food stuffs into normal, disease resisting tissues; but with deficient oxygenation and sluggish digestive processes there is an imperfect metabolism, which must result in lessened vigor of secretion, excretion, regeneration, and other cell activities. So that the tissues in such an organism are unable to withstand bacillus invasion and tubercle formation; they tend to consumption.

Besides functional departures from the normal there are anatomical abnormalities, which the physician must detect and take into account; infants may be born with thoracic malformations, small and inefficient respiratory muscles, congenital heart lesions or congenital development of the whole circulatory system.

When we come to environment we find that it was impossible even to enumerate the factors which may induce a tendency to consumption; it is possible only to emphasize the influence of environment and indicate baneful factors. The life of the individual is indeed for the most part the body's response to influences from without, either of a physical or chemical sort; normal living is the right adjustment of internal relations to external relations, and any disturbance of such adjustment leads sooner or later to disease.

Of all agencies inimical to human life the tubercle bacillus is, and seems always to have been, the greatest and most destructive; it is the agency more than any other entitled to be considered the executioner which fulfills the brutal law of the survival of the fittest.

Dust, particularly as we find it in houses and workshops, is a most prolific disseminator of the germ; and in those trades where gritty atoms as stone dust or metal particles or cloth fibres must be inhaled, the consumption mortality is very great—more than forty-three per cent. among stone workers. When we consider that the advanced consumptive is computed to emit several billions of the Koch bacillus in the twenty-four hours, we are not likely to underrate pernicious atmospheric conditions.

Mechanical violence, resulting in contusions, wounds, and lacerations may induce tuberculosis by furnishing a nidus for bacillary implantation; a lowered resistance is also brought about by acute fevers, cold, influenza, pneumonia, and markedly pleurisy; by mastoiditis, malaria, diabetes, and syphilis.

It is, however, when we come to such vicious conditions as are attendant upon modern civilization that we find environmental influences of the deadliest sort. There is overcrowding, which necessitates that people must constantly be rebreathing their own poisonous exhalations, mingled with those of their fellows with whom they live; the dark and unventilated bedrooms in which hundreds of them

*Read before the Chicago Medical Society, November 14, 1907.

sands sleep under circumstances so unhealthful that consumption has not without reason been termed the bedroom disease; the dreadful poverty which millions have to endure in this country, which is probably the most prosperous of all human history; poverty, with its connotations in sunlessness, starvation, and physical exhaustion; the lack of warmth, clothing, and shelter; the disease breeding occupations which men must take up if they would keep their nostrils above the current in the dreadful struggle which is attendant upon what we like to term human progress—such are environmental conditions that bring about a consumptive death rate of every third or fourth adult white, and of every other adult negro.

When we come to the part which a man's will plays with regard to tuberculosis we consider his vicious habits, his improvidence, the unwholesome customs to which he adheres, his sexual aberrations, his dietetic excesses, his drug addictions, and among his vices, especially alcoholism. It is the last of these factors I will briefly consider here. The French say truly enough that alcoholism lays the foundation of consumption; again, that consumption is contracted across the bar. During my internship in the City Hospital we found half at least of our consumptives to have a history of chronic alcoholism; and this is as I now find it in my work at St. Joseph's. Kelynack in England finds the rate as high as eighty per cent. Alcoholism is indeed the most prolific single factor tending to consumption in man. Yet here let those who feel qualified to blame the alcoholic take into account mitigating circumstances, as is done in the law. Dr. Lambert's Bellevue patient is well recalled, whose customary tippie was one quart of rotten whiskey before breakfast. Before breakfast, it is to be emphasized. I recall in my own experience how I was once, at dawn of a very cold morning, summoned to a man lying sick on the floor of a saloon. While attending him I noted with surprise the large number of men who were drinking their whiskey before beginning the day's work. It seems that oftentimes the wives of such men do not know how to prepare for them a decent cup of coffee, or how properly to cook a piece of steak. It is, in short, demonstrable that bad cooking drives many a man to alcoholism. It is not depravity in men that they drink thus; they know no other means by which they can bring their subnormal organisms to the point sufficient for the doing of the day's work. There are in such organisms, which are oftentimes tuberculous to begin with, no factors of safety, no reserve strength with which to continue the bitter struggle for existence.

How then do these factors tending to consumption which I have here sketched in the most fragmentary way, concern the general practitioner? It is for him to investigate them as a part of the anamnesis in each patient he is called upon to treat, to ascertain to what degree they have been pernicious, to eradicate them if possible, to eliminate at least their effects. There is nothing in the whole range of practice so important as the diagnosis of incipient tuberculosis; and more than this, the detection of a tendency to that disease. The distinction between the scrofulous temperament and manifest tuberculosis is important; for the prognosis is better

in the former case. Besides, our obligations to pursue preventive measures and to keep the merely scrofulous child free of a germ laden environment is greater. Here lies above all the work of the family physician, upon whom the brunt of the fight against tuberculosis must fall, in whom must lie the success or failure of that fight.

One of the most striking things with regard to consumption is that it claims comparatively few deaths before the fifteenth year; then, with adolescence begins the dreadful mortality I have noted. It is evident that the strain attendant upon the change from childhood to manhood and womanhood oftentimes brings to light a latent tuberculosis, some obscure and until then unrevealed tuberculous focus, which has preexisted in the infant and the child. It is the work of the family physician, who has perhaps delivered the infant, who has attended him through babyhood and childhood up to adolescence, to detect every possible sign pointing to tuberculosis, and to institute early treatment, so that his charge shall grow into vigorous and useful manhood, instead of, as is so often the case, developing consumption in early youth.

44 EAST SIXTY-FOURTH STREET.

THE MODERN MANAGEMENT OF TUBERCULOSIS.*

BY BERTRAM H. WATERS, M. D.,
New York.

It would be impossible to attempt to cover in detail this enormous subject, and I have chosen it solely because I wish to be free to present in epitome, to outline roughly and briefly, what is undoubtedly the most important sanitary, social, economic, and humanitarian problem of the age.

I believe that those who do not take an especial interest in this subject have a very hazy conception of it, and that there are many, both physicians and laymen, who are still pessimistic or apathetic or even ignorant, in regard to it, and who do not realize that they are witnessing a concerted world interest and movement which has for its object no less a thing than the eradication of this greatest of all plagues.

When one seriously considers the fact that in the United States alone tuberculosis annually claims 150,000 victims, the cost of whose invalidism and death has been estimated at \$330,000,000, it is difficult to understand the slow development of systematic and efficient preventive measures for its limitation and control. Since the epoch making discoveries of Koch were announced to the world twenty-five years ago, no new facts have been added to our knowledge which are really essential to intelligent sanitary surveillance of the disease. Its universal prevalence, its communicability, its preventability, were as evident then as now, while the crusade against it has not developed until recent years, and indeed, even now, in many places is just setting out.

The explanation of this tardy acceptance of facts and their practical application to the problem may be found in the reluctance of the medical profession and of sanitary authorities to include tuber-

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culosis in the group of reportable diseases; also in the fact that the cold logic of scientific fact has lacked the impelling living force of popular enthusiasm; and, finally, in the ignorance and apathy of the general public.

This *has been* the state of affairs. To-day it is quite different. The antituberculosis movement is well under way in almost every country; dispensaries are being opened, sanatoria and hospitals are being built, the medical journals and even the daily press are full of tuberculosis news. Everywhere there is interest and enthusiasm, and in some direction or other progress is being made. The lines upon which solution of this problem has been attempted have not everywhere been identical. Germany has excelled in sanatoria; England in hospitals for advanced cases; France has originated and developed the special dispensary and sanatoria for tuberculous children, while we, though their followers in these enterprises, have set them an example in the registration of cases and the municipal control of the disease. This measure is the cornerstone upon which any satisfactory system must be built, and that it is possible to accomplish it without engendering serious or continued opposition by medical men or causing discomfort or hardship to their patients has been fully demonstrated in New York, where such a system has been in operation since 1894.

Thus along various lines, slowly but surely overcoming many difficulties, the general management of tuberculosis has been worked out more or less closely in accord with the following propositions:

I. Compulsory notification and registration.—This measure is essential. It depends for its acceptance upon the education of the public, to regard tuberculosis as communicable, preventable, and curable, and to realize that registration, far from interfering with their privileges and privacy, protects and benefits them. In 1894 from Manhattan and Bronx 4,166 cases were reported; in 1906 there were 13,891. This enormous increase is due not so much to a greater number of cases as to more general and willing compliance with the law, for while in 1900 only 17 per cent. of all cases were reported again for the second or third time, in 1906 this ratio had increased to 34 per cent.

II. Free examination of sputum for diagnosis.—In this way reports of cases and the data necessary for their proper registration and control are readily obtained, when a formal report would be evaded or neglected. In 1895, the year this work was begun here, 511 specimens were examined for Manhattan and Bronx, while in 1906 the number was 11,384 and for the city 21,779.

Having by these measures obtained information of the location of cases, it becomes possible to further provide for all, except the private cases of physicians.

III. Visitation of the homes.—To secure accurate and detailed information of the social condition of the patient, the financial necessity which is so common, to instruct, verbally and by the distribution of printed information, in regard to proper living, good and sufficient food, pure, fresh air, and the care and disposal of sputum, to diminish fear of the disease, prevent its spread and assist the early

removal of patients to hospitals and sanatoria, personal contact with them is invaluable. Every case coming under the control of the city is so visited by a nurse of the tuberculosis corps. Sputum cups, medicines, and even clothing, food, and financial assistance, through the cooperation of charitable associations, can be provided.

IV. Disinfection and renovation of apartments.—Thorough disinfection of rooms, bedding, and clothing is done after death or removal; renovation when necessary is recommended and can be enforced. I am in favor also of periodical disinfection of patients' personal and bed clothing during life. A convenient method for this has been devised, which can be carried out by a nurse, and I am in hopes the Health Department will be able to put it into operation this year.

It follows naturally from such procedures as these, and in order to profit to the fullest extent by the information gained from them, that provision must be made for the care of patients in all stages of the disease outside of their homes. Hence there have been developed, as necessary factors of the work,

V. Dispensaries, hospitals, and sanatoria.—The day of the "class of heart and lungs" or "diseases of the chest" in our general dispensaries has passed, at least so far as tuberculosis is concerned. We can no longer regard the consumptive as a school of physical signs and a therapeutical test tube, hopeless from the start.

In place of this we have the special tuberculosis dispensary, or class, under the care of competent men, expert diagnosticians and specialists, specially interested in their work. This is the first factor in the disposition of cases—the clearing house, so to speak. Here instruction is given, the progress of the disease is closely watched, the incipient and early favorable cases are sent to sanatoria, the advanced cases to special tuberculosis hospitals; the "closed" or nonprogressive case, or the one which for any reason cannot be thus disposed of, is kept under observation, and is, if possible, supplied with extra diet in the shape of milk and eggs, is encouraged to take the treatment—open air and rest—as much as possible, at home, where from time to time assistance and instruction are given by the visiting nurse. So important has such a dispensary become that nearly every institution in the city has started or is preparing to start one, and to cooperate with those already well established by the Department of Health in Manhattan, Bronx, and Brooklyn, by Vanderbilt Clinic, Bellevue, Presbyterian, New York, Gouverneur, and Harlem Hospitals and by the New York Dispensary, to each of which has been assigned a definite district of the city, and which, so far as possible, cares for, in the manner outlined, patients in their district. This plan prevents the drifting about of patients from one institution to another, facilitates the visiting of nurses and avoids the duplication of their visits, and, further, by the association of their various chiefs of dispensary in a directing board, meeting at regular intervals, unifies and stimulates their work. A patient, referred to any of these dispensaries, is certain to secure an early and careful examination and diagnosis and be advised as to which course is the

suitable one for his case. There are also modifications or extensions of the system known as "day camps," where, during the day, the ambulant patient is kept in the open air, at rest, provided with food, and instructed. One such has been conducted here during the summer through the cooperation of the Charity Organization Society, the Associated Dispensaries, and the Commissioner of Docks, upon the discarded ferryboat "Southfield," which was anchored off West Sixteenth street, and for a period of five months cared for about forty patients daily. Such a "day camp" has been conducted with success in Boston. Again, special small tuberculosis classes can be formed, as has been done in Boston by Pratt, and here by Niles. In these a small number of patients are kept closely under observation by weekly visits to the doctor, by visits of nurses in their homes, and by a systematic daily record. Home treatment is encouraged and assisted by food, money, removal to better quarters, or provision, by means of window tents, roofs or improvised balconies, for living in the open air.

For the advanced case, when there is no prospect of anything more than temporary improvement, or not even that, hospitals must be provided to which such patients can be removed, or, if necessary, forced to remove, by the sanitary authorities. Here, often, as in Riverside and the hospitals of the Department of Charities, marked improvement results; if not, the remainder of life is passed in comfort, and the family or friends are relieved of often too heavy burdens. In either case, most important of all, a source of infection is removed from the community.

For the incipient case, the patient for whom there is hope of ultimate recovery, of an opportunity again to take his place in the economic world as a producer, there are the sanatoria. In the open, where day and night pure unconfined air may be breathed, where sufficient and good food can be supplied, where, constantly under the careful scrutiny of a specialist, whether resting or undertaking the helpful exercise of some light employment, regaining every day lost weight and strength and hope, to come finally after six months, or nine months, or a year, to the stage of arrest or cure—these are the sanatoria.

Some of these, at Saranac, at Liberty, at Stonywood, and other places, are known to you. In addition, and of much more recent establishment, are the State Sanatorium at Raybrook and that of the city, the first municipal sanatorium in the country, at Otisville. The latter, which is yet in course of construction, will soon have a capacity of 150 patients.

Let me repeat that you may feel assured that a patient referred to one of the group of dispensaries mentioned will be disposed of in some one of these ways, and always in the way which is most to his advantage, provided such action is possible.

Turning now to the more purely social phase of the problem, we may consider:

VI. Charitable interest and cooperation.—It has been demonstrated by experience that to put into operation such a system as I have attempted to outline, to weld its component parts, to stimulate and

foster public interest, often to supply necessary funds for its operation, cooperation with the sanitary authorities and the medical profession, of charitable individuals or associations is necessary. Tuberculosis is essentially a social disease; a disease of the tenements; of the crowded quarter; of the poverty stricken. Any successful attack upon it must be made from every possible vantage ground and in every possible direction, and there is no private or organized endeavor for the relief of the masses which may not become, which should not become, an auxiliary in the effort to overcome their most terrible affliction. Invaluable assistance is given here by the Charity Organization Society, the United Hebrew Charities, the Association for Improving the Condition of the Poor, by other organizations of similar nature, and by many individuals. In every city and village where the anti-tuberculosis crusade is being established such influences will be found interested and at work. In close connection with them and fostered by them as well as by the sanitary authorities must be considered,

VII. Educational measures.—Upon these, indeed, the success of the whole great undertaking depends. The medical and lay public must be impressed with its magnitude and importance and must be made to understand the true nature of the disease, the urgent necessity for its prevention, the possibility of its cure, and made acquainted with the measures directed to these ends. The development of these measures has proceeded step by step with the education of the public and cannot materially anticipate it. The methods of bringing this subject before the people are numerous and ingenious. The distribution of literature, public lectures, public notices in the daily press, upon street car transfer slips, upon telegraph poles, fences, and lamp-posts, stereopticon pictures interspersed with short, catchy observations and instruction—all these are being used with success. Each individual personally reached and impressed, either by these means, or as a patient in the dispensaries and sanatoria, becomes, in turn, a teacher of others.

Let me add a word in closing about results. What is the effect of all this? The fight is in reality just beginning and is sure to be a long one. Where success has been obtained it is often difficult to express it in convincing terms. It may, however, be said that in the last decade the attitude of the world with respect to this disease has materially altered. It is no longer one of hopelessness or indifference. There is, instead, an eagerness, both of physician and patient, the one to assist in the work along the now well established lines, the other to undertake his cure with confidence and not in despair. This, in itself, is much. Further, the statistics of our sanatoria are most encouraging and will improve as we become more painstaking and more expert in the matter of diagnosis, saving patients many months of delay in beginning treatment.

In this respect especially there is room for much improvement. Patients are recommended by general practitioners for admission to these institutions who are already well advanced in their disease. This is due, I think, less to inability than to

carelessly made physical examinations or failure to appreciate the importance of early diagnosis and the proper disposition of their patients.

Finally, whereas in 1898, with a population of 3,272,418, there were 9,265 deaths from tuberculosis in the city, there were in 1905 only 9,658 deaths in a population of 4,024,780, and for the same years the phthisis death rate has fallen from 2.25 to 2.16.

Perhaps, however, the most important results are obtained in the education of people in this most important subject, and for us of the profession, especially, in the constant stimulus we have to improve our methods of diagnosis, and to give every patient coming under our care the earliest and best advice possible, not only for his own sake, but for the sake of those about him.

32 EAST FIFTY-THIRD STREET.

SILVER NITRATE IN GASTRIC DISEASES.

By HARRIS WEINSTEIN, M. D.,

New York,

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With a full appreciation of the uncertain efficacy of drugs in disease, I enter upon a discussion of the virtues of silver nitrate in the treatment of certain gastric diseases with no little hesitancy, lest I be accused of undue enthusiasm and narrowness of view. In justification of my apparent partiality toward this drug I have the support of an extensive experience with it both in private and dispensary practice. Only a thorough conviction that in this drug we possess an asset of no mean value in our therapeutical armamentarium prompted me to bring it forth more prominently to the attention of the profession than had been done heretofore. My observations were mainly of a clinical character, basing my conclusions on its effect on the subjective symptoms. The results seem to point, as would be expected from the character of the drug, to a slight astringent and germicidal action. I wish to add, however, that sole reliance should not be placed upon this drug, for it will unqualifiably spell failure every time unless other indicated therapeutical measures be employed. The removal of the causative factors of the disease under treatment is necessarily a condition upon which success or failure depends.

My observations lead me to recommend its use in all irritating conditions of the gastric mucosa characterized by increased secretion, hyperacidity of the gastric juice, nausea, vomiting, and pain. In gastric neuroses, no matter how closely the symptoms resemble those of organic disease of the stomach, this drug exerts no influence whatever on the symptoms. It is therefore all important in its application to exclude neurotic conditions of the stomach, which, I admit, is at times almost impossible, for there are very few diseases of the alimentary canal in which nervous phenomena do not play an important part.

Hyperchlorhydria is a symptom of various diseases, but it also occurs as an entity in those conditions of the stomach in which the gastric mucosa is constantly being irritated. The irritation may be due to gastric mucositis and inflammatory induration of the food, unduly acidulous or the mouth and teeth excessive salivation, and drinking and eating

drinks, abuse of alcoholic beverages, highly seasoned foods, spices, etc. Silver nitrate will promptly relieve the distressing symptoms of this condition, but if the causative factors continue in operation it is evident that the hyperchlorhydria will persist in spite of treatment and will ultimately result in an inflammatory state of the mucosa. It is apparent that the proper treatment of this disease consists in the removal of the cause and in the institution of a nonirritating light diet for a period coincident with the return to normal of the irritated mucosa. At this juncture it may not be amiss to call attention to the futility of the contention of various authorities relative to the diet best suited to this condition. It is, in my opinion, not the proteid or the lacto-vegetable diet that influences the course of the disease, but the removal of the irritating factor and the guarding of the stomach against abuse. The part played by silver nitrate is not merely that of a symptomatic remedy in that it relieves the symptoms, but also as an aid toward a permanent cure by virtue of its constringing effect on the vessels of the mucous membrane of the stomach.

As a symptom hyperchlorhydria frequently occurs in chlorosis, in various diseases of the liver, in cholelithiasis, cholecystitis, and in the early stages of nephritis. Reflexly it occurs in constipation, especially of the spastic type, and in mucous colitis. Treatment should be directed to the primary disease, and the curability of the hyperchlorhydria necessarily depends upon the curability of the disease of which it is a symptom. For the alleviation of the symptoms, however, silver nitrate should be employed. The removal of the distressing symptoms of an accompanying hyperchlorhydria in any disease not only adds to the patient's comfort, but also improves his digestion owing to the return to normal of the secretory and motor functions of the stomach. His nutrition is thereby furthered, thus contributing indirectly to his ultimate recovery.

The various gastric neuroses may or may not be accompanied by a hyperchlorhydria. The secretory disturbances manifest themselves in such extremes as to present at one time a high degree of acidity and at another time a complete absence of acidity of the gastric juice. The gastric symptoms vary with the state of the secretion, and during the hyperacid state the symptoms resemble very closely those of hyperchlorhydria. Under these conditions silver nitrate is of no service whatever; there being no congestion of the mucosa, the astringent action of this drug is not indicated. The variability of the secretory function is due to vasomotor disturbances, and treatment must be directed to the nervous system, into the discussion of which I need not enter here.

In chlorotic individuals with a general myasthenia the gastric atony is accompanied by a hyperchlorhydria. Here again silver nitrate is a most useful remedy. It is indicated by treatment directed to the general increased condition of the patient. It appears to me that the diet is a most important feature in the treatment of these cases. Gastric neuroses will be treated appropriately if attention can be directed in seeing the patient properly. I usually advise these cases a vegetable and fatty diet of solid food combined with cereals in small quan-

ties at frequent intervals, so as not to overtax the musculature of the stomach. Of liquids, I allow as little as is consistent with comfort to the patient. Massage, electricity, a plentiful supply of fresh air, and such drugs as iron, arsenic, strychnine, and ergot are all to be employed in the treatment of this disease.

In benign pyloric stenosis with retention of the gastric contents decomposition of the retained ingesta takes place. The gastric mucosa is thereby irritated, resulting in hypersecretion and the development of sarcinae and yeast cells. The most effective symptomatic treatment I have found to be a thorough washing of the stomach followed by silver nitrate internally. The relief is necessarily but temporary, the establishment of proper drainage being the only proper treatment in these cases. Fissures at the pyloric orifice are frequently productive of the same results by spasmodic contraction of the pylorus. Gastric lavage followed by the internal administration of silver nitrate, a nonirritating diet, and olive oil on an empty stomach, has never failed, in my limited experience with this disease, to effect a cure.

For the relief of pain in gastric ulcer, whether acute or chronic, silver nitrate is superior to any other drug. The distressing heartburn, sour eructations, headache, and constipation that usually accompany gastric ulcer are also promptly relieved.

It is unnecessary to comment upon the importance of a strict diet in this disease. In ambulatory cases I put the patient on a liquid diet consisting of two quarts of milk, six soft boiled eggs, a quarter to half a pound of unsalted butter, well cooked and strained cereals, strained vegetable soup, half a pint of cream, custard, gelatin, and, where practicable, olive oil. This diet is usually well borne and can be kept up for several weeks, if deemed advisable, without the loss of weight. I then gradually add solid food in the form of zwieback, crackers, toasted bread, spring chicken, calf's brain, mashed potatoes and other vegetables. In severer forms of the disease in which food is not tolerated by the stomach, the patient is to be put to bed, and rectal alimentation instituted. Silver nitrate may, however, be administered by mouth, as it is always well borne by the stomach. Subsequent treatment is largely individual and differs but little from that of the milder form of the disease. In a case of severe hæmorrhage from gastric ulcer in which the patient suffered intensely from sour eructations and laryngeal spasm, silver nitrate relieved both of these symptoms after the second dose.

In chronic acid gastritis silver nitrate acts in the same manner as it does in other forms of hyperacidity of the gastric juice.

In alcoholic gastritis during the hyperacid stage this drug should be employed for the same reason. It is, however, important in all forms of gastritis to wash the stomach thoroughly before the drug is administered. The diet should be light and nonirritating and of semisolid consistency.

In other forms of gastritis my experience with this drug is too limited to allow of an authoritative opinion as to its efficiency. In one case of anacid mucous gastritis, in which all other drugs had failed, silver nitrate had a most excellent effect.

Administration. I usually administer the drug in

solution in doses of one quarter to one half of a grain three times a day on an empty stomach. For half an hour after its administration I do not allow any food or drink. It is hardly ever necessary to continue its employment for a longer period than three weeks, although in rebellious cases it may be employed for a month without danger of producing argyria. In those cases in which the intestines react unfavorably its use is to be discontinued at once.

Summary. Silver nitrate should be employed in conjunction with other therapeutical agents in hyperchlorhydria, acute or chronic, ulcer, benign pyloric stenosis, pylorospasmus, in acid, alcoholic, and mucous gastritis.

841 LEXINGTON AVENUE.

THE OXYCHLORANILINE REACTION FOR FREE HYDROCHLORIC ACID.

With a New Method for Testing for Hydrochloric Acid in Stomach Analysis.

BY ROBERT L. PITFIELD, M. D.,
Philadelphia.

In the examination of stomach contents many very excellent reagents have been devised for the detection of free hydrochloric acid. And it is with some hesitancy that a new one is added to the very good ones already in use and relied upon. This test may be used for the detection of other free mineral acids in fluids, such as ether and hydrogen peroxide; and it is partly on this account that it is offered.

The reaction depends upon the oxidization of aniline oil or aniline hydrochloride in the presence of potassium chlorate by a mineral acid, or acid salts. It has long been known that the addition of chlorinated lime to aniline causes an intense blue reaction. By adding a mineral acid and potassium chlorate in solution to aniline a blue color is again produced if the amount of acid is large. On adding a crystal of potassium chlorate and a few drops of pure aniline to a solution containing free mineral acid, or acid salts, and heating the mixture rapidly to evaporation a blue coloration is produced at the margin of the dried spot. The reaction is probably brought about by the following chemical changes: The potassium chlorate is decomposed by the mineral acid setting free oxygen and chlorine; these combine with the aniline, producing a blue oxychloride of aniline, as in the case of chlorinated lime. This is quite a delicate reaction; just as delicate and more so than the Günzberg (vanillin and phloroglucin), but less so than the resorcin sugar test of Boas.

The Günzberg solution reacts with hydrochloric acid diluted with 20,000 parts of water. The Boas test reacts higher than this, 1 to 25,000. This oxychloraniline test reacts with 1 part in 22,000 of water, sometimes 1 to 25,000, but not always. In the practical application of this test the presence of chyme (proteid) prevents the reaction from being visible or occurring. So in the stomach analysis a new method of applying the test must be used. By inverting a cold spoon (enameled) over a capsule containing chyme and slightly warming the capsule a few drops of moisture are collected in the spoon.

To this fluid a few drops of the following are added and the whole heated to evaporation:

B. Aniline,	to c.c.;
Alcohol, 50 per cent.,	to c.c.
Potassium chlorate,	to saturation.

By this method all danger of charring is obviated. This is quite an advantage, and is a simple and convenient method. The few drops of moisture contain hydrochloric acid if it was present in a free state in the chyme. But strong heating of the chyme must be carefully avoided, since not only free but combined hydrochloric acid will be liberated and a reaction for free hydrochloric acid obtained when none was present. So gentle warming is always indicated. Hydrochloric acid seems to be as volatile, or more so, than water.

This method of collecting chyme free hydrochloric acid and of applying the spoon can be employed with any of the common reagents. The use of the spoon as an instrument in stomach analysis has been used for some time. By simply evaporating chyme in a spoon mixed with a reagent charring has to be avoided, or perchance a small amount of free hydrochloric acid may be volatilized before the reaction can occur. Indeed it may be that often this happens, or else combined hydrochloric acid may be separated from the proteid by heat and a reaction for free hydrochloric acid obtained. Several times I have tested this by heating reagents and chyme in sealed tubes, but as yet with inconclusive results.

Dimethyl amido azobenzol in 0.5 per cent. solution is said to be ten times more efficient than phloroglucin and vanillin or Congo red tests, but it is stated that acid phosphates and lactic acid at times produce the characteristic color reaction in heating chyme with it. In the test described, lactic acid in concentration does not react at all. Glacial acetic acid, oxalic acid, cause the reaction, as do acid salts, such as bichloride of mercury, calomel, ammonium sulphate, copper and iron chlorides, and sulphates, etc. Acid phosphates and sodium chloride cause no reaction.

The color reaction with the aniline and potassium chlorate is very marked; it is either bluish green or intensely black. The latter color is produced when the amount of acid is great. For the detection of hydrochloric acid or other mineral acids, as sulphuric acid and nitric acid in drugs such as ether or hydrogen peroxide, the test is useful and delicate.

The reagent keeps well several months and is not affected by light; if the distillate of chyme is collected by slight warming it is a delicate and useful agent for the detection of free hydrochloric acid in stomach contents.

5211 WAYNE AVENUE.

Opium Smoking in China.—The most conservative official estimate of the opium smoking population in China is reckoned at only 300,000 more than the entire population of the United States. This degrading drug, so universally used, has aroused the Chinese government into taking measures for the repression of the trade in opium and to reform the habits of the country. The manner and the character of the Chinese race has been supported by this drug that the resulting demoralization has frightened even the degraded system of the habit. *The Woman's Medical Journal*.

Our Readers' Discussions.

A SERIES OF PRIZE ESSAYS.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

LXIX.—How do you treat post partum hæmorrhage? (Closed December 16, 1907.)

LXX.—How do you distinguish alcoholic stupor from other conditions resembling it? (Answers due not later than January 15, 1908.)

LXXI.—How do you treat gallstone colic? (Answers due not later than February 15, 1908.)

Whoever answers one of these questions in the manner most satisfactory to the editors and their advisors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short; if practicable, no one answer to contain more than six hundred words.

All persons will be entitled to compete for the prize, whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL.

The prize of \$25 for the best essay submitted in answer to question LXVIII has been awarded to Dr. Arthur S. Risser, of Blackwell, Oklahoma, whose article appears below.

PRIZE QUESTION NO. LXVIII.

THE TREATMENT OF THE VOMITING OF PREGNANCY.

By ARTHUR S. RISSEK, M. D.,
Blackwell, Oklahoma.

The vomiting of pregnancy varies in degree from a scarcely noticeable sensation of nausea to that uncontrollable, pernicious form known as hyperemesis. Hence the treatment of the condition ranges from merely exercising a "masterly inactivity" to the artificial termination of pregnancy. Many factors may be concerned in the ætiology—some of them beyond our control—and our treatment must vary with the cause. It may require simple hygienic and dietetic or medicinal measures, or operative procedures.

The first step toward successful treatment is to make, if possible, a correct diagnosis as to the cause of the vomiting. This may include everything from a careful inquiry into the heredity and environment, the mentality and temperament of the patient, to a complete physical examination, with all the manœuvres which this involves.

First, make sure the patient is pregnant, for in certain cases the vomiting may begin almost coincidentally with conception, and again the fear of an illegitimate pregnancy may cause severe nausea and vomiting. Perhaps in the majority of cases the vomiting is due to nervous or reflex influences, compression or tension of uterine nerves, consequent to increased congestion and stretching of the uterine walls. It is in these cases that gastric and nervous sedatives are of the greatest service. The writer has found menthol very useful, as also hydrastis. Cocaine and aconite; iodine, phenol, and creosote; silver nitrate, dilute hydrocyanic acid; cesium iodate and sodium salicylate; the bromides, chloral and chloroform; these are a few of the drugs which may be used in suitable doses and combinations. Whatever the medication, do not

neglect the simpler hygienic measures. The diet should consist of plain, easily digestible food, milk and lime water, or peptonized milk and other foods. The bowels must be kept well open, best by means of cascara sagrada combined with nux vomica and Fowler's solution. Many patients need nothing more than to remain in bed until they have eaten breakfast. For severe cases the recumbent position should be maintained indefinitely, together with absolute rest of mind. Isolate the patient from her unwisely sympathizing friends. Make use of psychic influences, for suggestion alone has cured many cases of apparently intractable vomiting.

If anæmia and depression with gastric catarrh and ulceration exist, small doses of ipecac often effect a symptomatic cure by toning up the gastric nerves. Pepsin, nux vomica, dilute hydrochloric or nitrohydrochloric acid, silver nitrate and hyoscymus, and the chalybeates will be needed to restore the systemic health. If these measures fail to relieve the vomiting, rectal feeding and medication may be employed. First give a flushing enema, after which a combination of bromides with laudanum and starch water may be given, preliminary to rectal feeding. Nutritive and medicated enemata should not exceed a bulk of six or eight ounces, for fear of causing local irritation and nonretention. The warmed solution must be introduced very slowly, preferably by means of a soft rubber rectal tube and a fountain syringe. The latter should be elevated three or four feet above the patient, who is to be in the left lateral position.

Of nutritive substances there is a wide range of choice. From the glycerin, whiskey, normal salt solution, beef tea, albumin water, egg nog with pancreatin, defibrinated blood, to the commercial beef juices, peptones, propeptones, and pancreatized meats, there is an almost endless variety. These can be used in rotation and combination. From three to six nutrient injections should be given daily until the vomiting is relieved.

Counterirritation often succeeds in affording relief and may be tried before resorting to rectal feeding. A simple mustard plaster, ice, or a cantharidal blister may be applied to either the cervical region or the epigastrium. So also the ether spray and the faradic current.

In some instances the vomiting depends on such rarer conditions as chronic pancreatitis, hydramnios, or hydatidiform mole. Both the latter may involve abortion, either spontaneous or artificial. In the case of hydatid mole the uterus must be thoroughly emptied as soon as the diagnosis has been made. Dilatation of the cervix may be performed by whatever method seems best, but the most rigid asepsis must be observed. Great care must be exercised in curetting, for fear of perforating the uterine walls, which may be very friable, because of cystic infiltration.

Infections such as salpingitis, oophoritis, and metritis may be ætiological factors and will require appropriate treatment. Antiphlogistic measures are indicated. Hot sterile water or weakly antiseptic douches are to be used under the supervision of the attending physician. In chronic infections small doses of the iodohydric solution are of value.

For endotrachelitis, cauterizing the endometrium with iodine or iodine and phenol or silver nitrate, followed by iodine glycerin or boroglyceride ichthyol tampons is the best treatment. This may be preceded by moderate dilatation of the cervix, which alone is curative in many cases, and curetting the endocervix. The greatest care must be exercised not to rupture the membranes, but with this precaution quite extensive manipulations may be safely performed.

If the vomiting is due to the irritation of deep cervical lacerations, these will need to be repaired under aseptic precautions. Malpositions are a frequent cause of vomiting, especially incarceration of the gravid uterus in the hollow of the sacrum. These will require correction and perhaps postural treatment, or the wearing for a time of a suitable pessary or abdominal support.

In many cases we are coming to believe that vomiting is simply one manifestation of the toxæmia of pregnancy, of so called "hepatism" or nephritis; and the vomiting can be stopped only by removal of the underlying cause. A correct diagnosis can often be made only after a careful examination of all the bodily functions, especially those of the kidneys, liver, and bowels. Repeated urinalyses should be made. Treatment must aim to limit the ingestion of nitrogenous food, which is best accomplished by giving an exclusive milk diet. This, together with an abundance of pure air and water, will aid also in the elimination of maternal and fetal toxins. Daily warm baths, with friction, woolen or flannel or silk under garments, should be prescribed to improve the eliminative action of the skin. Calomel, squill, digitalis, and nitroglycerin have their indications. In severe cases hot packs, pilocarpine, caloric injections of hot saline solution, and inhalations of oxygen are necessary. Remember that the vomiting will not be relieved except by removing the condition of which it is only a symptom.

If, in spite of the measures outlined, the vomiting persists and threatens the life of our patient, we must not hesitate to empty the uterus. It is not within the scope of this paper to do more than outline operative procedure, but this must be said: Do not wait until the patient is beyond hope, but under the most rigid asepsis dilate the cervix fully and as rapidly as is consistent with safety; then proceed to empty the uterus by whatever method seems best.

In conclusion, after all has been said this remains true: No one rule or remedy will succeed in all cases. You must individualize each case, study your patient; then apply the measures which common sense and a scientific knowledge will dictate.

Dr. V. E. Watkins, United States Army, remarks:

There are two forms of the vomiting of pregnancy presented to the clinician for consideration; first, the simple "morning sickness," and second, pernicious vomiting, or hyperemesis. The simple vomiting, fortunately, is the form most frequently encountered, and after a varying degree of annoyance to the patient will cease about the end of the third month of gestation. The treatment is largely expectant, as evidenced by the vast number of drugs

which have been recommended for the condition. Modifications of diet to suit individual cases, regulation of the bowels, and the use of cerium oxylate in 2 to 5 grain doses will suffice. The practical point to remember, however, is that we never know when this simple vomiting is the premonition of the pernicious form. Therefore, these simple cases deserve far more consideration than is usually given them, and should be closely watched.

Hyperemesis is always associated with an auto-intoxication, and this auto-intoxication as the causative factor must be recognized in order that the proper therapeutical measures may be instituted. In this discussion it is not necessary to go into the various theories advanced to explain the cause of the auto-intoxications of pregnancy, but it is of the utmost importance to recognize the condition when it exists. In simple vomiting the urine is free from albumin, but in the pernicious form albumin is always present. The quantity of albumin is usually large, though in some cases there may be only a trace. But there is always a marked diminution in the amount of urea excreted. A pregnant woman, therefore, with vomiting, albumin in the urine, and a decrease in the quantity of urea excreted, is in a serious condition, and the treatment must be prompt and energetic. Drugs are mentioned merely to be condemned. There is no drug known which will control this condition. The three principles involved in the treatment are nourishment, rest in bed, and stimulation. These patients lose their strength with remarkable rapidity, and should be put to bed as soon as evidences of physical weakness are manifested.

The nourishment of the patient is the most difficult problem. In some cases the withdrawal of all food for twelve or fifteen hours, with the patient in bed, will so quiet the stomach that small quantities of fluid will be retained. Milk, either plain or predigested, is to be preferred, and is to be given a teaspoonful at a time and gradually increased in amount until at least two quarts in the twenty-four hours are taken. The intake of fluids must be large, and the patient should be given water freely, preferably carbonated. In other cases the stomach will require more time before retaining the liquid nourishment, and it will be necessary to resort to rectal alimentation for a few days. For the depression of the heart, which is invariably associated with cases of any severity, strychnine is to be used. Improvement in the condition will be manifested by an increase in the quantity of urine, decrease in the amount of albumin, increased excretion of urea, and a gradual return of the patient's strength. If this line of treatment does not succeed, the only recourse remaining is to empty the uterus and thus remove the disturbing factor in metabolism and the cause of the auto-intoxication. Production of abortion will result in a cure if the operation is resorted to soon enough, but unfortunately it is in many cases postponed until the condition of the patient has become so serious that death is inevitable, whether abortion is induced or not. To decide when the pregnancy should be interrupted is a momentous question, but when the vomiting continues, the urinary changes do not improve, the pulse is very rapid and the wasting of the tissues and bodily

weakness have become alarming, there should be no hesitation as to the propriety of resorting to radical measures, while they still offer a good prospect of saving the woman's life.

Dr. R. H. McKay, of Akron, Ohio, writes:

The dividing line between the different varieties of vomiting in pregnancy is not clear, so that they are hard to classify, and therefore each and every case should receive individual treatment.

The slight nausea and occasional vomiting on arising in the morning does not require treatment, except where it persists for months. In these latter cases regulation of diet, proper attention to the bowels, and cerium oxalate, bismuth subnitrate, and ingluvin, or their combinations, will usually give the desired results.

Where nausea and vomiting occur three or four times daily for quite a period of time, but apparently do not undermine the health, constipation of the atonic fragmentary type is very often the chief factor. The remedy that has given me the best results for the constipation of this type is:

R Tincture of belladonna,
Tincture of nux vomica,*aa* ʒiii;
Oil of cloves,*ss*;
Fluidextract of cascara sagrada,*q. s. ad. ʒiv.*

M. S.: One teaspoonful after breakfast and at 9 o'clock in evening.

This is continued as long as constipation persists. If the effect is too great the morning dose should be omitted. For the vomiting I prescribe the following tablet:

R Bismuth subnitrate,*aa* grs. ii;
Cerium oxalate,
Cocaine hydrochloride,*gr. 1/12.*
M D. t. d No. xii.

S. One tablet to be taken with water one half hour before arising and every four hours during the day.

This should be continued, according to indications, from one to three weeks.

The failure of ordinary measures, especially at times when an explanatory cause cannot be determined, often makes treatment very difficult. The ætiology of true vomiting in pregnancy is problematical, yet there are often many conditions associated with pregnancy, one or more of which may be the chief factor in its production. Among these are gastric catarrh, ulcer, and cancer, hepatic conditions, cardiac, renal and brain disturbances, malpositions and adhesions of uterus, erosions of the cervix, various neurotic conditions, and constipation.

A thorough examination is, therefore, necessary, so that any complicating cause may be properly treated. If no complicating cause can be found the treatment resolves itself into hygienic, dietetic, medical, and surgical measures.

The hygienic treatment needs not be elaborated upon here, as all are aware of its importance. On the other hand, the importance of dietary treatment can hardly be exaggerated. Very often, when the physician sees these cases, hyperemesis has been present for such a long time that a subacute inflammation of the stomach, with marked irritability, exists. In such cases rectal feeding is indicated. The rectum having been thoroughly cleaned by saline enemas, three to five ounces of the nutrient material are injected every three to four hours. Some

line enemata should be given twice a day to rid the intestinal tract of unabsorbed portions of the nutritive enemata. One useful is:

Liquid beef peptonoids, 3ss;
White of one egg;
Whiskey, 3iii;
Beef tea, q. s. ad. 3iii.

To this may be added tincture of opium if local irritability be present. Large doses of bismuth subnitrate are also given, by mouth, for the alleviation of the gastric catarrh.

When gastric alimenation is resumed the diet should be very light, e. g., barley water, albumin water, various broths, oatmeal gruel strained, etc. Small quantities at frequent intervals give the best results.

When marked general irritability and nervousness is present, chloralhydrate and bromide combinations are the best, usually securing temporarily the desired results. They should be given per rectum, in water or milk. Opium and its derivatives, except as mentioned, are contraindicated.

Many of the drugs that have been advised and so highly recommended have been very disappointing in my hands. Phenol, wine of ipecac in small doses, and tincture of iodine are among them, but rarely give good results.

Surgical treatment should be reserved as a last resort. Cervical erosion should be properly cared for, malpositions of the uterus should be corrected, and adhesions freed by gentle bimanual manipulations. Some advise slight dilatation of the os. However, I would feel some hesitancy in so doing, on account of the danger, especially to the fœtus. In the persistent and uncontrollable cases, however, when all known therapeutical measures have been of no avail, and when the severe symptoms of starvation appear, the uterus should be emptied following a consultation.

The patient is carefully prepared, the same as for a major vaginal operation, and a curettement is done with a dull instrument. In most cases the pregnancy is so far advanced that placenta forceps may be of material aid. The curettement is followed by douches of hot bichloride of mercury, pads then being applied with retaining dressings. Packing is not used except in case of severe hæmorrhage. As a rule, production of abortion by vaginal packing or by cervical dilatation is too slow, since time is precious and every effort must be exerted to save the mother.

The diet is gradually increased to normal. The patient is kept in bed from two to four weeks, and recovery is usually rapid.

Dr. Abner C. Matthews, of Earlville, N. Y., states:

Every case of vomiting of pregnancy can be classified under one of three heads: (a) Simple vomiting, (b) idiopathic vomiting, and (c) that form of vomiting which used to be called pernicious vomiting and which we now recognize as acetonuria. These last mentioned cases are said to be due to changes in the liver occurring early in pregnancy, and are unusual and quite apt to be fatal.

Some of these patients have cholecystitis; others yellow atrophy; and still others have changes in the liver, which are as yet, at least, imperfectly understood.

The simple vomiting of pregnancy may be due to albuminuria, and for the purpose of deciding whether such is or is not the case, a careful examination of the urine should be made in every instance.

Under strict antiseptic precautions, a vaginal examination should also be made to ascertain whether the uterus is normal or not, and whether it is in a normal position or not. I have seen the simple vomiting of pregnancy caused by an extremely flexed condition of the cervix, causing mechanical disturbance. This class of cases has been treated by dilatation up to the point of the internal os, but to my mind such a procedure would be of extremely doubtful utility. I have seen cases of vomiting of pregnancy relieved, however, by simply straightening an exceedingly crooked neck.

In all cases of the vomiting of pregnancy I never fail to make a careful physical examination of the chest. Quite frequently I have been rewarded by finding a lesion of heart or lung which was doing its share toward keeping up the vomiting.

The second set of cases is really closely identified with the first. The woman vomits, and even if we are as thorough as we may, as careful as we may, we are unable to discover the reason. It may be due to hysteria, anæmia, or neurasthenia, or to an overacid or irritable stomach, or possibly it proceeds directly from the uterus through the mediumship of the reflex nervous system. The list of remedies for this condition is surely an extended one. I will mention a few that have given me the best results. The cerium oxalate alone, or combined with the bismuth subnitrate, from 2 to 5 grains of the former and from 15 to 30 grains of the latter every four hours, the patient to be at rest in bed and the diet regulated. Cocaine is of great service in an irritable stomach by depressing the gastric sensory nerves. Wine of ipecac, 1 minim every hour, is useful in some cases. Where there is hyperacidity, alkalies and the aromatic spirit of ammonia are of service. At times I have found the following prescription very valuable:

R Menthol, grs. xv;
Spts. frumenti, 5vi;
Syrup, 5i.
M. S. One teaspoonful every hour.

Counter irritation by mustard sometimes aids. Pieces of ice and iced champagne; eating ordinary popcorn; Fowler's solution, gr. ii to iv; tincture of nux vomica, gtts. v; small hypodermatic injections of morphine, gr. 1/8, every three or four hours; waking the woman unexpectedly at night, giving her food, then putting out the lights so that she may drop off to sleep again, etc., etc. Where the stomach is extremely sensitive flush out the bowels well with enemata; give a small quantity of peptonized milk every two hours, say two or three teaspoonfuls, gradually increasing, and give the following *per rectum*:

R Sodii bromidi, 3ss-5i;
Tinct. op. deodorat., 3i xxx;
Aque. amygd., 5vi.
M. S. Inject gently into the empty rectum and retain as long as possible.

It is of the utmost importance that the patient be at rest in bed, that the diet be carefully regulated,

and that the functions of the kidneys, bowels, and skin be attended to most carefully.

One other remedy I wish to mention, and that is the tincture of iodine given in doses of from v to x minims, well diluted, every five hours. I am well aware that we are told that this remedy is precipitated in the stomach and therefore should not be given internally. Be that as it may, I have seen most excellent results produced by its internal administration in the vomiting of pregnancy.

Acetonuria, or the severe form of vomiting of pregnancy, is a toxæmia, and is dangerous to life. It is characterized by almost constant vomiting, headache, rapid pulse, and sometimes impairment of the mental faculties, particularly memory. The generally accepted cause of this form I have mentioned heretofore. My treatment of this form is by the vegetable digestants, such as papoid, caroid, etc. Sodium bicarbonate, too, seems to be useful. It should be given in fairly good sized doses. The bowels and kidneys should be looked to well. A professional nurse should be in attendance. From half a pint to a pint of normal salt solution should be introduced into the large bowel two or three times a day and retained. The functions of the skin should also receive careful attention.

To sum up the treatment of this form: Stimulate the kidneys, the bowels, and the skin to eliminate the toxins already in the circulation, and try by means of proper diet, etc., to prevent the formation of more toxins. If, however, in spite of this treatment, the patient gets steadily worse, then empty the uterus and be sure that you do not wait too long before you do it.

In conclusion, it may be said that what will relieve one is but of very little benefit to another. I have had a case recently in which medication was of no apparent benefit, but a tampon in the cul-de-sac against a sensitive ovary relieved all symptoms; another that was benefited by light cervical dilatation and the same old methods that have been standard for many years.

Dr. F. H. Smith, of Lewisburg, W. Va., writes:

Rational therapy presupposes a clear conception, first of all, of underlying pathology. Into no dark realm of the mysteries of disease has more light been thrown by modern research than in this very condition, emesis gravidarum.

And research has revolutionized treatment as modern theories have supplanted the old. Hence, we are thrown to-day upon the defensive at the outset of any discussion of treatment, and we must first give a reason for the faith that is in us.

Omitting, perforce, everything but bare statement of facts, we may assert that the trend of modern opinion, with practical unanimity, fixes upon auto-intoxication as the usual cause of at least the serious cases of emesis gravidarum; in short, hyperemesis is a symptom of toxæmia, and not really a separate disease.

Auto-intoxication is a toxæmia in one of two ways or by a combination of the two: (1) That great transformer, the liver, may fail to do its duty—may fail to convert those waste products into substances suitable for elimination; and hence there will ac-

cumulate in the economy those poisonous bodies precursors of urea; or else (2) the eliminative organs, functionally or organically diseased, may be inadequate to carry off the body sewerage. The pregnant woman, moreover, is peculiarly endangered in two ways: (1) Her blood necessarily contains an excess of tissue waste products, because (a) her metabolic processes are unduly active to provide also for the fœtus, and (b) she receives also into her blood effete products of the fœtus; (2) her eliminative organs, especially liver, bowels, and kidneys, under the excessive intraabdominal pressure, are interfered with. She is confronted with the problem of increase of waste plus a diminution of excretion. (Jewett.)

Such poisons are peculiarly nerve poisons—the symptoms bear witness to this fact, for it is the nervous system which furnishes the most striking phenomena; hyperemesis is one of them, though it is a fact well worth remembering that the vomiting, as well as the diarrhœa, may be an effort of nature toward vicarious elimination, and as such we should hesitate to check it.

Upon the modern refinements of uranalysis we must depend largely for a diagnosis as to whether we are dealing with hepatotoxæmia, as expressed in the urine by indicanuria, peptonuria, glycosuria, and all of those nitrogen derived bodies which manifest an incomplete conversion of the waste of metabolism into endproducts; or whether the condition depends upon renal disease and insufficiency, as expressed by albuminuria and casts; or whether it is a combination of these two factors.

Not so new, yet as true and as interesting as ever, the reflex origin of the vomiting of pregnancy maintains its claim to recognition as an efficient and common cause. Changes in size, shape, position, circulation, and innervation of the uterus, to accommodate and to provide for the new being, are physiological facts. These changed conditions, even though normal and physiological beyond a doubt, react powerfully upon a nervous system in a state of unstable equilibrium, and among other parts of this system the vomiting centre. In consequence, though the stimulus is normal and the increased susceptibility of the nervous system to stimuli is, at least, natural, overstimulation is the result, speaking relatively at any rate.

Thus, if there are any such cases, they may be called the physiological, or simple, cases of the vomiting of pregnancy.

If to these natural causes of nervous unrest is added something abnormal in the way of pelvic disease, it is but natural to suppose that a still greater stimulation of the vomiting centre will be the result. These are cases of reflex vomiting, it is true, but with an underlying, tangible, pathological basis.

Two conclusions then, come out prominently, are correlated and essential: (1) The comparative uselessness of drugs to stop the vomiting, and (2) the very length of the list arguing the absence of anything like a specific remedy. Let these and be in the minds of those who assume that therapy, judiciously become, regarding other cases of emesis gravidarum as not a disease entity, it is a collection of a number of a symptom complex.

Thorough examination, physical, urinary, and otherwise, should have demonstrated the absence of anything pathological before a diagnosis of simple vomiting, i. e., vomiting dependent merely upon the heightened sensibilities of the pregnant woman, is relied upon. In such, little, if any, treatment is needed beyond the tactful reassurance of the sufferer that her distress is natural under the circumstances, and that Nature herself will bring her own relief in good time by adjusting the nervous (and other) system to the new conditions. At most, confinement of the patient in bed, free from all excitement, and most imperatively from sexual excitement, with the timely use of chloral, the bromides, or such other remedies as diminish reflex action, either by mouth or by rectum, will in the majority of cases suffice.

Not so when there is any abnormality of the pelvic organ, though these means will undoubtedly be of assistance here also. It is necessary, though, to first correct, palliate, or counteract the abnormality. Most frequently, perhaps, a retroversion confronts us; the uterus must be replaced and retained in place. With the bowels and bladder empty, and the patient in the knee chest position, replacement is usually easy of accomplishment by patient manipulation designed to raise and carry forward the uterus into its normal position of anteversion: anesthesia may be necessary. Once replaced, a properly adjusted pessary should maintain the organ comfortably in position until natural growth renders it so large that it cannot again assume its abnormal position. Where adhesions exist, or venous engorgement from long occupancy of an abnormal position, great service may be had from a tampon soaked in a solution of ichthylol (10 per cent.) in glycerin snugly applied to the vault of the vagina, and allowed to remain *in situ*, provided it is primarily sterile, for forty-eight hours. It has frequently been noticed that the serous depletion of tissues brought about by this tampon has relieved the vomiting even before the treatment has softened adhesions sufficiently to allow of complete replacement of the misplaced uterus. Should incarceration have ensued and none of these measures prove adequate to release the imprisoned organ, vaginal or abdominal section must be considered. Cervical endometritis and erosions of the cervix may be the starting point of a pernicious reflex vomiting. A cotton wrapped applicator, saturated with iodine or 30 per cent. solution of silver nitrate and introduced well up into the cervix is approved treatment. At times an even more insignificant cause seems to initiate the reflex; the cervix appears abnormal only in being contracted and rigid, and yet this has been sufficient to produce a most obstinate case of vomiting. In such a case it has been recommended to smear the cervix, both inside and out, with belladonna ointment, reinforced, perhaps, with a tampon coated with the same; a very simple plan, which might be tried before resorting to the usual, more radical, procedure, dilatation of the cervix with steel dilators. This last manipulation is apt to result in an abortion, of which fact the family should be forewarned.

Coming, next, to the treatment of those cases in which there is an underlying basis of toxæmia, we do well to dismiss from our minds entirely the idea

of gastric disturbance, however prominently the stomach may share in the general complaint. Of course, the pregnant woman may suffer from simple indigestion, gastric catarrh, etc., purely gastric disorders, just as she may at other times; in which case, appropriate treatment, determined, if circumstances warrant, upon the findings of gastric analysis, should be initiated. But these are not the cases usually understood as constituting the vomiting of pregnancy; in them, too, gastric analysis will demonstrate that the stomach is at fault, while complete uranalysis will prove general toxæmia absent. In the vast majority of cases, "medication addressed to the stomach *per se* is beginning at the wrong end of the trouble, a fact well attested by the interminable list of drugs given in the books, and handed down through force of habit." Nor should opium or any of its derivatives be employed, as the result is not only a masking of the symptoms, but a locking up of the secretions and excretions.

Dietary.—That diet is of prime importance in autointoxication goes without saying; nothing is of greater importance. How rigid must be the curtailment will depend largely upon the urgency of the symptoms, though it works less hardship upon the woman to confine her at first to an absolute milk diet, and later to be more liberal, than to practise the reverse. In the mildest cases, bread, fruit, fish, oysters, the cereals and cereal gruels, with the lighter vegetables, may be allowed under the watchful eye of the physician. Pastry, sauces, gravies, cheese, sweets, animal broths, and the red meats should be prohibited. Tea and coffee also are better omitted. Should the patient promptly improve, she may gradually choose from a more liberal menu. It is always advisable to prescribe definite quantities of water, if it is possible for the woman to retain it, for most women habitually take too little water. Sometimes, when the mere thought of water nauseates, the patient can be induced to retain it when a simple tablet, such as an effervescent lithia, has been added, under the impression that the "medicine" is to allay nausea.

When an ideal diet cannot be retained, we sometimes are forced back upon articles less ideal, but which the patient will relish; such is the case frequently with regard to beef peptonoids, lemon albumin, and even articles of food which seem most unsuitable. For instance, a dish of potato salad was the turning point for one desperate case.

When it appears that the stomach is absolutely rebellious to any form of nourishment, then rectal feeding must not be too long postponed. Six ounces should be the maximum quantity for one feeding, the feedings not being closer together than every six hours. The formula found to be the most satisfactory, all things considered (and some considerations contradicting it), has been: Liquid peptonoids, $\bar{5}$ i; normal saline solution, q. s. ad. $\bar{3}$ vi; with whiskey, $\bar{5}$ i; added p. r. n. It is important that the rectum be irrigated with normal saline solution daily during the régime of rectal feeding.

Elimination is, beyond doubt, the one specific line of treatment in any case of autointoxication. The appearance of nervous symptoms, whether vomiting or some other, coupled with a diminution in the total output of urea, urea elimination being merely an index of all waste elimination, demands prompt and

energetic elimination. Bowels, skin, and kidneys must be stimulated, and the more urgent the symptoms, of course, the more active must be the treatment. Calomel, in broken doses, gr. 1/6 to 1/2, every half to one hour, until from 3 to 10 grains have been given, will often allay nausea, while stimulating both bowels and kidneys; magnesium sulphate, 5ss to 3ii, in concentrated solution by mouth or rectum, is one of the best purgatives here, because its hydragogue action carries off a quantity of effete matter in solution; jalap and elaterium, even (rarely) croton oil, may be used, when constipation is obstinate and the symptoms urgent. Or Davis's formula may be used by enema: Magnesium sulphate, glycerin, aa 5ii; spirits of turpentine, 5ss; castile soap, Oii. Active catharsis, it will be remembered, entails the danger of producing abortion.

The skin is neglected in these cases of vomiting often by the same physician who would use its eliminative powers in the kindred condition of threatened eclampsia. Surely, if we comprehend that these cases are most often due to the same cause that produces eclampsia at other times, or even in the same patient, we would make more use of the skin. Hot air baths or hot packs, together with the free use of hot water by mouth, will generally bring about free sweating, and often, too, free diuresis. When water cannot be given by mouth, we may supply the needed fluid by hot saline irrigations of the bowel with a 1 per cent. saline solution, using eight or ten gallons; or, by the other method, introducing high up into the bowel smaller quantities (to be retained), repeated frequently; or hypodermoclysis may be called into use.

To stimulate the renal functions small doses of calomel, the hot pack, dry cupping, are all of value. Infusion of digitalis is a time honored remedy. But of more value than all the rest in several desperate cases, even where albuminuria and tube casts denoted extensive renal involvement, has been sparteine sulphate in doses ranging from gr. ss to ii, its effect seeming to be enhanced often times by the simultaneous use of nitroglycerin, gr. 1/100 to 1/50, the two to be repeated every four hours until effect, when the dosage may be lessened. This combination has the strong advantage of adaptability to hypodermatic administration, as well as the further advantage of markedly stimulating the heart, which often suffers from the prolonged drain and lack of nourishment. The diuretic action of sparteine has been too long ignored by the majority of the profession.

When by these means excretion has been stimulated, great watchfulness is necessary to anticipate a further return of the same condition, and it is well, often, to give a thorough calomel purge once a week or oftener, and to make repeated diureses, thus to be forewarned of impending failure of elimination.

Often the analysis shows a large excess of indican, and experience has several times hinted that the appearance of indican is the precursor of graver symptoms, pointing to hepatic failure, as in the putrefaction of the albuminous material in the bowel (to which the indicanuria is attributed) over-whelmed the liver with the resultant toxæmia. Hence indicanuria suggests cutting off the red meats, supplying instead milk, the administration of hydro-

chloric acid (Simon contends that indicanuria is indicative of hypochlorhydria), and of such intestinal antiseptics as the sulphocarbolates, resorcin, betanaphthol, and phenolphthalein; calomel and the salines, too, repeated often, have good effect.

Except of such drugs as aid in elimination, not much need be said. It is impossible, as well as useless, to give even a résumé of the long list that have been proposed. Many have been used, with varying effect, and finally discarded, except in the purely reflex cases. In the same class of cases, and to give much needed rest in others, chloral, or the bromides, are given occasionally by mouth, oftener by rectum. It is a grave mistake to use anything that will mask symptoms, and as such opium should be put far away, save in exceptional instances. Codeine and heroine are, perhaps, the derivatives of choice. In the advanced stages of pernicious vomiting, cardiac stimulants must be pushed to effect; of these, sparteine, strychnine, atropine, digitalis, aromatic ammonia, compound spirits of ether, and brandy have proper places.

Finally, if in spite of all treatment the patient (usually one sadly neglected) passes from bad to worse, there is nothing left except to produce abortion. Such a radical procedure should not be entered upon without reliable counsel and with the consent of the family. But, on the other hand, it should not be so long postponed that the patient will not be able to withstand the unavoidable shock, and of the approach of such a condition the pulse is the most trustworthy criterion.

Dr. James A. Morgenstern, of Easton, Pa., says:

The cases of vomiting of pregnancy may be divided under three classes: (1) Reflex, (2) neurotic, and (3) toxæmic. In the first the condition is apparently associated with some distinct abnormality of the generative tract, such as the existence of a retroflexed gravid uterus, or an ovarian tumor. Under such circumstances the vomiting ceases upon the replacement of the uterus or the removal of the tumor. In the neurotic group, the vomiting is a manifestation of a neurosis, somewhat allied to hysteria, and can be cured by suggestion, provided it is properly applied by one who is confident of his premises.

The toxæmic variety, on the other hand, is the most serious disease, and is a manifestation of a profound disturbance of metabolism. In cases which go to autopsy, profound lesions of the liver are found, analogous to those found in acute yellow atrophy. The urine also shows characteristic changes, in that there is a marked increase in the ammonia coefficient. By this I mean the percentage of the total nitrogen of the urine which is excreted in the form of ammonia. Normally, this varies between 2.5 and 5 per cent., but in toxæmic vomiting it may rise to 10 to 20 per cent. Albumin and casts are not present except in the terminal stage of the disease. In the latter part of the affection the patient vomits without effort large quantities of coffee ground material and dies in coma while still well nourished.

In the neurotic vomiting, on the other hand, such urinary changes are absent and I believe that the increase in the ammonia coefficient is a most valuable means of differentiating between the neurotic

and the toxic variety. Such a distinction is most necessary, as it is impossible by the ordinary clinical methods to distinguish between the two conditions until the patient is too far gone to be helped, as it frequently happens that two women may appear equally ill, and yet the one will be suffering from the neurotic and the other from the toxæmic variety of vomiting. In the former case a few days of suggestive treatment will effect a cure, while in the other prompt abortion is necessary in order to save the patient's life, and even then the organic changes accompanying the condition may have progressed to such an extent as to be incompatible with life.

(To be concluded.)

Therapeutical Notes.

Treatment of Exophthalmic Goitre.—Ballet and Delherm, reporters on the subject of the treatment of exophthalmic goitre to the French Congress of Medicine (*Le Bulletin médical*, October 19, 1907), stated that all forms of treatment have produced good results, but they were counterbalanced by their failures; some of the latter were worse than the disease itself. The cause of the numerous failures perhaps resides in a too narrow conception of the pathogeny of goitre; possibly the attendant had in view rather Basedow's disease, than the syndromes of Basedow. It has been known for a long time that certain forms of exophthalmic goitre develop from a simple goitre, or from a local disease of the thyroid body; such as a small fibroma, cyst, etc. In this group of cases, it does not seem doubtful that apothecary, either thyroidean or thymic, with injections of iodine solution, or of iodoform, with partial thyroidectomy would constitute the treatment of choice. The Basedowian syndrome, however, may also be provoked and kept up by diseases in the neighborhood, such as granular pharyngitis, polyp of the nasopharynx, rhinitis, etc., which reflexly act upon the thyroid. A careful examination of the throat and pharynx, followed by suitable treatment, will often be sufficient to cause all the signs of the exophthalmic goitre to disappear. Sometimes, the lesion situated so as to affect the origin of the ninth pair of nerves, and the sympathetic (due to tabes or syringomyelia) act upon the thyroid body. In these cases it is necessary to find the initial cause and make the attempt to treat it. In all such cases in which a cause can be found which acts reflexly upon the thyroid, and determines an increase of function, the treatment should be directed toward removing its cause; symptomatic treatment is only accessory. Unfortunately, a very large number of cases cannot be thus traced to one of these causes. The first factor cannot be ascertained. It may be simply a hereditary or acquired nervous predisposition; in this case we have "iodopathic exophthalmic goitre." In the absence of positive ideas as to the genesis of essential goitre, which excludes a uniform pathogenic therapeutics, we should base our treatment upon the fact, that in Basedow's disease there indisputably exists an irritability of the nervous system, and very certainly a disturbance of the thyroid secretion, without its being possible to decide with certainty which one of these two preceded the other. For this reason, in all these

cases, the first indication is to calm the general nervous system by rest, hydrotherapy, a well devised hygiene, and appropriate medication. In order to remedy the effects of the vice of secretion of the thyroid body, hæmatotherapy by the serum, or blood, of warm blooded animals, appears to deserve the first place. Electricity, either in the form of galvanism, or galvanofaradism, contributes to diminish the thyroid secretion also; and by its sedative, calmative, and vasoconstrictive action, it acts upon the sympathetic nerves. It has given proof of its utility. Among the pharmaceutical preparations, that which appeared to be followed by the greatest success, was sodium salicylate. In the light forms, and in the moderate forms of slow evolution, the medical treatment generally gives satisfactory results without exposing the patients to any injury. It has produced great amelioration, and also indisputable cures. According to the reporters, surgical intervention in these cases should be resolutely forbidden. But there are forms of acute course, with febrile tendency, with particularly grave symptomatology, and which obviously tend to a rapid cachexia. In these cases is found the indication to operate, as soon as the failure of medical treatment is recognized. Abadie stated that partial thyroidectomy was less successful than excision of the sympathetic in the neck, which he had successfully performed. Paul Sainton stated that he recognized in the first place an essential Basedow's disease, consisting simply in a primitive disturbance of the thyroid secretion. Besides this clinical form, in which antithyroid therapy is useful, there are other syndromes of Basedow, which appear after a thyroid tumor; after lesions or functional modifications of the ovary, the testicle, the suprarenal gland, the pituitary body, and perhaps the liver. Others appear to be due to a functional disturbance of the nervous system, reacting upon the thyroid function, so as to produce Basedowian syndromes of an emotional or hysterical origin. Others occur in which there are functional troubles connected with a bulbar lesion, or with one of the sympathetic. There is therefore no possible form of single treatment to be used against the syndrome of Basedow. Like diabetes, which is the result of different pathological conditions, and only an alteration of the glycogenic function, whatever may be its origin, so exophthalmic goitre is the clinical manifestation common to different pathological causes. But in all forms, hygienic treatment, such as isolation, repose, electricity—with tonic or sedative medication—exerts an incontestably favorable effect in overcoming the initial nerve trouble.

Palpitation of the Heart in Neuropathic Subjects.—The *Bulletin général de thérapeutique* (October 30, 1907) advises paying special attention to the digestion and to the removal of dyspepsia, associated with rest and warm baths. Every morning give quinine valerianate, 0.25 gramme, and sodium bicarbonate, 0.50 gramme, or camphor and powdered valerian may be given with the quinine valerianate. Phosphates and glycerophosphates, by the mouth, are especially useful, and also potassium bromide in small doses (0.05 to 1.0 gramme a day). In the paroxysms of tachycardia the application of the icebag over the heart, the administration of plenty of ether, and of sparteine (0.05 to 0.10 gramme in a day) is recommended.

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A NEW STUDY OF THE BRAIN.

While the liver and later the heart were taken by the ancients as the most important part of our human anatomy, we now have for centuries accorded this place to the brain. The literature on the brain is very large. To it is to be added a recent essay by Professor Edward Anthony Spitzka, of Philadelphia, who read an interesting paper on the Study of the Brains of Six Eminent Scientists and Scholars before the American Philosophical Society, on March 16, 1906, which essay has now appeared in separate form.¹

Besides the main part, the essay contains very good statistical material, which the author has collected with great industry. Thus, he gives a review of the weight of the brains of 130 notable men and four women. Among these there are twenty-seven Americans, including Canadians, thirty-eight Germans and Austrians, twenty Frenchmen, fourteen British, three Swedes, two Russians, and one each belonging to Italy, Spain, Bulgaria, and Japan. The average weight of these brains was for the Americans 1,319 grammes, English 1,481, Frenchmen 1,456, and Germans and Austrians 1,440. Of 108 notable individuals the average weight was 1,473 grammes. It is interesting to learn that Napoleon III. who died at the age of fifty-five years, had a brain weighing 1,600

grammes, and the insane King of Bavaria, who drowned himself at the age of forty-one, one of 1,349. The weight of the brains of Oliver Cromwell (2,233 grammes) and Lord Bryon (2,238, or 1,924, or 1,807 grammes) is based upon doubtful statements.

The author gives a list which is led by the Russian novelist Turgenjew (sixty-five years of age), with 2,012 grammes. We find Cuvier with 1,830; Dr. Abercrombie, 1,786; Thackeray, 1,658; the physicist Siemens, 1,600; Dr. Simpson, 1,531; Daniel Webster, 1,518; Agassiz, 1,495; Lord Jeffrey, the jurist, 1,471; the Russian general Skobelev, 1,457; Bertillon, 1,398; Bischoff, 1,370; Liebig, 1,352; the explorer Schlaginweit, 1,352; Pettenkofer, 1,320; Tiedemann, 1,254, and Gall, 1,198. The noted chess player, Steinitz, who died insane, had a brain weighing 1,462 grammes, and the composer Schumann, who also died insane, one weighing 1,352. Gambetta's brain is said to have weighed 1,160 grammes, but it was not weighed fresh.

Our author describes the investigation made to estimate brain weight approximately from the cranial capacity. "The difficulties that are encountered in this procedure are obvious, for the factors of age, cranial form, state of nutrition, and the condition of disease prior to death influence the calculation greatly." But we all know that it is not the weight of the brain which is of import. Von Bischoff (*Das Hirngewicht des Menschen*, Bonn, 1880), to whom our author very often refers, says that even Galen (*De usu partium*, viii, ch. 13) attached more importance to the quality than the quantity of the brain. This Munich professor of anatomy has collected 906 fresh brains, 559 of men and 347 of women; he found the average male brain to weigh 1,362 grammes, with a bodily weight of 49,522 grammes, and the female brain 1,219 grammes, with 42,701 of bodily weight. This work, although thirty years old, is still the standard work on the subject. The first scientific weighing of the brain was undertaken, by the way, by Dr. Sims, who reported his results, under the title of On Hypertrophy and Atrophy of the Brain, in the *Transactions of the Medical and Chirurgical Society of London*, 1835, where he gives a table of 253 brains, stating the sex, age, the cause of death, and the condition of brain. Tiedemann's work followed in 1846 in English, 1858 in German. *Das Gehirn des Menschen nach dem des Aurogari und des Orang Utang*.

Dr. Spitzka also speaks of the regions of the brain. He gives it as his opinion that the trunk is of great importance, particularly to speech. "Thus," he says, "the precentral convulsion center in the brain and its surface configuration is somewhat of an index of the degree of development of the general cerebral ser-

¹ *Transactions of the American Anthropometric Society, together with the Proceedings of the American Association of Physical Anthropologists, held at New York, December 28-30, 1906, Vol. 1, pp. 1-10.*

² *Proceedings of the American Association of Physical Anthropologists, held at New York, December 28-30, 1906, Vol. 1, pp. 1-10.*

face." The insular cortex is, furthermore, the thickest in the cerebral mantle, and the fusiform cells in the deepest layer are very abundant. The author observes that, as a rule, in the brains of intellectual persons the left insula is the larger, and the præinsula, which is in close juxtaposition with the cerebral centres for articulate speech, is most redundant.

The author states rightly that many more brains will have to be obtained and examined, especially brains of leading men, before we can come to important conclusions. To obtain such brains there have been founded a society in France and two in the United States, the American Anthropometric Society and the Cornell Brain Association.

Dr. Spitzka cites the will of the German anatomist, Tiedemann, in which this Heidelberg professor wrote: "*Den Körper lasst öffnen es gewährt dies vielleicht einigen Nutzen, findet sich ein Theil, der den Aerzten Belehrung gewähren kann, so nehme man ihn in eine anatomische Sammlung auf.*"

OPHTHALMOTOXIC TESTS.

The recently discovered fact that the topical application of the toxine of a specific microorganism will cause a very definite local reaction in a subject suffering with the corresponding infections seems to be opening new fields in the realm of diagnosis. The application of this principle in tuberculous disease by von Pirquet was the first step toward its practical employment. His tuberculin "vaccination," or "cuti-reaction," as it is called, has proved to be of considerable assistance in the discovery of tuberculous disease in children. Calmette's suggestion, however, that the tuberculin be applied to the conjunctiva has developed a much more trustworthy method. The preparation is instilled into the eye, and in tuberculous subjects there develops a very distinct reddening, which lasts for from twenty-four to forty-eight hours. In the healthy subject the reaction, if present at all, is very much milder and of shorter duration.

Calmette advises the use of a solution in sterile physiological salt solution of the tuberculous toxines obtained from Koch's "old tuberculin" by precipitating with ninety-five per cent. alcohol. Dr. Baldwin, of Saranac, prefers to use a weaker solution, and advises a one third or one half per cent. strength. The amount used for a single test is one drop, and Dr. Baldwin suggests that enough for one or two tests be put up in sealed glass tubules, which can be easily opened and used as needed.

Continental workers report very favorably on this test, and in this country interest is rapidly growing concerning this very simple diagnostic procedure.

Chantemesse has recently applied this principle to typhoid fever, and, although his work has not been substantiated, his results are very encouraging. The typhotoxines are obtained by cultivating the *Bacil-*

lus typhosus in bouillon of beef spleen, the medium being contained in large flasks which allow of the exposure of a considerable surface to the air. After incubating for a number of days these cultures are filtered, sterilized, and treated with absolute alcohol. The precipitated toxine is then dried and dissolved in normal saline solution in a strength of one per cent. This is used just like the tuberculin preparation in the ophthalmic test, and the resulting reaction is very similar. It seems not unlikely that this test may be serviceable in an earlier stage of the disease than the agglutination test. The possibility of the further extension of this new test to other infectious diseases is evident.

WOOL FAT AND THE HUMAN SKIN.

Dr. P. G. Unna, of Hamburg, has made very interesting studies, researches, and experiments with wool fat and the product known as lanolin. The results of his labors he has published in the *Monatsshefte für praktische Dermatologie* (xlv, Nos. 8 and 9).

He finds that wool fat and lanolin are not characterized by the presence of cholesterin and cholesterin ester, as stated by Liebreich, but of isocholesterin and oxycholesterin, lanoceric acid, and lanopalmitic acid. The fat of the epidermis, cutis, subcutaneous tissue, cerumen, nails, and vernix caseosa of man does not contain isocholesterin and oxycholesterin, although cholesterin is to be found. In the human skin, therefore, wool fat and lanolin do not normally exist.

This is very important, as we have, since 1885, accepted Liebreich's dictum that wool fat and lanolin appeared also in the human skin, upon which statement the use of wool fat and lanolin in medicine has been largely based.

"FAULTY METABOLISM."

This phrase seems to have become marvellously popular with medical writers. It is expressive and entirely unobjectionable, so far as we can perceive, though we fail to see that it denotes any new idea. There seems to be some danger that it may become as hackneyed as "the personal equation," "the psychological moment," and a few such other expressions. This, of course, is to be deprecated.

THE LATE LORD KELVIN'S HUMOR.

According to Professor Munro, the late Lord Kelvin's sense of humor was shown some years ago on the occasion of a visit by Joule to his workshop. Noticing a large quantity of piano wire lying about, Joule asked what it was for. "Sounding" was the reply. "What note?" asked Joule, in an absent minded way. "O, the deep C," he was told.

Obituary.

HENRY PATTERSON LOOMIS, M. D.,
of New York.

In the forty-ninth year of his age, at the height of his intellectual powers and of his professional work, this prominent physician has been carried off by pneumonia. His death occurred at his home on Sunday, December 22d. He was the son of a renowned clinician and teacher of medicine, the late Professor Alfred L. Loomis, and he had followed in his father's footsteps. As a hospital physician, as a general practitioner, and as a teacher of students Dr. Henry Patterson Loomis stood high in the esteem of his professional brethren, and he was held in great respect by the community. Personally, he was amiable and attractive, and his loss will be widely felt.

News Items.

Changes of Address.—Dr. Tasker Howard, to 388 Clinton street, Brooklyn, N. Y.

Hospital Benefit.—The Milwaukee Maternity Hospital and Dispensary Association will receive about \$900 from a benefit performance at the Alhambra Theatre on December 16th.

Hospitals in Thibet.—It is reported that, following the construction of a telegraph line into Lhasa, the capital of Thibet, the throne will give hospitals, schools, and a mail service to Lhasa.

Donation to Beth Israel Hospital, New York.—To make up a deficit of about \$20,000, Mr. Adolph Lewissohn needed a subscription list with a gift of \$5,000, and this was followed by contributions from others.

The Board of Health of Lawrence, Mass., has voted to appoint a city bacteriologist and establish a laboratory for his use. An appropriation will be asked for to cover the expense of the new department.

Hospital Saturday and Sunday Association of St. Louis.—The report of the auditing committee of this association shows that the total receipts for this year are \$35,689.80, which is a larger amount than the collections for last year.

Medical Inspection of Schools in Chicago.—Since the opening of schools in September there have been reported a total of 212,842 medical examinations, 1,490 excisions, 26,436 vaccinations, and 547 cultures made for bacterial examination.

Medical Examination of Schools in Houston, Texas.

The work of making physical examinations of the students in the public schools of Houston is under the general supervision of Dr. Joseph Muldon, who will appear in person.

New Children's Hospital in Buffalo.—At the regular meeting of the board of managers of this hospital, held on December 17th, plans were submitted for the new building and it is expected that the work will be begun some time in February.

Charitable Bequests.—By the will of George Hirschfeld, the Jewish Sheltering Home for the Homeless, the Jewish Hospital, and the Jewish Fever Home and Orphan Asylum receive \$100,000. The Jewish Maternity Home receives \$100,000.

The Fourth Harvey Lecture.—The fourth lecture in the Harvey course will be delivered by Professor Ernest H. Starling, of the University of London, on Saturday, January 11th, at 8 p. m., at the New York Academy of Medicine, the subject being "The Chemical Control of the Body."

The Medical Society of Washington, N. J., held its regular monthly meeting on Tuesday, December 17th. The paper of the evening was read by Dr. G. C. Young, of the

subject of Psychological Medicine. All the members were present and an interesting and profitable discussion took place.

The First Councilor District of Ohio Medical Society.—The fourth annual meeting of this society was held in Cincinnati on December 12th, and officers for the ensuing year were elected as follows: President, Dr. R. D. Francis, of Ripley; secretary, Dr. John P. Miller, and treasurer, Dr. E. W. Mitchell.

The East New York Dispensary has a new medical staff, as follows: Dr. Leo Wertheim and Dr. George M. M. Doneef, surgical department; Dr. Louis Jean Kaplan and Dr. Benjamin S. Stoloff, diseases of children; Dr. Louis Harris and Dr. John Linder, women's diseases; Dr. Marcus J. Leavitt, eye, throat, and nose, and Dr. Alexander Eisanstadt, general medicine.

An Institute for the Health Officers of New York State will be held by Dr. E. H. Porter, State Commissioner of Health, in Albany, on January 2d, 3d, and 4th. On the evening of January 2d the health officers and the Albany County Medical Society will hold a joint meeting. The general topics for discussion at this meeting will be better methods of handling epidemics and public measures for the prevention of disease.

Influenza in New York.—The death rate in New York from diseases of the respiratory organs during the past fortnight was much higher than for the corresponding period last year, and this increase has been attributed to the prevalence of grip in the city, which has seldom had so many victims. The effects of the epidemic are particularly noticeable in the comparatively high death rate among persons of advanced age.

Appointments at Yale Medical School.—Dr. Max Mailhouse has been appointed clinical professor of neurology at the Yale Medical School; Dr. L. M. Gompertz, clinical instructor in medicine; Dr. F. G. Beck, clinical assistant in gynecology; Dr. B. I. Tolles, assistant in anatomy; Dr. J. E. Lane, clinical assistant in medicine at the University Clinic, and Dr. J. L. Gilmore, clinical assistant in pediatrics at the University Clinic.

Berks County, Pa., Medical Society.—At the annual meeting of this society, held in Reading on December 10th, portraits of Dr. Isaac Heister, Dr. John B. Brooks, and Dr. W. Murray Weidman were presented to the society. The election of officers for the year 1908 resulted as follows: President, Dr. Banks S. Taylor; recording secretary, Dr. Ira Shoemaker; corresponding secretary, Dr. George W. Oberholzer; treasurer, Dr. Seymour T. Schmehl.

Scientific Society Meetings in Philadelphia for the Week Ending January 4, 1908.—Wednesday, January 1st, College of Physicians, Association of Clinical Assistants of Wills Hospital. Thursday, January 2d, Obstetrical Society; Medical Society of the Southern Dispensary; Section Meeting, Franklin Institute; Germantown Branch, Philadelphia County Medical Society. Friday, January 3d, American Philosophical Society; Kensington Branch, Philadelphia County Medical Society.

The Bushwick Hospital Clinical Society was organized at Bushwick Hospital, Monroe street and Hopkinson avenue, Brooklyn, on October 31st. The membership is open to internes of the hospital, to visiting physicians and surgeons, and to physicians formerly connected with the institution. Meetings are held each week. The officers of the society, who are all resident physicians in the hospital, are as follows: President, Dr. A. F. Cardozo; secretary, Dr. John Halperin; treasurer, Dr. Max Lehmann.

The Medical Society of the County of Onondaga, N. Y., held its annual meeting in Syracuse on Tuesday, December 10th. Papers were presented as follows: Tuberculosis, a Disease of Degeneration, by Dr. Ely Van de Warker; Absence or Evanesence of Physical Signs with Serious Heart Lesions, by Dr. Henry L. Elsner; Indications for Operations on Cases of Cancer, by Dr. John Van Dusen. The presidential address was delivered by Dr. J. M. Slagterland. There was an election of officers for the ensuing year.

Hartford, Conn., Medical Society.—At the second December meeting of this society, held on December 10th, the guest at the evening was Dr. David R. Lyman, of Wills Hospital, who gave an address on Tuberculosis in connection. The regular meeting of the Surgical Section of the society was held on Monday evening, Decem-

ber 23d. Dr. C. E. Taft reported a case of Separation of the Symphysis Pubis During Labor, and papers dealing with the subject of surgical anatomy were read by Dr. F. T. Simpson, Dr. E. A. Wells, and Dr. T. F. Welch.

To Credit Assistant Surgeons in the Army for Service in the Navy.—Senator Lodge has introduced into the United States Senate a bill, known as Senate Bill No. 1670, granting to any assistant surgeon in the Regular Army, who has had prior service as surgeon or assistant surgeon in the Navy during the war with Spain, the same credit for that service to which any assistant surgeon in the Regular Army is now entitled for prior service as surgeon or assistant surgeon in the Volunteer Army during the same period, under Section 18 of the Act approved February 2, 1901.

Massachusetts Hospital School for Crippled and Deformed Children.—Although the buildings of this institution, which are situated in Canton, are still in an unfinished condition, a portion has been opened to receive patients. It is estimated that when completed the institution will accommodate about three hundred patients, who will be educated along lines that will enable them later to become self supporting. Dr. J. E. Fish is the superintendent, and Dr. Edward H. Bradford, professor of orthopaedic surgery in the Harvard Medical School, is chairman of the board of trustees.

Physicians Wanted in the Indian Service.—The United States Civil Service Commission announces that examinations will be held on January 15, 1908 to secure eligible candidates for appointment as physicians (male) in the Indian Service, at salaries ranging from \$720 to \$1,200 a year. Applicants must be citizens of the United States, and must be between twenty-five and fifty-five years of age at the time of the examination. Physicians who wish to take the examination should secure application form No. 1312 from the United States Civil Service Commission, Washington, D. C.

Systematic Instructions Regarding Tuberculosis in Iowa.—A joint meeting of the Iowa State Association for the Prevention of Tuberculosis and the Iowa State Board of Control of Public Charities was held on December 13th for the purpose of determining how to spend the \$5,000 which is appropriated annually by the Iowa State Legislature for the education of the people of the State concerning tuberculosis. It was decided that the money should be spent in paying the expenses of a man of scientific training to address local medical societies and care for traveling exhibits.

Society Meetings for the Coming Week:

WEDNESDAY, January 1st.—Society of Alumni of Bellevue Hospital, New York; Harlem Medical Association, New York; Elmira, N. Y., Academy of Medicine (annual).

THURSDAY, January 2d.—New York Academy of Medicine; Dansville, N. Y., Medical Association.

FRIDAY, January 3d.—New York Academy of Medicine (Section in Surgery); New York Microscopical Society; Gynecological Society, Brooklyn, N. Y.; Manhattan Clinical Society, New York; Practitioners' Society of New York.

Special Tuberculosis Departments at the Free Dispensaries in Chicago.—The free dispensaries conducted by the Rush, Northwestern, Polyclinic and Hahnemann medical schools, the College of Physicians and Surgeons, and the United Hebrew Charities Dispensary opened special tuberculosis departments on December 16th. Victims of tuberculosis, no matter how poor they may be, and regardless of the stage of the disease, will be advised regarding out of door treatment, diet and exercise. Medicine will be furnished when necessary. If the disease is still in its early stages the patient will be accommodated at the Edward Sanitarium, near Naperville.

A National Tuberculosis Commission.—A bill has been introduced into Congress which provides for the appointment of a national tuberculosis commission to consist of seven members, as follows: The surgeon general of the Army, the surgeon general of the Navy, the surgeon general of the Public Health and Marine Hospital Service, and four tuberculosis experts to be chosen from citizen surgeons by the President of the United States. The members of the commission will be required to investigate the best methods for the prevention and control of tuberculosis, and to recommend to Congress, State legislatures, and

boards of health uniform methods for the prevention and control of the disease.

The Mortality of Chicago.—According to the report of the Department of Health for the week ending December 14, 1907, there were during the week 594 deaths from all causes, as compared with 598 for the corresponding week in 1906. The annual death rate in 1,000 of population was 14.70. The principal causes of death were: Apoplexy, 6; Bright's disease, 50; bronchitis, 26; consumption, 59; cancer, 36; convulsions, 14; diphtheria, 20; heart diseases, 57; influenza, 3; intestinal diseases, acute, 18; measles, 2; nervous diseases, 22; pneumonia, 101; scarlet fever, 9; suicide, 10; typhoid fever, 4; violence, other than suicide, 32; whooping cough, 2; all other causes, 123.

The Chicago and Suburban Health League.—At a meeting of the health officers of Chicago and suburban cities and towns, held on December 7th, this organization was completed by the adoption of a constitution and by-laws. Meetings will be held quarterly. The first meeting will be held the second Monday in January, and other meetings will occur on the second Monday in each quarter thereafter. The following officers were elected for the first year: President, Dr. William R. Parkes, of Evanston; vice president, Dr. Albert F. Storke, of Oak Park; secretary and treasurer, Dr. Heman Spalding, of Chicago.

South Texas District Medical Association.—The annual meeting of this association was held in Houston on December 12th and 13th, and it was the unanimous opinion of the members that this was the best meeting ever held by the association. Many scientific papers were read by prominent Texas physicians, and the discussions were both valuable and interesting. Action was taken changing the regular session of the association from a period of two days to a day and an evening. Officers for the ensuing year were elected as follows: President, Dr. J. H. Sampson, of Houston; vice president, Dr. J. M. O'Farrell, of Richmond; secretary and treasurer, Dr. E. F. Cook, of Houston. The next meeting will be held in Galveston.

The Mortality of Baltimore.—The report of the Department of Health for the week ending December 14, 1907, shows a total of 230 deaths, as compared with 187 for the corresponding week last year. The annual death rate in 1,000 of population was 19.97—white, 17.95; colored, 30.62. The principal causes of death were: Typhoid fever, 1; measles, 6; whooping cough, 1; diphtheria, 3; membranous croup, 1; influenza, 5; consumption, 29; cancer, 11; apoplexy, 8; organic heart diseases, 16; bronchitis, 5; pneumonia, 21; Bright's disease, 21; congenital debility, 21; lack of care, 2; old age, 5; suicide, 1; homicide, 1; accidents, 14. Ten deaths occurred at Bayview Asylum, 33 in hospitals, and 19 in other institutions. Thirty-five coroners' inquests were held.

The Academy of Natural Sciences of Philadelphia. at its annual meeting held on the evening of Tuesday, December 17th, elected the following officers: President, Dr. Samuel G. Dixon; vice presidents, Mr. Arthur Erwin Brown, and Mr. E. G. Conklin; recording secretary, Dr. Edward J. Nolan; corresponding secretary, Mr. J. Percy Moore; treasurer, Mr. George Vaux, Jr.; librarian, Dr. Edward J. Nolan. The State appropriated \$750,000 to the academy for a new fireproof library building and auditorium. Plans have been approved for this building, which will adjoin the museum and extend to the corner of Nineteenth and Cherry streets. Expeditions in the interests of the academy have visited Florida, New Mexico, Arizona, California and Saskatchewan, while much collecting has been done in Pennsylvania and New Jersey.

An Advisory Board of Experts on Tuberculosis.—Dr. E. H. Porter, State Commissioner of Health of New York, announces that he has appointed an advisory board composed of experts on tuberculosis, who will give to the State Department of Health such advice and suggestions as in their wisdom and expert knowledge they may deem proper and expedient. The board consists of: Dr. Edward B. Baldwin, of Saranac; Dr. George W. Goler, of Rochester; Dr. Willis G. MacDonald, of Albany; Dr. J. Veranus M. Moore, of Ithaca; Dr. John H. Pryor, of Buffalo; Dr. William H. Watson, of Utica, and Dr. Thomas Darlington, Dr. Alfred Meyer, Mr. Livingston Farrand, and Mr. Homer Folks, of New York. The Legislature will be asked for an appropriation of \$50,000 to carry on the proposed work.

The East Side Physicians' Association, New York.—

At the regular monthly meeting of this association, held on December 20th, the evening was devoted to a symposium on influenza. Dr. William Sohler Bryant read a paper on Influenza of the Nose, Throat, and Larynx. Dr. T. J. Harris read a paper on Ear Complications of Influenza. Pulmonary Complications of Influenza, with Special Reference to Pneumonia, was the subject of a paper by Dr. Henry W. Berg. Dr. Heinrich Stern read a paper on Renal Complications of Influenza. Dr. Henry G. Watson presented two specimens of onychographia, and reported two cases of extragenital chancre. The following officers were elected for the ensuing year: President, Dr. Henry Illoway; first vice president, Dr. Morris Cisin; second vice president, Dr. George Dow Scott; secretary, Dr. Sigmund Epstein; treasurer, Dr. I. S. Hirsch; trustees, Dr. A. E. Isaacson, Dr. C. A. von Ramdohr, and Dr. William S. Gottheil.

The Health of Philadelphia.—During the week ending November 30, 1907, the following cases of transmissible diseases were reported to the Bureau of Health of Philadelphia: Malarial fever, 2 cases, 0 deaths; typhoid fever, 44 cases, 5 deaths; scarlet fever, 56 cases, 2 deaths; chickenpox, 59 cases, 0 deaths; diphtheria, 118 cases, 10 deaths; cerebrospinal meningitis, 1 case, 1 death; measles, 35 cases, 0 deaths; whooping cough, 17 cases, 1 death; pulmonary tuberculosis, 80 cases, 53 deaths; pneumonia, 58 cases, 40 deaths; erysipelas, 4 cases, 4 deaths; cancer, 12 cases, 10 deaths; septiciemia, 2 cases, 1 death; mumps, 9 cases, 0 deaths; German measles, 2 cases, 0 deaths; anthrax, 4 cases, 0 deaths. The following deaths from other transmissible diseases were reported: Tuberculosis other than tuberculosis of the lungs, 6; puerperal fever, 1; diarrhoea and enteritis, under two years of age, 11. The total mortality numbered 441 cases in an estimated population of 1,500,595, corresponding to an annual death rate of 15.21 per 1,000 population. The total infant mortality was 110; under one year of age, 87; between one and two years of age, 23. There were 44 still births, 29 males and 15 females. The total precipitation amounted to 2.26 inches.

Sleeping Sickness Committee.—An independent sleeping sickness committee has been formed in Liverpool, England, with Sir Alfred Jones as chairman. The object of the committee is to collect information dealing with sleeping sickness and to stimulate research into the cause, method of transference, and cure of the disease, and to publish from time to time communications regarding it. In addition to Sir Alfred Jones, the members of the committee include Dr. Richard Caton, the Lord Mayor of Liverpool; Prof. B. Moore, director of the biochemical department of the University of Liverpool; Professor Salvin-Moore, director of the cytological department; Prof. H. E. Annett, director of the department of comparative pathology; Prof. C. S. Sherrington, director of the physiological department; Dr. J. W. W. Stephens, Walter Myers, lecturer in tropical medicine; Dr. Anton Breinl, director of Runcorn Research Laboratories; Dr. W. T. Prout, Mr. Arthur J. Evans, Dr. M. Nierenstein and Dr. J. L. Todd, of Montreal. The corresponding secretaries are Prof. Sir Rupert Boyce, dean of the Liverpool School of Tropical Medicine, and Mr. A. H. Miles.

Personal.—Dr. M. G. Maloney, of New Britain, Conn., is registered at the Philadelphia Polyclinic and College for Graduates in Medicine.

Dr. Francis S. Nash has been appointed chief of the medical staff attached to the Naval Academy, Annapolis, Md.

Dr. Charles F. Whitney, former assistant medical examiner of the Pension Office, has been promoted to succeed the late Dr. Sam Houston in that position. Dr. Addison S. Helton has been selected to fill the vacancy caused by the promotion of Dr. Whitney.

Dr. Helen C. Parsons of Philadelphia, R. I., addressed the members of the Society of Doctors, especially on the subject of child hygiene. Dr. Parsons was a delegate from the American Association of Mothers to the International Congress of Hygiene and Demography, held in Berlin in September.

Dr. Louis K. Fisher, secretary of the Silver Box County, Mont., Medical Association, has received an appointment as an expert and special agent to investigate women and child labor conditions in the Middle West and Atlantic States.

Pith of Current Literature.

THE BOSTON MEDICAL AND SURGICAL JOURNAL,

December 19, 1907.

1. A Series of Ninety-one Consecutive Blood Cultures, By LAWRENCE J. RHEA and ARTHUR B. EMMONS, 20.
2. The Effect of Florida Climate upon Acute and Chronic Disease, By F. FREMONT-SMITH.
3. A Study of Fifty-one Cases of Debility in Jewish Patients from the Massachusetts General Hospital, By H. MORRISON.

3. A Study of Fifty-one Cases of Debility in Jewish Patients.—Morrison says that the term "Hebraic debility" has been used for some time at the Massachusetts General Hospital to designate the condition of many of the Jewish patients coming to the clinics. These patients complain of "burning" and "sticking" pain, generally in the chest and epigastrium, but often all over the body. The history of one of these patients has been summed up as follows: "She complains of backache and everything else." One of the physicians at the hospital was inclined to think that such symptoms were peculiar to Jews, that they were more than mere neurasthenic symptoms, and he suggested that the author should study these patients by visiting them at their homes so as to get the details of their ailments and observe their modes of living. He has thus studied fifty-one cases, confining himself to those in which the diagnosis of "debility" or "Hebraic debility" had been made at the Massachusetts General Hospital. Almost all the persons whom he visited were recent immigrants, forty-four from Russia and four from Austria-Hungary; all of limited means, several very poor; none having much education, some illiterate. His earliest impressions in this study were that, with the exception of one, none of these people—and thirty-eight of them were women—was sick when he made his visits. Twenty-four declared themselves perfectly well at that time. All were engaged in their usual activities. Thus he found one of these women hoeing the little garden in front of her house. One of the men, who up to recently had been a frequent visitor at the hospital, he found cleaning up his grocery store; he is a cigar maker and works on his trade all the week, helping his wife in the store on Sundays and in the evenings. Some, even, had to be reminded that they had ever been at the hospital, and it was only on questioning that he got their various complaints. The author concludes that 1. Debility is a common condition among the Jewish patients coming to the Massachusetts General Hospital; as a rule it is temporary, but is apt to recur. 2. The prevalent symptoms are pain, prostration, and apprehension. 3. The etiology of these debilitated conditions is to be traced to the peculiar circumstances under which the Jews have lived and still live in eastern Europe. There is America the enormous strain during the early years after arrival in an important factor. 4. Debility is especially pronounced among the Jewish women of the immigrant class, because the enormous strain weighs very heavily on them. With them, also, imitation and tradition and the ease with which medical advice can be obtained are factors to be considered. 5. These debilities are peculiar not to the Jew, but the abnormal conditions under which he has been living. As soon as he is relieved from these conditions his symptoms

are not different from those of other races. 6. Finally, in the treatment of the cases considered it is well to bear in mind the importance of the old sentiment, "not the disease only, but also the man."

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
December 21, 1907.

1. The Prophylaxis and General Management of Acute Rheumatic Fever, By SOLOMON SOLIS-COHEN.
2. The Treatment of Rheumatism by Specifics, By N. S. DAVIS.
3. Hemianriosis and Cure of Brain Tumor by Operation, By WILLIAM G. SPILLER.
4. The Tub Bath Treatment of Cystitis, By GUY L. HUNNER.
5. Physiological and Clinical Observations on the Alimentary Canal by Means of the Röntgen Rays, By G. E. PFAHLER.
6. The Influence of Food and of Epithelial Atrophy on the Manifestations of Saccharobutyric Intestinal Putrefaction, By C. A. HERTER.
7. The Recent Epidemic of Poliomyelitis. A Preliminary Report, By V. P. GIBNEY and CHARLTON WALLACE.

1 and 2. Acute Rheumatic Fever.—Solomon Solis-Cohen emphasizes as most important in acute rheumatic fever, rest, and, auxiliary to rest, strict individualization, whether specific medication, alkalization, diet, or the use of purgatives or diuretics, iron, blisters, precordial coils, ice bags, or of local application to the joints.—Davis, of Chicago, in speaking of specific treatment in acute articular rheumatism, says that, as we have no requisite knowledge of the cause of rheumatism, we cannot absolutely state that we possess a specific, although the salicylates possess many of the attributes of one. Almost from the time that rheumatism was clearly recognized, its cause has been believed to be a noxious foreign agent in the blood and fluids of the body, and at first this was thought to be autogenous. Many clinicians, confounding its pathology with that of gout, suspected uric acid to be its cause, and later professional opinion ascribed the same rôle to lactic acid. Comparatively recently, however, physicians have become convinced that acute articular rheumatism is an infection and of microbic origin. Naturally, therapeutic views have changed with these changing concepts of the nature of the disease. Attempts were made to eliminate the harmful matter by bleeding, by purgation, by emesis, and by diaphoresis. Such was the treatment of rheumatism until toward the middle of the last century, when it was widely believed that the disease was due to an acid in the blood, and probably to lactic acid. Therefore, alkalies were given as an antidote. It is true that many years before alkalies were prescribed empirically for rheumatism, but at this time they were used as a specific to neutralize the supposed cause of the disease. Although the alkaline treatment of rheumatism can no longer be regarded as specific, it deserves consideration, for it is used to-day, partly because the feeling still prevails in the profession that it is advantageous to neutralize some acid in the blood, and still more because statistics make it probable that the alkaline treatment averts endocardial inflammation. It has been definitely proved, however, that lactic acid is not its cause. The drugs used to increase the alkalinity of the blood are chiefly the potassium and sodium bicarbonates, citrates, and acetates. To make them efficient, enough must be given promptly to render the urine strongly alkali-

line, and it must be kept so. It usually requires from 1.0 to 1.5 grammes of these drugs, administered at intervals of from three to four hours, to accomplish this result. The manner in which they lessen the liability of those suffering from rheumatism to endocarditis cannot be explained. Although it must be admitted that the alkaline treatment of acute articular rheumatism is useful, it is in no sense a specific. In 1874 MacLagan advised the use of salicin as a specific in acute articular rheumatism. Soon thereafter salicylic acid was shown to have similar powers and it was proved that salicin contains salicylic acid and depends on it for its effects in rheumatism. Because of the tendency of salicylic acid to irritate the stomach, sodium salicylate was soon substituted for it, and for a quarter of a century this drug has held its place as the best remedy for acute articular rheumatism. After describing the effects of the salicylates, the author takes up antipyrine as a good substitute for rheumatism, although it deepens the anæmia and prolongs convalescence. Acetanilide and phenacetin, if given in quantities large enough to control pain, are only adapted to the treatment of very mild cases of short duration. Menges's serum has had some good results.

5. Physiological and Clinical Observations on the Alimentary Canal by means of the Röntgen Rays.—Pfaehler says that the abdominal wall is the main support of the abdominal viscera; that the phthisical chest may be secondary to the descent of the viscera, and that the most important element in the treatment of the gastroptosis and the phthisical chest is the strengthening and toning of the abdominal walls and the correction of posture. In severe grades of gastroptosis the portion of the stomach that rests below the level of the pylorus serves as a retention sac, but the point of actual obstruction to the passage of food is a kink formed in the duodenum about one inch from the pylorus, where it is firmly attached to the spinal column. The food lying between this kink and the pylorus is usually separated from the food in the stomach by a sharp and regular line. This will serve as a differential point between this form of obstruction and that caused by carcinoma of the pylorus. The Röntgen rays are of value in collecting additional information in the diagnosis of carcinoma of the stomach, but must not be depended on to make an absolute diagnosis. When a supporting bandage is applied in the treatment of gastroptosis, there should, if possible, be a Röntgenological examination to determine whether it is properly applied and whether it is serving its purpose. A moderate gastroptosis may be present and not produce symptoms, as long as the motility of the stomach is good. If, however, the motility of the stomach is disturbed by some intercurrent cause, then symptoms will be produced. The Röntgenoscopic and the Röntgenographic method of examination each has its advantage. Röntgenoscopically, we study the motion of the viscera, while Röntgenographically, we make accurate records and often obtain finer detail. The Röntgenoscopic method is a dangerous procedure to the operator, unless he is properly protected, and even then the amount of exposure should be re-

duced to the minimum. The bismuth-kefir mixture (bismuth subnitrate 1 ounce, and kefir 1 pint or more) is the best medium to render the alimentary canal opaque, because it is easily digested, holds the bismuth in suspension almost perfectly, and because it tends to counterbalance the constipating effect of the bismuth.

6. The Influence of Food and of Epithelial Atrophy on the Manifestations of Saccharobutyric Intestinal Putrefaction.—Herter observes that in well defined cases of saccharobutyric putrefaction carbohydrate food is vigorously attacked by the intestinal bacteria and must therefore be carefully restricted in all cases. Fats of low melting point (butter, beef fat) are well tolerated in moderate quantities and should be rather freely used, to replace carbohydrate in part, provided no increase in intestinal putrefaction is attributable to their use. Of proteins, those of milk and of beef are well tolerated and utilized in moderate amounts, and when taken with only small quantities of carbohydrates, but if eaten in abundance are followed by increased putrefaction, which is the more pronounced the more abundant are the associated carbohydrates. In long standing cases, with indications of epithelial atrophy, the restriction of all classes of foods may be essential to diminish putrefactive intestinal decomposition within limits that are essential to repress various obstructive symptoms. In order that the caloric needs of the body should not be too glaringly disproportionate to the food supply that can be tolerated these needs must be cut down by causing the patient for a time to rest in bed and to relinquish active mental occupation. This course usually leads to an increased tolerance and utilization of food-stuffs. During this period of rest the diet should at first consist mainly of proteids and fats (milk, fermented milk, minced beef, gelatin), the carbohydrates with low sugar content being very cautiously added as the signs of excessive putrefaction recede. In a certain number of patients such a period of rest and dietetic caution, lasting from two weeks to two months, is followed by great improvement. On the other hand, in patients with extreme epithelial atrophies and extreme persistent putrefaction, little permanent benefit is to be expected from any method of treatment at present known, especially if nutrition has suffered severely and blood circulation has long been out of proportion to the powers of regeneration; and this conclusion holds especially true of patients in whom systematic rest and appropriate diet have already been conscientiously tried.

MEDICAL RECORD

WRECHER'S CASE

1. The Salivates in Dropsy and Typhoid. By H. J. HARRIS.
2. An American Clinical Guidebook and the First American Textbook of the Principles and Practice of Pathology. By MARSHALL A. COLEMAN.
3. Epilepsy. General Information. By J. F. MASON.
4. The High Frequency Metallic Discharge. A New Treatment, Its Conditions. By DR. R. COOK.
5. Fibroid Tumors of the Uterus and Their Treatment. By FRANK DE WITT REESE.
6. The Identity of Visual and Color Sensations. By GEORGE DE TARBOT.

4. The High Frequency Metallic Discharge.

Cook has experimented since the autumn of 1904 with a high frequency current discharged from the point of an insulated wire. Very early in his experience he was led to believe that this method of application of the high frequency current possessed considerable value as a therapeutical agent, and in its escharotic action in morbid growths differed widely from any other mode of treatment, differing radically in its action from the galvanic current. It differs from the electrolytic action of galvanism in that it is more powerful, more rapid, and affects a much wider area of tissue; it also appears to have a peculiar selective action on morbid cells, or cells of lowered vitality, as well as a stimulating action on healthy cells. It was these peculiar features of the metallic point high frequency discharge which led to its employment in the treatment of epithelioma. In all the malignant cases in which the author employed this method the same results undoubtedly could have been accomplished by the use of radium or of the x ray, and in all but one of very recent date a number of x ray exposures were given as a preventive measure against recurrence, making it impossible to estimate its value as a radical cure. The current has been found exceedingly useful in the reduction of morbid and hypertrophied tonsils. Its application is practically painless, causes the tonsil to shrink and undergo rapid degenerative changes, and is followed in from three to five days by complete exfoliation. In the case of soft and moderately enlarged tonsils, complete reduction is readily accomplished at one sitting. Inasmuch, however, as a reaction of more or less intensity is apt to ensue, it is preferable in aggravated cases to divide the operation into a number of sittings. This method seems to be especially adapted to the removal of tonsils in the adult, where more or less danger from hemorrhage attends the operative procedure. In certain cutaneous lesions, the high frequency metallic discharge was found to be effective, especially so in those characterized by hyperplasia, namely, acne, acne rosacea, papilloma, moles, etc. In the treatment of simple acne, where each individual lesion receives a separate charge, it seems possible to accomplish as much in a few minutes' treatment as would require as many days or weeks by any other method. The papules shrivel, the contents of the sebaceous glands escape, and desquamation is rapid, leaving no scars. The latter fact deserves special emphasis. It is this peculiar property of the high frequency metallic discharge which particularly recommends its employment in the face. Very satisfactory results were also obtained by using this method in the removal of warts, it being found superior to the x ray treatment, which requires a very strong and prolonged exposure and a tedious wait for results. The author also tried it in the treatment of hemorrhoids, internal as well as external.

4. Fibroid Tumors of the Uterus and Their Treatment.

Reese divides the treatment into prophylactic, surgical, and medical. The prophylactic treatment should be in part, circumscribed, the best of hygienic surroundings and a sensible mode of dress should be required. Of the operative treat-

ment the author says that it should be adopted: If the patient has neither the time nor means to take the knifeless method; if there is severe hemorrhage or sign of cystic or malignant degeneration; if the patient has the tumor cachexia with complications; if the tumor continues to grow after a few months' knifeless treatment; if the tumor is submucous. The medical treatment is based upon the supposition that all uterine fibroids are due to a chronic irritation, which is a result of an influence which is chemical, and that favors an overnutrition of a special group of uterine cells. These uterine cells multiply as they would if normally stimulated by pregnancy until they become an aggregation of cells which keep up the irritation by their changed physiological and chemical action. We all know that at the menopause many uterine tumors disappear. This is due, no doubt, to the change in the blood supply, with a more favorable condition for absorption by the lymphatics. The blood supply of the uterus is affected by the mind, and this should be taken into consideration as we treat the patient constitutionally. Remedies that quiet the nervous system are beneficial, such as asafetida, valerian, etc. These remedies, combined with fluidextract of hydrastis, are the ones upon which we should rely. The hydrastis should be given for a long time, in small doses (10 minims) before meals. Hydrastis is a stomachic, aiding digestion and assimilation, in this way building up the body resistance through a more perfect metabolism. By local treatment we should try to establish good drainage. Women who have uterine fibroids usually have a characteristic smelling leucorrhœa, and many of them will complain of having a disagreeable odor about them. If the uterus is retroverted or retroflexed it should be placed in its proper position and sustained there with proper support, and all causes, as far as possible, of irritation or passive congestion should be removed. Uterine douches as a daily routine should be prohibited. The local remedies will deplete the tissues of serum, diminishing capillary pressure, which favors a normal cell function and also favors a normal function of the lymphatics; the drugs will be carried to the uterus and there the inflammatory foci will be disinfected, gradually removed, and the functions of uterine tissue restored to normal.

6. The Identity of Visual and Color Sensations.—Talbot observes in conclusion that light is the effect of undulations of the luminiferous ether. Each color of the spectrum is caused by a definite number of undulations or vibrations per second. It is the normal stimulus to the eye. The percipient parts of the eye are the retina and the essential elements for vision are in the layer of rods and cones and the outer nuclear layer. These, like all other bodies, contain molecules and are capable of the same molecular motion or vibration. When they vibrate in unison with certain colors, the sensation of that color is conveyed to the brain, where it is properly interpreted. Visual perceptions are the result of different wave lengths or of diffused colors affecting the granules and the rods and cones and producing more or less rapid vibrations therein. It is color, rather than form or outline, that enables us to distinguish objects. And finally, it is color alone that gives us distinct visual impressions.

BRITISH MEDICAL JOURNAL.

December 7, 1907.

1. Wounds and Injuries of the Eyeball, Eyelids, and Orbit. By S. SNELL.
2. The Scientific Use of Evidence in Surgical Practice. By H. MARSH.
3. Some Cases of Unexplained Fever in Infants and Children. By H. ASHEY.
4. On the Urinary Mucous Tract, and Not the Blood Stream, as the Route of Invasion by Pathogenic Organism under Certain Conditions. By C. J. BOND.
5. An Unusual Motor Car Accident. By SIR G. BEATSON.
6. Observations on the Ophthalmoreaction to Tuberculin. By W. MACLENNAN.
7. Notes on One Hundred and Twenty-one Cases Tested with Calmette's Tuberculin. By J. S. WEBSTER and J. A. KILPATRICK.

4. Infection in Pyelitis.—Bond states that there are reasons for believing that virulent micro-organisms may be carried along a healthy mucous canal without overcoming the resistance offered by the epithelial cells (if healthy) lining the tube, and that such organisms may be carried upwards (isolated in, and with their growth, possibly temporarily, inhibited by the normal mucus which lines the walls of the canal) to a portion of the urinary tract in which, owing to some stagnation or reversal of normal currents, or to some loss of resistance on the part of the epithelium, or possibly to some abnormality in the character of the protecting mucus, they can commence rapid and virulent growth. There are many examples of infection in which different organisms travel along mucous canals, such as the bronchi or the intestines, and only produce their pathological effect at the site of peculiar susceptibility or seat of election, such as the lower end of the ileum in the cause of the typhoid bacillus, and when this organism (as frequently occurs) is excreted by the kidneys, little or slight inflammatory reaction is present locally in the kidney. The nonmotility of the infecting organism in some cases of ascending pyelitis may be at first sight regarded as a difficulty on the supposition that the infection rapidly ascends the whole urinary tract, and first causes symptoms at the upper end or kidney pelvis and in the absence of any evidence of extension of infection by contiguous growth along the ureter. The question of the mucous canal route of infection as against the blood stream route, in the case of organs communicating by their ducts with the exterior of the body; is one of general interest. The gallbladder and the gallducts come into the same category.

6 and 7. Calmette Reaction.—MacLennan has investigated the ophthalmoreaction to tuberculin of Calmette, and finds that the claims advanced by Calmette are for the most part fully justified. The technique consists in instilling one drop of a one per cent. solution of tuberculin into the inner half of the conjunctiva. In from three to ten hours, sometimes rather sooner and not infrequently rather later, a positive reaction manifests itself. This consists at first of a slight injection of the conjunctiva near the caruncle with a little lacrymation. From first to last in the "slightest reactions" that is all that may be seen. In these light reactions the congestion is confined to the inner part of the conjunctiva, and unless it is looked for carefully it may be missed. It is, however, a quite

characteristic redness, and can easily be recognized by comparing it with the normal untreated eye. The amount of reaction is most variable, and does not bear a demonstrable relation to the severity of the lesion from a clinical point of view. Some of the most pronounced reactions are in cases in which there are no physical signs or clinical evidence of the presence of tubercle. We may get all degrees of inflammation, from the smallest amount of local conjunctival injection to redness extending over the entire eye, and having all the appearance of acute conjunctivitis. There is occasionally some purulent discharge, and much photophobia and swelling of the caruncle. None of the reactions, even the most severe, give rise to any trouble, and almost all clear up completely in a period of from two to ten days. An occasional overviolent reaction is the only drawback to the test. The applicability and the delicacy of the test depend upon the integrity of the eyes. Any ocular lesion, whether it be acute or chronic, contraindicates its employment. The test apparently reveals the presence of tuberculous lesions that are quite benign and unsuspected from a clinical point of view, as well as those that are more obvious. In the cases in which a subcutaneous injection of "old" tuberculin has given a positive or negative reaction the same result follows the application of the ophthalmic test. There seems to be some evidence that a solution of "old" tuberculin acts as well as Calmette's own tuberculin. Webster and Kilpatrick have tested 121 cases with Calmette's tuberculin, and summarize their results as follows: All definite cases with definite bacilli in the sputum gave the reaction. In cases with physical signs of pulmonary tuberculosis, but quiescent, as judged by temperature, some gave the reaction and some did not, and there was no obvious cause for this variation. In doubtful cases some gave the reaction, some did not, and some were indefinite, but there was no definite evidence to confirm or disprove the indications of the tuberculin inoculation. In presumably healthy individuals two reacted and two did not, but in the absence of physical examination no evidence for or against the presence of tuberculosis in those who gave the reaction could be offered. It is difficult to draw any conclusions as to the relation between the intensity of reaction as compared with the amount of lesion involved, that is, the extent of the tuberculous lesion. As regards the intensity of reaction as compared with the degree of activity shown by the tuberculous disease, a similar difficulty exists; the cases with the highest temperatures, and therefore the most active tuberculosis, did not show the same intense reactions. The writers conclude that the reaction gives the presence of tubercle, but its relation to activity is not ascertained by further investigation.

LANCET

Dec. 28, 1907.

1. *On the Cause of Ocular Tuberculosis*. By E. M. GERRARD. Communications from Hulse and Kilpatrick on the study of Bacilli in Children. Tuberculous Lesions. 116. In L. C. GERRARD. 2. *On the Cause of Ocular Tuberculosis*. By E. M. GERRARD. Communications from Hulse and Kilpatrick on the study of Bacilli in Children. Tuberculous Lesions. 116. In L. C. GERRARD.

4. A Case Showing Division of the Clavicles into Two Halves, with Other Bony Deformities; Cleidocranial Dysostosis. By E. I. SPRIGGS.
5. A Plea for the Uniformity of Conditions in Vaccination. By A. H. GERRARD.
6. Pulmonary Regurgitation Due to Vegetative Endocarditis Consequent upon Rupture of Aneurysm of Heart. By T. OLIVER.
7. Note on Treatment of Trigeminal Neuralgia by Injection of Osmic Acid into the Gasserian Ganglion. By G. A. WRIGHT.
8. An Outbreak of Food Poisoning Due to Eating Brawn. By G. F. BUCHAN.
9. Acute Pulmonary Œdema. By L. WILLIAMS.

1. **Dysentery.**—Sandwith states that the diagnosis of dysentery is not difficult to physicians trained in the examination of the excreta. The diseases most often confounded with dysentery are carcinoma, polypi, and syphilis of the rectum, hæmorrhoids, and, in those returning from the tropics, bilharziosis. Bacillary dysentery can be distinguished from amœbic dysentery. The following points should be remembered: 1. Amœbic dysentery, unless skillfully treated at the beginning, usually runs a chronic course, while the bacillary lasts only from four to eight days in mild cases, and from three to six weeks in the serious ones. 2. In the amœbic form no bacilli can be found unless there is, as is rare, but quite possible, a mixed infection of both amœbic and bacillary dysentery. 3. Toxic symptoms, such as high fever, rapid emaciation, and nerve complications, exist in bacillary dysentery, but not usually in the amœbic form. 4. Liver abscess is a very frequent complication of amœbic dysentery, and does not exist in the unmixed bacillary form. The conditions necessary for a certain diagnosis of bacillary dysentery are the positive agglutination reactions of the dysentery bacillus with the blood serum of the patient, or the isolation of the bacillus from the faces of the patient or from the organs after death. The bacilli are obtained more readily and in larger numbers from the mucous membrane of the rectum than from the stools. They do not enter the general circulation. The treatment of the acute form calls for rest in bed as the first essential. Physiological rest for the intestines should be obtained by stopping all solid food, and giving small quantities of milk every two or three hours. When the tongue is thickly coated and the patient cannot take milk, give broths, whey, or rice water for a few days. Alcohol will not help the dysentery and is bad for the liver. All food should be given tepid. Castor oil, sulphate of magnesia, or calomel should be given first to clear out the bowel. Small enemata of saline solution will diminish symptoms and increase the output of stools. These may be given for the same purpose. Where there is much discomfort from the bowels, an enema should be placed recte for relief and opium given internally. For collapse the subcutaneous injection of normal saline solution is of service. Opium and hypodermic injections of ether are not useful in the acute case. Saline treatment, which is bactericidal as well as antispasmodic, is of great value in early cases (second or third day), the food and opium being withheld, the saline treatment being strong, and the patient getting refreshing sleep. In mild cases only an emulsion of cod-liver oil and cod-liver is given, or, in severe cases, this is repeated after six to ten hours, and in grave cases the injections should be repeated tolerably but two or three days. Amorphous

dysentery is the form met with so frequently in the tropics, and in London is seven times as frequent as the bacillary form. The symptoms of liver abscess are sometimes the first to attract attention to the intestinal disease. The general treatment is the same as that of the acute bacillary form; rest is especially necessary. Bismuth is the most useful drug by the mouth as a continuance; the salicylate in wafers of fifteen grains every four hours is to be preferred. The rational treatment is to destroy the amœbæ by means of rectal irrigations. Quinine (1 to 1,000), nitrate of silver (1 to 1,000), and sulphate of copper (1 to 1,000) are all useful. The enmata need not be retained more than five minutes, and should be given warm. Once a day is usually sufficient, a simple cleansing enema being given at night. It is impossible to produce a vaccine for the amebic form of dysentery, because there is no evidence of any creation of toxine. The writer does not think highly of the surgical treatment of dysentery, consisting in colostomy, or in washing out the bowel through the appendix.

THE JOURNAL FOR NERVOUS AND MENTAL DISEASE
December, 1907.

1. On Acrocyanosis Chronica Anasthetica with Gangrene; Its Relations to Other Diseases, Especially to Erythromelalgia and Raynaud's Disease.

By JEWELLYS F. BARKER and FRANK J. SLADEN.

2. Postapoplectic Tremor (Symmetrical Areas of Softening in Both Lenticular Nuclei and External Capsules).

By JOHN H. W. RHEIN and CHARLES S. POTTS.

2. **Postapoplectic Tremor.**—Rhein and Potts report a case of tremor of the right arm, resembling posthemiplegic tremor, and ataxia of the arms and legs, and, pathologically, the presence of symmetrical lesion of the putamen. They believe that a lesion in the left lenticular nucleus may have been responsible for the tremor of the right arm, and the association of unilateral tremor with bilateral lesion may be explained by the fact that the lesion in the right putamen was not extensive enough to set up sufficient irritation to cause this symptom on the left side. It is their opinion that postapoplectic disturbances of motion may be due to lesions of the lenticular nucleus, the optic thalamus, and the pons in the region of the superior cerebellar peduncles, and of the cerebellum, the cause being, in all instances, a disturbance of coordination. When the lesion is extracerebellar the cause of this disturbance is possibly an indirect result of destruction of fibres related to the cerebellum directly or indirectly through the red nucleus. Thus, they think that the ataxia may have been indirectly of cerebellar origin.

THE SCOTTISH MEDICAL AND SURGICAL JOURNAL
December, 1907.

1. Nature's Object Lessons in Disease.

By J. O. AFFLECK.

2. Introductory Address on Alcohol in Relation to Medicine.

By DAVID W. LEEVAY.

3. Edinburgh Obstetrical Society. Session 1907-8. Valedictory Address.

By J. W. BALLANTYNE.

4. Dieting and Feeding in Infants.

By A. DINGWALL FORDYCE.

5. Notes on the Subconjunctival Rejection of the Nasal Septum.

By J. S. FRASER.

6. An Experience of the Ophthalmic Treatment of Calmette.

By FRANCIS D. BOYD.

7. Notes on a Case of Varicose Ulcer; Septic Symptoms for Over Three Months; Staphylococci Found in Blood; Recovery after Injection of Specially Prepared

By J. MALCOLM WHITE.

2. **Alcohol in Relation to Medicine.**—Finlay gives the following advice: Regard alcohol as a drug, a very valuable and dangerous one, and put it in the same category as morphine, strychnine, atropine, and the like. If you look upon it as a drug you will probably not go very far wrong. Prescribe it with a due sense of responsibility and not after a routine method, having regard to each case on its own merits, and considering such points as the state of the pulse especially, the age, previous health and habits, and the severity and period of the attack. Young patients of good constitution are better without it, except in presence of heart failure or crisis of some kind. Use the smallest doses possible, and give strict injunctions as to time and mode of administration. Watch its effects carefully, and omit it when the critical condition has passed. Be especially sparing in chronic diseases, where in most cases it does not the slightest good, but only leads to waste.

THE EDINBURGH MEDICAL JOURNAL.
December, 1907.

1. Certain Adaptations of Percussion in the Diagnosis and Prognosis of Respiratory Disease, By R. W. PHILIP.
2. Mucocoele of the Accessory Nasal Sinuses.

By A. LOGAN TURNER.

3. "Physiological Economy in Nutrition"—Is Not a Different Explanation Possible? By ALEXANDER HAIG.

4. A Case of Rapid Phthisis with Pulmonary Hypertrophic Osteoarthropathy, in a Child of Six.

By HALLIDAY G. SUTHERLAND.

5. Résumé of Some Recent Foreign Literature on the Surgery of the Prostate.

By ALEXANDER MILES.

2. **Mucocoele of the Accessory Nasal Sinuses.**

—Turner advocates from his experience the establishment of a large opening between the sinus and the nasal cavity. In the nine cases in which this procedure was carried out, cure resulted in all of them with a minimum of disfigurement. As a preliminary step the middle turbinate bone is removed in some of them. An incision is then made parallel to and beneath the eyebrow, which is left unshaved; the upper eyelid is detached and turned downwards. After the contents of the mucocoele have been removed, any portion of the floor of the frontal sinus, or of the outer wall of the ethmoidal labyrinth, which has not already been absorbed, is removed. In some of the cases a small area of the anterior wall of the frontal sinus is also removed. The lining membrane of the cavity is left untouched. The communication with the nasal cavity is then sought for with a fine probe; no ostium may be found. Whether the normal ostium be found or not, a large opening into the nose is made by means of burrs, and through this a rubber drainage tube is passed, being held in position in the lowest part of the sinus by a collar formed by turning over its upper end. The lower end of the tube does not quite reach the vestibule of the nose. The sinus is next lightly packed with gauze, the end of which is brought out through the inner end of the incision which is sutured with the exception of this small area. The gauze is removed at the end of four or five days, the cavity is washed out, and if the nasal drainage tube is found to be working satisfactorily, the skin incision is allowed to close in a week or ten days. The bandage is then removed, and the patient can be instructed to wash out the sinus daily by introducing the fine nozzle of a syringe into the nasal end of the drainage tube. The success of the operation will largely depend upon the mainte-

nance of a permanent opening between the sinus and the nose, therefore it is necessary to keep the drainage tube in position for a considerable time. It should not be removed until at least six weeks after the operation.

5. Résumé of Some Foreign Literature on the Surgery of the Prostate.—Miles gives an interesting résumé. He says that there is no doubt as to the beneficial results of prostatectomy in those who survive the operation and escape the complications. All agree that the patient is relieved of a burden which is unbearable, and enters upon a new lease of life with restored health and renewed vigor. The benefits derived from the operation are so great, and are shared in by such a large proportion of those operated upon, that the sufferers from this disease are amply justified in running considerable risks to obtain them. What the risk exactly amounts to is difficult to determine. The statistics of individual operators with regard to the mortality of the operation vary greatly, and combined statistics are apt to be misleading. Thus we find that in 586 operations, performed by seventy-one surgeons, tabulated by Legueu, the mortality was thirteen per cent.; but if the cases recorded by Freyer are excluded from this list the percentage rises to seventeen. The last statistics of Freyer show a mortality of only three per cent., while his combined records represent seven per cent. The results brought before the Congress of German Surgeons this year by different operators show a mortality varying from ten to thirty per cent.

ANNALS OF SURGERY.

December, 1907.

1. Carcinoma of the Oesophagus, By M. G. SEELIG.
2. Tonsillar Hemorrhage and Its Surgical Treatment, By C. JACKSON.
3. Lingual Goitre, By R. A. STERLING.
4. Report of a Case of Sarcoma of the Thyroid, By E. A. VANDERVEER.
5. Narath's Modification of Talma's Operation for Hepatic Cirrhosis, By E. R. CORSON.
6. Acute Pancreatitis, By W. A. JAYNE.
7. Primary Fibromyomata of the Broad Ligaments, By J. VANCE.

The Royal Cancer as an Aid in the Treatment of Valvular Obstruction in the Ureter.

8. The Conservative Surgical Treatment of Hypertrophy of the Prostate Gland in the Very Feeble and Aged, By J. E. SUMMERS, JR.
9. Epithelioma of the Penis. An Analysis of One Hundred Cases, By I. D. BARREY.
10. The "Bottle Operation" Method for the Radical Cure of Hydrocele, By F. W. ANDREWS.
11. Bilateral Tuberculous Bursitis of the Hips, By E. O. THURSTON.
12. The "Superior" Abdominal Brachy, The First Total General Rectomy, By G. S. PIERCE.
13. Surgical Progress. Excerpts from the Transactions of the German Association of Surgeons, By R. M. BLAIR.

5. Narath's Modification of Talma's Operation for Hepatic Cirrhosis.—Corson describes this as a simple operation practicable for hepatic cirrhosis. A small incision is made in the median line, the peritoneum opened, a small piece of omentum picked up, drawn out, tucked under the liver, and pushed in place with a few catgut sutures. The abdominal incision is carefully closed around the base of the omental mass, without connecting the liver. A second mass of omentum may be grasped and pushed in a position opposite the first if a large area

of transplantation is deemed desirable. After such an operation the subcutaneous veins will become visible in a week and relief to the obstructed portal circulation will quickly follow. Narath states that hernia has never followed this operation in his experience. The object of the operation is to produce anastomosis between the portal and the systemic veins, and by Narath's procedure the portal vessels of the omentum are brought into direct contact with the superficial abdominal veins.

6. Acute Pancreatitis.—Jayne narrates two cases of this disease in its mild form. In addition to the mild variety there may be hemorrhagic, gangrenous, and fulminating forms. The pancreas is susceptible to the same varying degrees of inflammation as other tissues of the body. Such disease may vary from simple congestion to the fulminating and often fatal type. The slighter pathological changes in an organ placed so deeply and obscurely within the body will always be difficult of detection, if not impossible, by such means as we now have. Remembering that such mild processes may occur, and that in the severe forms it is quite possible to form a correct opinion, one will be disposed to be on the lookout for it, will become acquainted with its clinical manifestations, and will be enabled to recognize the acute and perhaps the subacute forms of the disease.

11. Epithelioma of the Penis.—Barney's conclusions are as follows: 1. It occurs most frequently between the ages of fifty and seventy. 2. Phimosis is its chief cause, hence the value of circumcision. 3. It may last from five to fifteen years. 4. Pain is not usually severe and is present in about half the cases. 5. The inguinal glands become involved in three quarters of the cases. 6. Invasion of the vital organs occurs in more than fifteen per cent. of cases. 7. Recurrence within a year occurs in thirty-nine per cent. of cases; it may occur as late as five years after operation. 8. The operative mortality is one per cent. 9. The gross mortality is thirty-two per cent. 10. Thirty-eight per cent. of all cases are cured. 11. Early amputation, with thorough dissection of the groins, is the operation of choice. 12. The average length of life after the primary onset is three years and six months. 13. Sexual power is not necessarily destroyed by amputation of the penis. 14. Melancholia rarely follows amputation. 15. Amputation does not necessarily cause disturbance in micturition. 16. Complete recovery after operation usually requires fourteen days.

Proceedings of Societies.

PHILADELPHIA GRUNTS MEDICAL SOCIETY. Meeting of December 3, 1907.

The President, Dr. JOHN H. WOODS, in the Chair.

The Aid Association.—Dr. JAMES E. RICHARDS explained briefly the objects and work of the Aid Association of the Philadelphia Grunts Medical Society. He explained that in the event of the death of a member leaving a wife and children in distress the case would be looked upon, the wife given an annuity for life and the children an annuity for a number of years. The cost of membership was shown to be small and to be simply a matter

ter of "two fewer car rides, two fewer cigars, or two fewer beers a week."

Deforming Ankylosis of the Hip Joint Following Typhoid Fever.—Dr. J. T. RUGH reported two cases and described his methods of operation. He pointed out that care should be taken early to prevent these deformities.

Dr. JOHN B. ROBERTS thought the case of the patient exhibited was a good illustration of the fact that deforming lesions were not so carefully watched as they ought to be by those in general work. All such cases should be closely observed and corrective methods employed promptly.

Transfusion.—Dr. GEORGE M. DORRANCE and Dr. NATHAN GINSBURG presented this paper. Dr. Dorrance stated that the method, if it ever came into general use, must be simple and easy to perform. The technique of the operation was described and cases were cited.

Dr. DAVID RIESMAN referred to Dr. Dorrance's dexterity in the operation in three cases under his care. In one desperate case of pernicious anemia the hæmoglobin after transfusion had risen from ten to fifty per cent., and while the patient did not entirely recover, her life was prolonged for six months. A second case was one in which there had been diarrhoea for a number of years. The patient had improved under treatment until, following a fall, ataxic symptoms developed. The hæmoglobin was down to eight per cent. at the time of the operation. During the operation the daughter, who had offered to supply the blood, became wildly hysterical. The blood flowed only for a short time and there was no benefit. The third case was one of typhoid fever in which there had been excessive hæmorrhage. This patient ultimately recovered, although recovery was slow. The red cells increased more rapidly than the hæmoglobin. During the operation the donor was affected with dimness of vision and vertigo. Of the three patients, two recovered under treatment or after treatment and one did not. While it was early to draw definite conclusions, Dr. Riesman felt that the method should be tried in acute anemias following hæmorrhage, in chronic anemias, in secondary anemias, in the anemias of children, and in forms of toxæmia of external origin, possibly also in some of the infectious toxæmias and in hemophilia. There should always be considered the possibility of the new blood not agreeing with the old and causing hæmolytic. This might be obviated by observing the action of the two bloods under the microscope. In the estimation of the amount of blood transfused reference was made to the experiments of one investigator who weighed the bodies of the subjects before and after the transfusion. Dr. Riesman believed that there must be some way devised by which the amount of blood taken could be readily gauged. The dimness of vision exhibited in one instance, which might have resulted in blindness, was an indication that the shock to the donor must be borne in mind.

Dr. J. T. RUGH referred to two cases in which Dr. Dorrance had operated for him. The first case was an operation for correction of the proptosis of the eyeball in which the general

condition of the patient was very bad. It was believed that the results were beneficial for a time, the patient rallying and improving distinctly. Regarding the determination of the quantity of blood taken, Dr. Hammond believed it to be simply a matter of careful observation. The blood should be admitted very slowly and the transfusion continued until the donor showed evidence of the loss of blood, and the recipient evidence of having received the blood.

Dr. MYER SOLIS-COHEN called attention to the avoidance of giving too much blood by noting the blood pressure.

Dr. WILLIAM E. ROBERTSON referred to the increasing range of application of transfusion. One of the chief difficulties he had experienced was in finding a donor.

Dr. DORRANCE thought that if good results were shown following transfusion, much of the difficulty in securing donors would be removed.

Book Notices.

Anleitung zur Diagnostik der Magen, Darm und Konstitutions Krankheiten. Ein Leitfaden für Studierende und Aerzte. Von Dr. Gaston Graul. Mit 1 Tafel und 4 Abbildungen im Text. Würzburg: A. Stubers, 1907. (Preis Mk. 4.50.)

The writer has compiled in convenient form in this little volume of 183 pages an introduction to modern methods of diagnosis for diseases of the stomach and intestine, diabetes, and gout. The work is based upon the larger authoritative productions of von Leube, Ewald, Boas, von Noorden, and others, and contains in sufficient detail most of the recognized tests and technical chemical methods employed by specialists in these diseases. For a book so recently written as this, however, there is a singular omission of any mention of the researches of Schmidt and Strassburger which have done so much to place the study of intestinal conditions upon a more scientific basis. The painstaking examination of feces is in many cases as important as that of the stomach contents, and the alert specialist in gastrointestinal diseases should not seek to escape this unæsthetic and perhaps distasteful duty to his patient.

BOOKS, PAMPHLETS, ETC., RECEIVED

Prostatic Enlargement. By Cuthbert S. Wallace, M. B., B. S. (Lond.), F. R. C. S. (Eng.), Surgeon to the East London Hospital for Children, etc. Bacteriology. By Edmund S. Hughes, M. R. C. P. (Lond.), Bacteriologist to St. Thomas' Hospital, etc. London: Henry Frowde and Hodder & Stoughton, 1907. Pp. vii-215.

Heart Disease and Thoracic Aneurysm. By F. J. Poynton, M. D., F. R. C. P. (Lond.), Assistant Physician to University College Hospital, and Physician to Out Patients, Hospital for Sick Children, etc. London: Henry Frowde and Hodder & Stoughton, 1907. Pp. x-310.

The Correction of Fætal Imperfections. By Charles C. Miller, M. D. Chicago: Published by the Author, 1907. Pp. 134.

Diseases of the Larynx. By Harold E. Ewald, M. B. (Lond.), F. R. C. S. (Eng.), Surgeon for Diseases of the Throat, St. George's Hospital, Laryngologist, Mount Vernon Hospital for Diseases of the Chest, etc. London: Henry Frowde and Hodder & Stoughton, 1907. Pp. viii-264.

Diseases of the Ear. By Hunter Tod, M. A., M. B., B. S. (Canada), F. R. C. S. (Eng.), Armed Surgeon to the

Jamestown, Va., in case of sickness, without expense to the Service.

Boards Convened.

Boards of medical officers were convened to meet December 16, 1907, for the purpose of conducting physical examinations of candidates for the position of cadet engineer in the Revenue Cutter Service, as follows:

At New York, N. Y., Passed Assistant Surgeon H. W. Wickes, chairman, and Assistant Surgeon R. B. Scofield, recorder.

At Boston, Mass., Surgeon R. M. Woodward, chairman, and Assistant Surgeon I. W. Salmon, recorder.

At Newport News, Va., Assistant Surgeon G. L. Collins, chairman, and Acting Assistant Surgeon A. C. Jones, recorder.

A board of medical officers was convened to meet at Philadelphia, Pa., December 31, 1907, for the purpose of making a physical examination of a keeper in the Life Saving Service. Detail for the board: Surgeon J. M. Gassaway, chairman, and Passed Assistant Surgeon T. Clark, recorder.

A board of medical officers was convened to meet at Baltimore, Md., December 28, 1907, for the purpose of conducting physical examinations of the members of the graduating class of cadets of the Revenue Cutter Service. Detail for the board: Surgeon L. L. Williams, chairman, and Passed Assistant Surgeon J. T. Burkhalter, recorder.

Army Intelligence:

Official List of Changes in the Stations and Duties of Officers serving in the Medical Department of the United States Army for the week ending December 21, 1907:

ASHBURN, P. M., Captain and Assistant Surgeon. Granted thirty days' leave of absence.

COLE, C. LER., First Lieutenant and Assistant Surgeon. Ordered to proceed to Jefferson Barracks, Missouri, for duty, instead of to Fort Thomas, Ky., as previously ordered.

CUTLER, R. M., First Lieutenant and Assistant Surgeon. Granted thirty days' leave of absence, about January 10, 1908.

DE WITT, WALLACE, First Lieutenant and Assistant Surgeon. Granted two months' leave of absence upon his arrival in the United States.

LEWALD, L. T., Captain and Assistant Surgeon. Returned to Fort Slocum, N. Y., from duty with recruits to Fort Missoula, Mont.

MONCRIEF, W. H., First Lieutenant and Assistant Surgeon. Granted leave of absence for seven days.

WINN, R. N., Captain and Assistant Surgeon. Granted leave of absence for one month with permission to apply for an extension of one month.

WOODRUFF, CHARLES E., Major and Surgeon. Relieved from duty at Plattsburg Barracks, N. Y., and ordered to Fort Wadsworth, N. Y., for duty.

Navy Intelligence:

Official List of Changes in the Medical Corps of the United States Navy for the week ending December 21, 1907:

DELANCY, C. H., Passed Assistant Surgeon. Detached from the naval recruiting station, Chattanooga, Tenn., and ordered to the naval recruiting station, New Orleans, La.

THOMPSON, J. C., Surgeon. Detached from the Chattanooga and ordered to Washington, D. C., to report to the Secretary of the Navy.

HOLCOMB, R. C., Surgeon. Commissioned a surgeon from December 17, 1907.

Hoyt, R. E., Passed Assistant Surgeon. Detached from the naval hospital, Canacao, P. I., and ordered to the Chattanooga.

IDEN, J. H., Passed Assistant Surgeon. Ordered to additional duty with the Cape Cruz Casilda Survey Expedition, with headquarters at Manzanillo, Cuba.

PAGE, J. E., Surgeon. Sick leave extended three months. Ordered to report to the naval recruiting station, Washington, D. C., and ordered to the naval recruiting station, New Orleans, La.

ZALESKY, W. J., Passed Assistant Surgeon. Detached from the naval recruiting station, Memphis, Tenn., and ordered to the naval recruiting station, Chattanooga,

Births, Marriages, and Deaths.

Married.

BELT—GRAY.—In New York, on Wednesday, December 18th, Dr. Henry Belt and Mrs. Ada Gwynn Gray.

DORSEY—SARGENT.—In Malden, Massachusetts, on Tuesday, December 17th, Dr. Frank Dorsey and Miss Maud B. Sargent.

NEILSON—JEFFRIES.—In Wild Rose, Wisconsin, on Monday, December 9th, Dr. W. H. Neilson and Miss Bessie Belle Jeffries.

SAYBOLT—AHERN.—In Hartford, Connecticut, on Thursday, December 5th, Dr. William Frederick Saybolt and Miss Angela Beatrice Aherne.

WILLIAMS—LIVINGSTONE.—In New York, on Saturday, December 14th, Dr. George Herbert Williams, of Fishkill, New York, and Miss Sarah Livingstone.

WILLIAMS—WILEY.—In Gatesville, Georgia, on Friday, December 13th, Dr. George Daniel Williams and Miss Helen Virginia Wiley.

Died.

ANDRE.—In Baltimore, Maryland, on Saturday, December 14th, Dr. J. Ridgway Andre, aged eighty-four years.

BAILEY.—In Bloomfield, New Jersey, on Wednesday, December 18th, Dr. Charles H. Bailey, aged sixty-two years.

BARRETT.—In Prescott, Arizona, on Wednesday, December 11th, Dr. John S. Barrett, aged thirty-seven years.

BAYARD.—In St. John, New Brunswick, Canada, on Wednesday, December 18th, Dr. William Bayard, aged ninety-four years.

BRANNOCK.—In Richmond, Virginia, on Saturday, December 14th, Dr. James Madison Brannock, aged seventy-eight years.

CALDWELL.—In Amsterdam, New York, on Friday, December 20th, Dr. Nathan A. Caldwell, aged fifty-one years.

CLARK.—In St. Louis, Missouri, on Wednesday, December 11th, Dr. Samuel G. Clark, aged eighty-six years.

CODMAN.—In Revere, Massachusetts, on Saturday, December 14th, Dr. John T. Codman, aged eighty-one years.

CRAIG.—In Versailles, Kentucky, on Monday, December 16th, Dr. Irvine Craig, aged fifty years.

DILLON.—In Nashville, Tennessee, on Friday, December 13th, Dr. B. F. Dillon, aged seventy-nine years.

FERGUSON.—In Atlantic City, New Jersey, on Saturday, December 14th, Dr. Farquhar Ferguson, of New York, aged sixty years.

GARLAND.—In Gloucester, Massachusetts, on Tuesday, December 17th, Dr. Joseph E. Garland.

GRAY.—In Jamestown, New York, on Friday, December 13th, Dr. Henry Gray.

GRIMM.—In Cincinnati, Ohio, on Monday, December 16th, Dr. Adolph Grimm, aged forty-nine years.

HOLLINGSWORTH.—In Philadelphia, on Saturday, December 14th, Dr. W. Wharton Hollingsworth, aged fifty-one years.

HOLMES.—In Hartford, Connecticut, on Saturday, December 16th, Dr. George J. Holmes, aged fifty-three years.

HONEYCUTT.—In Glasgow, Kentucky, on Tuesday, December 17th, Dr. J. H. Honeycutt, aged fifty years.

LOOMIS.—In New York, on Sunday, December 22d, Dr. Henry Patterson Loomis, aged forty-eight years.

MCCARTY.—In Louisville, Kentucky, on Sunday, December 15th, Dr. J. Aud McCarty, aged thirty-seven years.

MACKRES.—In Corry, New York, on Monday, December 9th, Dr. H. D. Mackres.

MONROE.—In Parkersburg, West Virginia, on Thursday, December 12th, Dr. Watson W. Monroe.

O'BRIEN.—In Clarksboro, New Jersey, on Monday, December 16th, Dr. Harry Zebulon O'Brien, aged twenty-two years.

PARMLY.—In Atlantic Highlands, New Jersey, on Tuesday, December 17th, Dr. Ehrick J. Parmly, aged seventy-seven years.

STURTEVANT.—In Hiale Park, Massachusetts, on Friday, December 13th, Mrs. Bertha Hadley Sturtevant, aged fifty-nine years.

TABER.—In Richmond, Virginia, on Saturday, December 14th, Dr. George A. Taber, aged fifty-four years.

TURNER.—In New York, on Wednesday, December 18th, Dr. William B. Turner, aged thirty-six years.

WATSON.—In Chester, Pennsylvania, on Sunday, December 8th, Dr. Evelyn J. Watson.

WELLS.—In Schenectady, New York, on Thursday, December 12th, Dr. Wilbur Wells, aged eighty-seven years.

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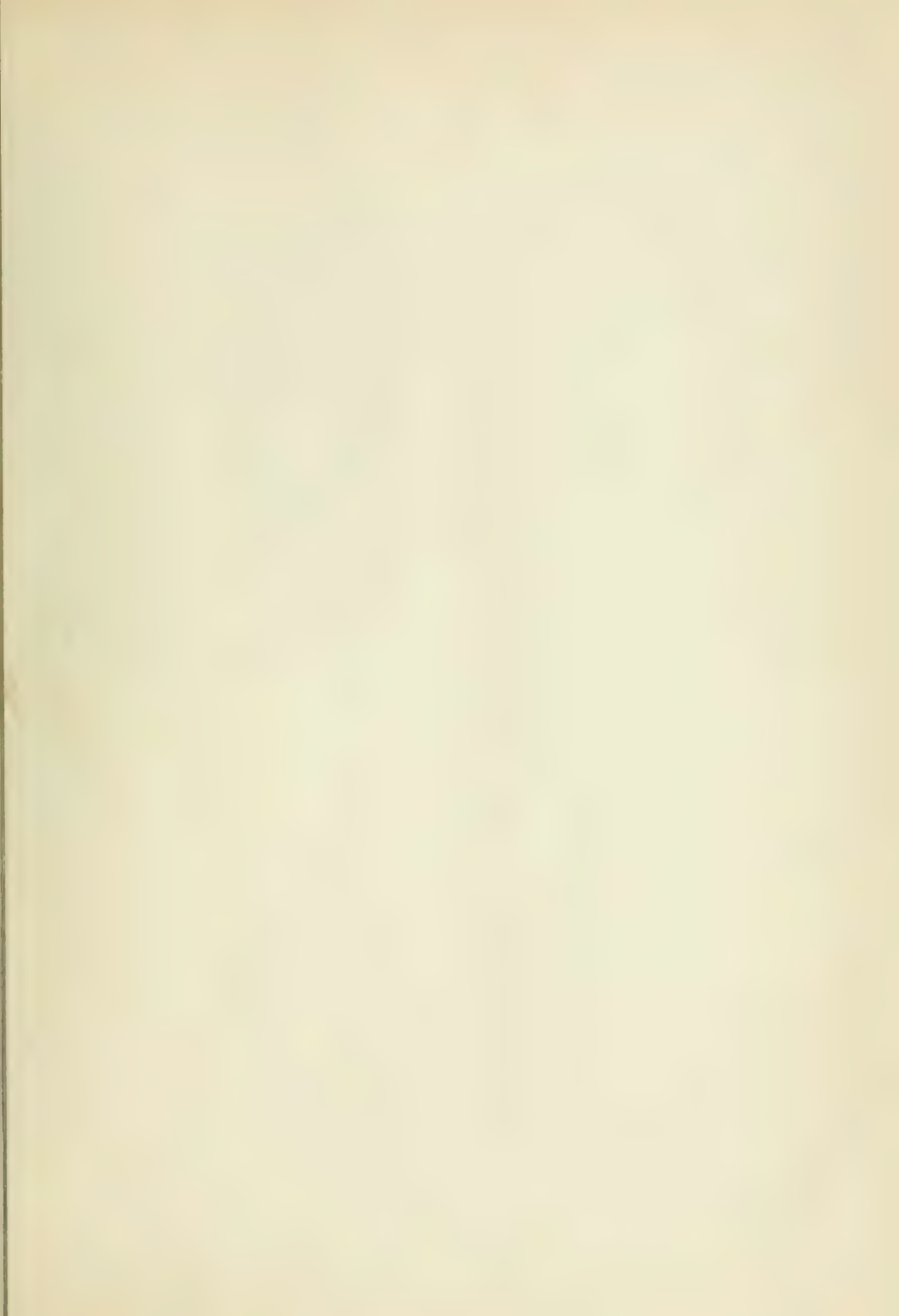
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